In the Name of Allah,
The Compassionate, the Merciful

English Language Department

M.A. Thesis in English Language Teaching

On the Effectiveness of Reader's Theatre on Students' Reading Fluency A Meta-Analysis

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Dedication

To my Grandpa

Acknowledgments

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تعهدنامه

اینجانب گل آی امیری دانشجوی دوره کارشناسی ارشد رشته آموزش زبان انگلیسی دانشگاه صنعتی شاهرود نویسنده پایان نامه **On the Effectiveness of Reader's Theatre on Students' Reading Fluency A Meta-Analysis** تحت راهنمایی دکتر سیدعلی استوار نامقی متعهد می‌شوم:

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تاریخ

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مالکیت نتایج و حق نشر

- کلیه حقوق معنوی این اثر و محصولات آن (مقالات مستخرج، کتاب، برنامه‌های رایانه‌ای، نرم‌افزارها و تجهیزات ساخته شده است) متعلق به دانشگاه صنعتی شاهرود است. این مطلب باید به نحو مقتضی در تولیدات علمی مربوطه ذکر شود.
- استفاده از اطلاعات و نتایج موجود در این رساله بدون ذکر مرجع مجاز نمی‌باشد.

Abstract

A meta-analytic approach was adopted in this study to investigate the effectiveness of reader's theatre (RT) on students' reading fluency. To develop this empirical study, 18 primary RT studies from 2000 to 2018 were included. The study addressed two questions: What is the overall effectiveness of RT? What variables moderate the effectiveness of RT? Eight moderator variables including grade level, reading level, reading aloud, guided reading, feedback, explicit RT instruction, RT intervention period, and publication type were identified. In this review, evidence was found on positive and significant effects of RT on learners' reading fluency (*Hedges' g*=1.05); yet its efficacy was mediated by its various moderators. Findings contribute to a better understanding of using RT technique in EFL and ESL classrooms by addressing teachers, materials developers and policy makers. Future studies can relatively gain access to rich data concerning their research questions by adopting a meta-analysis approach.

Keywords

Readers' theatre (RT), intervention, reading fluency, meta-analysis, effect size

Table of Contents

List of Tables

List of Figures

List of Abbreviations

RT: readers' theatre

RR: repeated reading

WRPM: word read per minute

RD: reading disabilities

TAR: tape assisted reading

CAI: computer assisted instruction

DRA: developmental reading assessment

TPRI: Texas primary reading inventory

PALS: peer assisted literacy strategies

RNSE: read naturally software experimenter

SSR: sustained silent reading

RRRI: regular remedial reading intervention

CARI: computer assisted reading intervention

Chapter One:

Introduction

1.1. Overview

In many EFL contexts including language education in public high schools of Iran, methods and materials focus exclusively on developing EFL learners' reading comprehension. This process, however, yields little fruit since language education expects learners to understand texts which they cannot read fluently. Reading entails decoding language and reconstructing meaning. Fluent readers read more effectively since they decode language automatically and as such they allocate their mental energy to reconstructing meaning. Less fluent readers, on the other hand, need to allocate their mental energy to the act of decoding language and this leaves no mental resources for comprehension. Due to neglecting fluency and automatic word recognition in public high schools, learners find reading comprehension an impenetrable and a challenging task.

This educational ill can be resolved through effective reading fluency interventions such as repeated reading, computer assisted reading, tape-assisted reading and readers' theatre. Although all of these techniques have been found to be effective in developing learners" reading fluency, a much debated question is whether RT is found effective on learners" reading fluency because we believe this technique engages learners both mentally and affectively. In RT, students read the same text severally, and act out whilst reading them. This procedure helps learners to deepen their understanding for the scripts and to achieve automaticity (LaBerge & Samuels, 1974). Automaticity is the ability to read texts accurately and with little effort, which strengthens the ability to focus on meaning (Swain, Leader-Janssen & Conley, 2013). Moreover, RT can increase motivation, creativity, critical thinking, as well as interpersonal and intercultural competencies (Patall, Cawthon, & Steingut, 2015).

RT increases exposure to the target language through practice and engaging RT tasks. . Students become more accurate and expressive as RT activities are enjoyable and motivational, leading to positive changes in their minds toward RT. What is more, in RT, students act out the dialogues before the audience, which helps them to become confident to speak more expressively in different situations (Lin, 2015). Also, pitches and pauses while rehearsing RT scripts strengthen student's comprehension (Knniburg and Shaw, 2007).

RT gives students a purpose to participate in the activities and tasks. In a group, students become eager to use correct pronunciation, intonation, and expression when rehearsing the texts because they feel like having responsibility for what they practice to sound more expressive during the performance (Clark, 2009). Additionally, the practicing process improves student's oral skills (Lin, 2015), and at the same time, can be an opportunity to practice speaking (Huang, 2007).

RT is an opportunity to accommodate students with diverse reading abilities (Tyler & Chard, 2000; Moran, 2006). One student can read different parts of the text based on their reading level and preference, and the other student can read another text appropriate for their reading level (Moran, 2006). What is more, emergent readers and pre-school children will benefit from RT as they read the same text, with the same characters, words, or phrases repeatedly (Moran, 2006). In RT, students can reach a better understanding of the literary texts, which is more positive and constructive (Kabilan & Kamaruddin, 2010).

Many studies have investigated the effect of RT on reading fluency (Mansouri & Heidari, 2016; Young & Nageldinger, 2014; Young & Rasinski, 2009; Young & Rasinski, 2018), and confirmed that RT is an effective instructional method in EFL and ESL contexts; however, there are some inconsistent and inconclusive results among some previous studies. To solve the problem, a meta-analysis will give a better insight into RT's effectiveness, shortcomings, and adequacy in ESL and EFL contexts. Since to date, the meta-analysis of studies done on RT has received scant attention in the research literature; therefore, the field requires meta-analytic studies that synthesize the results of previous studies and test the effect of RT on learner's reading fluency. Due to this, the current study aims at investigating the effectiveness of RT through a meta-analysis study

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1.2. Statement of the Problem

We can improve reading fluency by implementing RT in language learning classrooms. However, there is little evidence to what extent RT would be useful on learner's reading fluency when it is used at different levels or with various intervention periods. For getting more trustable results and wasting less classroom time, we need reliable data to compare and find the best way to use the approach. Although many studies were conducted on RT and its effect on reading fluency, the results are inconclusive. Different studies have come to different outcomes due to limitations, various sample sizes, intervention periods, and other conditions. And, as a result, this can negatively affect the generalizability of the findings.

1.3. Purpose of the Study

The present study aimed to investigate the effect of RT on reading fluency with a meta-analysis procedure. The motive behind this study stems from the researcher's curiosity as a teacher to find out a comprehensive conclusion on the effectiveness of RT and to synthesis previous studies' size effects to determine the overall effect of RT. More specifically, the study is addressing the following questions:

1.3.1. What is the overall effectiveness of RT?

1.3.2. What variables moderate the effectiveness of RT?

1.4. Limitations of the Study

Although this study has a precise design, like any studies, be it quantitative or qualitative, it has its own limitations as well. Accordingly, many of the studies were unavailable to access because of some online databases; therefore, the studies included for the analysis were taken mostly from free open-access databases. However, the biggest problem was that many rich studies were excluded from this meta-analysis study because they were not quantitative. They did not have all the required statistical information, so the number of studies covered may not seem sufficient.

What is more, since meta-analysis studies combine the results of other experimental studies conducted in many different situations, there is a high level of heterogeneity in the sample included in this meta-analysis.

1.5. Delimitations of the Study

One of the salient features of a meta-analysis study is defining a set of precise characteristics, which form a basis for deciding what studies to include and exclude. This meta-analysis covers all the studies that meet the following criteria:

- All the studies chosen on the effectiveness of RT published between 2000 and 2018.
- Only experimental and quasi-experimental studies included in this study.
- Any study which has not provided the statistical information necessary for calculating the effect sizes excluded from the study.
- The study must be interventionist in nature; hence, correlational studies excluded.

Chapter Two:

Review of the Related Literature

2.1. Overview

This chapter presents a review of RT studies in two primary sections: theoretical perspectives and empirical findings. In the first section the theories underlying RT and related frameworks will be discussed. The second section deals with empirical findings which report the effect of reading fluency techniques.

2.2. Theoretical Underpinnings

2.2.1. Reading Fluency

Reading fluency is the ability to read with accuracy, speed, and appropriate expression, characterized by its three components: word recognition accuracy, automaticity, and reading prosody (Rasinski, 2010). Word recognition accuracy refers to the ability to decoding words without error. Automaticity means that the reader can read the words with the least cognitive effort (Samuels, 1979, 1997), and it is usually demonstrated by student's reading rate, estimated by words read per minute (WRPM). Prosody is reading with a good expression suitable to the meaning of a text.

Fluency can be measured by giving an unread text to the student, suitable to their level. The student is given a minute to read aloud as much of the passage as they can in the given time; and in the end, the teacher or the specialist in reading counts the number of words pronounced correctly and assesses the reading rate. The observer divides the total number of words that pronounced correctly from the total number of words in the passage. Then the calculated score is compared with the national average score for that specific grade level, giving a quartile range of the students range in comparison. With weak reading fluency, students could not improve their vocabulary knowledge, and as a result, comprehension and understanding of the texts would be hard to achieve (Kuhn & Stahl, 2003). Knowing this, it is crucial to provide students with oral reading fluency modeling, guided and independent reading practices before assessing their reading fluency level. Despite its importance, such programs can rarely be observed in classrooms.

2.2.2. Techniques of Developing Reading Fluency

Reading fluency is the ability to decoding and understanding a text at the same time (Samuels, 2006), characterized by its three components: word recognition accuracy, automaticity, and reading prosody (Rasinski, 2010).. Automaticity refers to readers' ability to read a text easily, with little or no cognitive effort (Samuels, 1979, 1997). Prosody is reading with good expression suitable to the meaning of the text. Readers need to develop quick and automatic word recognition skills to be fluent readers To prepare and teach learners how to decode and reconstruct meaning, or developing their reading fluency, several techniques, including tape-assisted reading, computer-assisted reading, repeated reading and reader's theatre are being implemented in classrooms.

Tape Assisted Reading (TAR), as well as Computer Assisted Instruction (CAI) are being used in classrooms to help students with reading difficulties. Previous studies have shown the positive effects of such programs on improving reading ability and progress (Esteves & Whitten, 2011; Gibson, Cartledge, & Keyes, 2011; Mathes, Torgesen, & Allor (2001); Saine, Lerkkanen, Ahonen, Tolvanen, & Lyytinen, 2011; Tabrizi & Farokhmanesh, 2013). However, Greaney (2012) made claims on the effectiveness of TAR and CAI and believed that merely listening to recorded readings would be a less effective way for those learners who have minimal decoding skills. He asserts that listening to a recorded text would help learners get access to the meaning of the text, but they are more unlikely to be involved in word decoding strategies.

Samuels (1979) suggested a powerful approach to improve reading fluency called repeated readings (RR). This research-based proven strategy is effective in developing learner's oral reading fluency (Vadasy & Sanders, 2008). In RR method, students read the same text repeatedly, and the texts are suitable for their reading level (Weinston & Cooke, 1992). It is believed that reading the same passage is practical to improve the reading rate and accuracy, which are necessary to improve reading comprehension skill (Samuels, 1979, 1997). This technique was also successful in developing beginner students as well as students with reading

disability (Chafouleas, Martens, Dobson, Weinstein, & Gardner, 2004). Moreover, RR method has shown a large effect on reading prosody (Young, Valadez & Gandara, 2016).

RT is yet another method of improving reading fluency through repeated readings. In RT, students engage in a weekly format. Each day, the goal of practice varies. For example, on the first day, students select their scripts. On the second day, they select their parts and participate in their first rehearsal to pronounce the words correctly. On the fourth day, students focus on expressive reading while rehearsing. Furthermore, on the fifth day, all the groups practice RT performance, and the next day, which is the final day; students perform for an audience (Young, 2013). What is important to consider is that RT technique can be implemented in different ways, yet all of them share the same critical feature to develop reading fluency, known as repeated readings.

RT gives learners an authentic purpose to engage with the text (Tyler & Chard, 2000); it is another type of RR but with purpose and meaning (Worthy & Prater, 2002). We can see that RT immerse learners in a consistent and extensive practice of reading, and, as a result, help students achieve automaticity. Automaticity is a task for practice (Ostovar-Namaghi, 2018), and RT activities can meet this criteria quite well. In RT, students are required to learn about the meaning of the lines or things on the page they are reading; therefore, they must have prior knowledge about the conventions to elicit information. Texts such as narratives and stories are being used for this purpose.

Although reading fluency techniques such as RR and RT were successful in developing learner's oral reading fluency, the RR method could not improve student's motivation in reading. Whereas, RT can incredibly develop motivation and interest of students as it incorporates modeling, repeated readings, independent practice, and assisted reading (Worthy & Broaddus, 2002; Chart, Vaughn & Tyler, 2002; Rinehart, 1999).

2.2.3. Fundamental Theories behind RT

Many arguments in literacy education are influenced by social education constructivist theory of learning. Vygotsky's (1978) theory of learning states that learners create or construct

knowledge rather than simply receiving it from other peers. In a classroom, teacher is not the only power that transmits knowledge to students. He claims that the interactions between students help them construct their way of thinking. Following this, Camborne's (1988) conditions are in line with Vygotsky's (1978) social constructivist theory, which provides a framework to compare RT's attributions to learning theory.

Cambourne (1988, 1995) elaborates eight conditions as the main requirements for learning. These conditions are immersion, demonstration, expectations, responsibility, employment, approximations, response, and engagement. 1) Immersion: students immerse in language and texts of all kinds, 2) Demonstration: students are being exposed to what literacy learning looks like, hence, modeling is a key element of learning, 3) Expectations: learners are expected to achieve, and they receive positive messages, 4) Responsibility: providing opportunities for learners to make decisions based on their own learning, 5) Employment: the need to practice what is being learnt as students gain control over their learning, 6) Approximations: opportunities to try things out, to make mistakes and to identify these mistakes that help them improve, 7) Response: feedback is necessary for improvement and growth, and it should be timely, specific, and convenient

Getting insight from Cambourne's (1988) theory of learning conditions, Mckay (2008) conjoined each of these conditions with aspects of RT, and suggested a pedagogical framework. According to Mckay (2008), students in RT immerse in the process of planning, preparing, and performing. They prepare and present RT, and then have a feeling of success. Students get involved in planning and preparing RT because they feel responsible for the presentation. Moreover, students try out various roles, support each other while practicing, and receive feedback, which helps them improve their reading skill, group working, and interpretations.

Another learning theory supporting RT is Readers Response Theory. This theory claims that the reader is the essential part in reconstructing meaning and literacy growth. There is a relationship between the reader and the text which is not linear. The reader uses their background knowledge to understand the text. What is more, Mckay (2008) states that in RT, readers reconstruct meaning based on their personal experiences, background knowledge, and peer practice.

By reconstructing meaning, students can understand texts better. Reading is an active process, and at the same time, it is a language process. Both readers and writers have language knowledge, and responsible for the meaning-making process. In RT, readers are transacting with the text while interacting with other members and the text is the medium between the reader and the author's transaction. Regardless of learner's age or grade, RT raises the discussion about the text in a meaningful fashion (Mckay, 2008). Moreover, RT increases reading motivation. When students perform the texts, they establish a sense of interest to read other reading materials (Millin & Rinehart, 1999). Regarding student's interaction with RT, Tian and Wu (2012) explained that it may take some time to ease students in RT tasks as students learn to work gradually.

2.2.4. RT and Models of Implementing It

There is no single way to introduce RT in classrooms; therefore, teachers can implement any one of the formats in their classrooms. Mckay (2008) introduced an approach for teachers, who have little or no experience with RT procedures. This format has three steps: modeling, planning for presentation, and presenting and sharing. In modeling, the teacher finds suitable RT scripts or texts and read them aloud to students, so that they understand the story. In planning, students discuss the characters of the story, and choose the roles to practice. Students can change their roles or characters with each others. In the last part, presenting and sharing, students practice, the teacher gives feedback on their practice, and finally students perform for an audience, celebrate, and reflect.

There is another format introduced by Young and Rasinski (2009). It is a five-day format which has worked well in classrooms. This five-day format is implemented on a weekly schedule. On Monday, students are introduced to RT scripts in a mini lesson, which is suitable for their grade level. The activities are reading aloud and using reading strategies such as inferring word meanings, main ideas, or making predictions. On Tuesday, students choose their scripts, go home, and practice their own parts of the script. On Wednesday, any difficulties with word recognition, meaning or prosody will be identified through peer coaching strategies or teacher correction. Struggling readers mimic the features of the more proficient readers. On Thursday, the day before the performance day, students practice one last time as a united group, while

reading accurately and prosodically before the big show. On Friday, which is the "Fluency Friday", students perform for an audience.

As said earlier, there is no absolute way to do RT, but some general guidelines are important. Rinehart (1999) claims that students should be informed about RT's goals and expectations. Moreover, teachers may wish to share the aims and purposes with parents and other teachers. Here are Cooper's (1993) suggestions using as procedural guideline:

- Select what to read. Teacher and student can choose literature together. Interesting literature with dialogue will be helpful.
- Students and teacher should read or reread and discuss the story.
- Develop a script for the story. Children can participate in the process.
- Choose parts.
- Discuss props and special needs. Props should enhance the reading, not detract from it or obscure it.
- Prepare, practice, and rehearse. Readers should practice over time until they become fluent. This practice can also be integrated into other activities. Students may exchange parts as part of this experience if desired. Students should help to assess readiness.
- Perform in front of a class or group. Students should actually read and not recite from memory.
- Discuss how it went and what was accomplished.

2.2.5. The Role of RT in Improving Reading Fluency

RT is a proven strategy that incorporates several instructional forms such as modeling, guided reading, and independent reading, which is based on a well-established method of repeated readings (Mercer, Campbell, Miller, Mercer, & Lane, 2000; Samuels, 1979; Vadasy & Sanders, 2008). In RT, students are not expected to memorize or act out a complete reading. Instead, the focus is on reading fluently with expression and intonation (Worthy & Prater, 2002). Tyler and Chard (2000) believe that there is a natural tendency between RT and reading fluency since students engage in an authentic form of repeated readings while rehearsing. RT requires practice and practice involves repeated readings. Reading the same text repeatedly increases rate,

accuracy, comprehension, and motivation to reread texts (Griffith & Rasinski, 2004; Rinehart, 1999; Worthy & Broaddus, 2002; Worthy & Prater, 2002). Moreover, Keehn, Harmon, and Shoho (2008) claims that in RT the teacher monitors how students read texts, perform, and gives feedback on their expressiveness and phrasing. Therefore, feedback and modeling draw struggling reader's attention to consider how a good reading seems like.

2.3. Empirical Findings

2.3.1. Techniques of Developing Reading Fluency

Saine, et al (2011) investigated whether a computer application designed for remedial training can enhance letter knowledge, reading accuracy, fluency and spelling of at-risk children. The participants were 166 beginners who were assigned to one to three groups. The groups were regular remedial reading intervention, computer-assessed reading intervention, and mainstream reading instruction. The experimental groups were trained by the same remedial reading specialist. All of the students received phonic-based reading instruction in their classrooms. In the RRI group, each 45-min remedial intervention period divided into four segments a) pre-reading activities, linking reading, spelling, and phonology; b) activities of word segmentation, for example, identification of sounds within words; c) activities of decoding and spelling; d) vocabulary training by using improvisation cards, mimicry. The CARRI group used the same phonics-based remedial reading package, and the RRI group used Grapho Game application during the first segment instead of pre-reading activities. The Grapho Game computer assisted intervention has been specially developed for children with learning disabilities, or at-risk for dyslexia and programmed to support the individual rate of acquisition by adapting task difficulty to the level of personal achievement, in which the ultimate aim is an automatic connection between the auditory and orthographic stimulus and participants who make progress are assigned new, more complicated tasks. The results showed that children in CARRI group, and children at-risk in RRI group made significant gains, but to lesser extent than the computer-assisted group; more specifically, the overall gains in the computer-assisted intervention were significant, not only in letter-knowledge, decoding and accuracy, but also in fluency and spelling.

In another study, Esteves and Whitten (2011) conducted a study to compare the effect of assisted reading with digital audio books, and the traditional practice of sustained silent reading (SSR) in terms of reading fluency and reading attitude. Participants were 20 upper elementary students with reading disabilities. In the experimental group, students participated in an eight-week intervention for three or four times a week. The audio books were children's literature texts and students were given MP3 players with downloaded audio files, and the accompanying text to follow along while listening during the time devoted to SSR. The results revealed that while all students demonstrated growth in reading fluency as calculated by words read correctly per minute, the growth in the treatment group outweighed the control group and there was no difference on reading attitude between experimental and control group.

Gibson et al (2011) investigated the effect of a computerized supplemental reading program on the oral reading fluency, reading growth rates, and comprehension of first graders. In the study, eight students participated in a supplemental, computer-based reading program designed to improve reading fluency and comprehension, including the following sequence: keywords, one-min cold reading, read along, practice reading, comprehension test, and reading checkout. This computer-assisted reading program guides the user through a sequence of activities for selected stories in line with the readers individual pace and grade level. Pretests and posttests were given to determine the effects of Read Naturally Software experimenter (RNSE), which is a computerized reading program. According to the results, all of the participants improved their reading fluency, five of the eight participants reduced their risk status and seven of the eight students increased their reading rate. All the students improved their reading comprehension scores. It could be argued that supplementary interventions and computer-based reading programs can be used in classrooms. However, the student's progress was a function of maturation and regular classroom instruction rather than the intervention.

CAI technique seems to be effective to improve learner's vocabulary knowledge. Tabrizi and Farokhmanesh (2013) investigated the effect of assisted reading on improving vocabulary knowledge of the Iranian EFL learners. In this classroom-based study, 62 pre-TOEFL students in the reading comprehension class assigned into control and experimental groups. The normal procedure of the reading classes was a series of pre-reading, during-reading, and post- reading

practices, and the experimental group received assisted reading treatment including tape-reading, reading aloud, and repeated reading. The results showed that both groups had significant vocabulary gains in the posttests compared to their pretest, and there were no outperformance of the experimental over the control group.

CAI has been examined whether it can affect learner's phonological awareness. Mathes et al (2001) investigated the effect of peer-assisted literacy strategies (PALS) with and without computer-assisted instruction (CAI) in phonological awareness. Participants were 183 first-grade students (118 low, 33 averages, and 33 high-achieving). The study conducted for 35-min sessions, three times per week which lasted for 16 weeks. The sessions were supplemental rather than a replacement of the pre-existing reading program. Students practiced in pairs, stronger and weaker readers, worked together to earn points for completing each first-grade PALS activity. The first 15 minutes of each session was dedicated to sounds, focusing on developing word recognition ability. After sounds and words activity, the pairs immediately manipulated story sharing for the remaining 15 minutes, and the associated activities in story sharing were reading aloud and retelling. The results indicated that first-grade PALS enhanced students' reading performance in terms of both statistical significance and educational relevance, yet it was not equivalent for all the users.

Ostovar-Namaghi, Hosseini, and Norouzi (2015) explored reading fluency techniques from the bottom-up approach in line with grounded theory. In the study, they interviewed with many experienced teachers. Due to purposive sampling, the number of participants was not fixed. Participants were selected from different private institutions in Behshahr, Iran. Analysis revealed that the participants used six different techniques to improve their students' reading fluency: a) repeated listening, b) teaching challenging words and phrases, c) choral and individual repetition, d) repeated reading, e) singing songs, f) pair and group work. According to the results, what teachers practice in their classrooms based on their experiential knowledge can definitely help students in improving learners' reading fluency.

Many researchers took RR into consideration, and did some experimental studies, in particular on students with reading disabilities (Therrien & Hughes, 2008; White & Swanson, 2007). For instance, O'Conner and Swanson (2007) investigated the effect of repeated reading

versus continuous reading on learner's reading fluency and comprehension. 37 students (17 poor readers and 20 readers without reading disabilities) participated in the study. Students in the reading group practiced reading a loud under repeated or continuous reading conditions with an adult listener in 15-min sessions, 3 days a week, in 14 weeks. Students were randomly assigned either to fluency practice groups or control group. The results revealed that students in all four groups improved in overall performance level; whereas there were no differences in reading rate between average and poor readers.

Lee and Yoon (2015) conducted a meta-analysis study to see the effect of RR on student's reading fluency with reading disabilities (RD). The purpose was to provide instructional strategies for students with RD. 34 RR intervention studies from 1990 to 2014 for students with RD in k-12 were analyzed. The estimated overall *Hedge's g* of the 39 independent effect sizes showed the positive effect of RR on reading fluency for students with RD. Moreover, it is suggested that using RR in combination with a listening passage would be the most effective way to implement in classrooms.

2.3.2. The Effect of RT on Reading Fluency

RT has effect on learner's reading fluency, no matter what their reading level is (Rasinski, 2003; Griffith & Rasinski, 2004; Young & Rasinski, 2009; Clark, Morrison & Wilcox, 2009; Young & Nadelginger, 2014). Keehn (2003) investigated the effect of RT on second-grade students with different reading abilities to know whether explicit instruction is useful for primary students. 66 students in Texas participated in 9 weeks RT intervention. The findings revealed that there were no differences between RT students, and students who were taught RT with explicit instruction. However, lower students increased in rate, retelling, and expressiveness and higher students gained more reading ability.

RT can develop struggling learner's reading fluency by improving their reading comprehension. In a study, Keehn et al (2008) investigated the effect of RT on 8th graders" reading level, the prosodic aspects of fluency (phrasing, fluidity, and expression) in students' oral reading, reading comprehension, and vocabulary learning. Over a six-week of short story unit,

one class participated in RT (36= n). The comparison group was taught using more traditional literacy and vocabulary instruction. In the intervention classroom the teacher followed a weekly RT plan. The teacher first administered the vocabulary pretest, and students responded to a journal prompt based on the theme of the short story. After that, the teacher read the short story, using expression, and the students followed her along. During this initial oral reading, the teacher paused at each targeted vocabulary to explain and elaborate its meaning. Students read the scripts independently or in pairs. Students practiced in groups, and each group had an adult facilitator to issue modeling, coaching, and observing. Finally, students performed on Friday. The results showed that RT class doubled in vocabulary acquisition compared to the comparison group, and RT improved struggling adolescent readers' reading motivation and confidence.

Although there are many RT studies on reading fluency, few studies have investigated the process of reading fluency development for students, exposing to RT procedure. Clark et al (2009) conducted a case study to examine the process of fluency development of students with various reading abilities. In this study, the participants were three 4^{th} grade students. The students participated in eight weeks RT intervention for fluency instruction and practice. They were selected based on the number of words they could read correctly per minute (WCPM). According to the results, students progressed in pace and expression/volume, and their motivation and confidence to perform RT increased.

Young and Rasinski (2009) investigated the effect of RT to improve reading fluency and overall reading achievement among primary level students. In this action study, 29 monolingual 2nd grade students in Dallas participated in a school year practice. The study began on the second week of school and continued until the final week of the year. District and State assessments such as the *Developmental Reading Assessment* (DRA), measuring student's independent reading level and *Texas Primary Reading Inventory* (TPRI), measuring automaticity and prosody, used to measure the reading growth of each student. Furthermore, students were given pre and posttest to measure automaticity and prosody on a grade level passage. According to the results, RT created a positive experience, motivational effect, and growth in reading fluency, expressive reading, prosody, word recognition and rate

In another study; however, Tsou (2011) raised controversies over the effect of RT on

learner's reading and writing performance, believing that RT could help develop reading and writing proficiency by incorporating activities such as peer interactions or preparing students for a meaningful reading and writing performances, but RT is not the sole and ultimate solution. Students need to have comprehension skills such as predicting, making inferences, and having background knowledge. Tsou (2011) investigated the effect of RT on young EFL student's English reading and writing proficiency, and their learning motivation. In this quasi- experimental study, treatment group divided into two subgroups: RT reading script and RT writing script. Students were from two 5th-grade classes, and their English proficiency level ranged from beginners to pre-intermediate. RT scripts were created from the school textbooks as the content of their study. The control group used the original stories in class, while the RT group practiced with RT scripts modified based on the stories.

In the reading group the teacher presented the new materials and topics to activate students' prior knowledge by pre-teaching the new vocabulary or grammar, as well as reading the content with students several times. For writing group, the teacher generally presented the story, discussed the organization and word usage, and then asked students to rewrite the story. The results showed that RT has a significant effect on EFL children's reading proficiency, writing proficiency, and learning motivation. However, RT's effect on fluency and accuracy was more significant than on reading comprehension. For the writing results, RT group outperformed the control group (direct writing) in terms of word count and vocabulary. The study suggests that with the addition of a writing aim (performing) and readers (the audience), as well as collaborative writing experiences, students' language knowledge expanded significantly

RT can be taught in reading classrooms to improve student's literacy. Isa, Luen, Sewestian and Omar (2013) conducted a study to identify the effect of RT on kindergarten children's comprehension and fluency skills. 50 kindergarten children participated in a six-week study. Students from school A selected for the treatment group, and students from school B for the control group. During the intervention, students were introduced to different reading activities such as reading a loud, choral reading, reading robins, and paired reading. Pre and posttests were given to evaluate students' fluency and comprehension levels. The results showed that RT instruction is useful to develop fluency skills and literacy; however, this technique alone could not improve kindergarten children's reading comprehension.

Additionally, some positive experiences have been achieved by using RT for students with reading disabilities. Corcoran and Davis (2005) assessed the effectiveness of RT in a fluency program for students with learning disabilities (exceptional education classroom). The purpose of the study was to provide opportunities for low-achieving students to practice and perform RT. In this experimental study, 12 second and third grade students in Miami participated in eight weeks RT intervention. Students placed in three RT groups of four, based on their reading ability. Each group acted three different plays. Students imitated the researcher reading aloud, comparing and contrasting examples of fluent and non-fluent reading to become more fluent and sound better in RT. The results showed that RT improved students' interest, confidence and overall fluency.

In RT, students are exposed to texts with different topics, which helps improve vocabulary knowledge (Stahl & Fairbanks, 1986). Mansouri and Heidari (2016) conducted a study to investigate the effect of RT on Iranian EFL learner's oral proficiency and lexical knowledge. 60 intermediate students participated in RT intervention for one semester. The teacher administered a pretest interview, which was a vocabulary knowledge test to measure student's prior vocabulary knowledge. In collaboration with the classroom teacher, the researcher selected seven short stories from the *Family and Friends* book 2 to serve as RT scripts. At the end, participants in experimental and control groups took a posttest interview, re-doing the vocabulary knowledge test. According to the results, student's lexical knowledge, fluency, and complexity improved, and they were likely to use more complex and fluent language in a real time communication.

Young and Rasinski (2017) investigated the effect of RT on word recognition, automaticity and reading prosody. 70 second-graders participated in the study (29 students in treatment group and 41 in the comparison group). The comparison and treatment groups were taught by the same teacher over the consecutive years. The comparison group did not receive RT treatment while the treatment group did participate in RT intervention. There was no such instructional difference between the comparison and the treatment groups; however, the only planned instructional difference occurred during the first 15 minutes of the school day. Using a five-day format, students engaged in a weekly RT rehearsals and performances. According to the analysis, the RT group made more progress than did the comparison group. For prosody, the

effects in the treatment group were almost double the effects of the comparison group. The study also reinforced the notion that a balanced literacy approach indeed enhances aspects of reading fluency.

As RT provides a meaningful situation through collaboration and peer practice, it could enhance learner's comprehension (Griffith & Rasinski, 2004; Worthy & Broaddus, 2002). Kabilan and Kammaruddin (2010) conducted a study to understand whether RT can enhance learner's comprehension, and motivation to learn literature. 20 students with average to good reading level in Malaysia participated in the study for six months. At the first stage, students were given literary texts with no other particular instruction. The aim of the study was finding out the learner's views about learning literature before experiencing RT. The second stage done through four phases: a) abstract conceptualization, students practiced scripts and the teacher participated as a facilitator to help learners when they struggled in reading, writing, or editing the scripts b) active experimentation: students performed, and the teacher provided input and comments for their rehearsal c) concrete experience: students' actual RT performance was staged and videotaped for further discussion and analysis d) reflective observation: personal and peer evaluation to analyze or critique, and comment on other pairs' interpretations of the texts. Findings showed that RT increased learners" interest, motivation, and comprehension significantly.

RT activities increase the interaction among students to complete the tasks, improving students' motivation (Martinez, Roser & Strecker, 1998; Rinehardt, 1999; Guthrie & Wigfield, 2000). Tian and Wu (2012) studied the effect of RT on EFL learner's interaction and perception. Thirty five junior students in Taiwan participated in 15 weeks RT intervention. In the first week, students were introduced to RT scripts and group reading practice. They also watched videos of RT performance. From the second week, students read and performed oral reading in groups. Each session began with the teacher talking about the plot of stories, and modeling oral interpretation. Moreover, the teacher led the students to think about the character's feelings with their reading. According to the results, students gained a more positive outlook on learning English, improved in pronunciation, and reading fluency. Students with poor proficiency and motivation also improved significantly.

In the same vein, Lin (2015) studied the effect of RT on elementary school student's reading fluency. 32 six-grade students in Taiwan participated in RT training to get ready for an RT show. The training days continued for 45 days. Students divided into five groups and they were taught by one English teacher and ten teaching assistants. Students were given pretests, asked to summarize the scripts, and read together. After reading in turns, students assigned to different roles based on their scripts. After 44 days, each group performed their RTs and at the end, students wrote down their ideas about RT, and took posttests. According to the results, teachers found that using RT to teach reading is helpful and motivational. Additionally, cooperation among students developed through group working.

2.4. Summary of Empirical Findings and Statement of the Gap

Reading fluency techniques such as tape assisted reading (TAR), computer assisted instruction (CAI), repeated reading (RR), and reader's theatre (RT) seem to be effective to develop learner's reading fluency. TAR and CAI reading fluency approaches were useful in improving learner's ability in decoding, accuracy, fluency, and spelling (Saine et al. 2011), and developing learner's vocabulary knowledge (Tabrizi & Farokhmanesh, 2013). Although TAR and CAI were successful in developing learner's reading fluency, they did have almost no impact on learner's reading attitude (Esteves & Whitten, 2011), or learner's phonological awareness (Mathes et al. 2001). Furthermore, Gibson et al. (2011) reported that TAR and CAIcan be useful to improve reading fluency, but the student's progress can also be a function of maturation and regular classroom practice not the intervention. Results also proved that RR students can significantly improve in reading rate and accuracy (Therrien & Hughes, 2008; White & Swanson, 2007). However O' Conner and Swanson (2007) reported that although RR improved students' overall performance, it has no significant effect on reading rate.

Considering the effects of RT, students improved significantly in reading fluency and reading motivation. RT increases learners' fluency and motivation regardless of their age, whether they are children, adolescents, or adults. Using RT intervention, poor readers' reading fluency enhanced greatly (Keehn et al, 2008). Additionally, in RT all students gained in reading fluency,

even their reading level is different in the same group (Keehn, 2003; Clark et al, 2009; Young & Rasinski, 2009; Isa et al, 2013), or they were students with reading disabilities (Corcoran & Davis, 2005). It has been indicated that RT also increases students' lexical knowledge (Mansouri & Heidari, 2016). RT increases student's motivation as they understand the purpose of reading (Liu, 2000; Kabilan and Kammaruddin, 2010; Tian & Wu, 2012; Lin, 2015; Srimalee & Charubusp, 2018).

As the review visibly indicates, the results of empirical studies which aimed at testing the effect of RT on reading fluency is inconclusive and as such they shed little light on materials and methods of fluency development. Therefore, RT is in need of a rigorous meta-analysis which not only synthesizes the previous empirical findings but also shed some light on practice by presenting the reader interested in the effectiveness of RT with an overall effect size, and examining the mitigating variables.

Table 2.1. Summary of RT studies between 2000 -2018

Researcher	**participants**	**Research Q**	**Results**
P. Srimalee,; S. Charubusp(2018)	38 freshman students in Taiwan	the effect of RT in Extensive reading to enhance motivation	Increase in Ss intrinsic motivation as they realized the importance of reading; extrinsic motivation as their reading recognition increased as well as interestin reading.
R. Clark,; T.G Morrison,; B. Wilcox (2009)	3 4^{th} grade inter-mountain Students-case study	examining the process of fluency development of Ss with various reading abilities	Ss progressed in pace and expression/volume and increase in their motivation and confidence using RT

S. G Karabag (2015)	72 11th grade Ss in Turkey	Secondary school Ss opinions about RT	Ss found RT useful in many aspects and effective on their reading and obtaining historical information; they liked most the cooperation between peers and acting; a few had difficulty in following scripts.
S. Keehn (2003)	66 2nd grade Ss in Texas	The effect and impact of RT on 2nd-grade Ss with different reading ability; the benefit of instruction in addressing fluency in the primary class.	No difference between RT and RT plus explicit instruction of fluency groups. Lower Ss increased in rate, retelling, and expressiveness; Higher Ss reading ability increased more.
S. Keehn,; J. Harmon,; A. Shoho (2008)	36 8th Ss in Texas	The effect of RT on 8th-grade Ss reading level (struggling), fluency, Reading comprehension, vocabulary learning; how Ss respond to RT?	The RT class doubled in vocabulary acquisition of the comparison group; RT motivated struggling adolescent readers and increased their reading confidence
Y. F Lin (2015)	32 6th grade in Taiwan	The effect of RT on elementary school Ss.	Ts were able to utilize RT in teaching reading; Ss became motivated and interested in learning English; the T could foster their cooperative learning through group work

Z. M. Isa; L. Ch. Luen; A. V. Sewes (2013)	50 kindergarten children in Malaysia	To identify the level of comprehension and fluency skills of kindergarten children and the effect of RT on these two objectives.	RT instruction is beneficial for fluency skills and recommended as part of literacy enhancement.

C. Young,; T. Rasinski (2009)	29 2nd grade monolingual Ss in Dallas	Effects of Readers Theater to improve fluency and overall reading achievement among primary grade students.	It had a positive and motivational effect; growth in reading fluency, expressive reading, prosody, word recognition, and rate; engagement of struggling readers and overall enthusiasm of all the Ss.
C. Young,; T. Rasinski (2017)	70 2nd grade Ss	Effects of RT on word recognition automaticity and reading prosody	The post hoc analysis of simple effects indicated that RT treatment yielded larger effects on word recognition and prosody.
J. Liu (2000)	14 Ss in intermediate writing class in a U.S university	The effect of RT on Ss writing.	RT improves language skills, encourages peer collaboration, enlivens classroom atmosphere, and increases motivation.

Mei Hua Hsu (2011)	3 Ts at a elementary school in Taiwan	Can RT be integrated in an ELT classroom? The best timing of RT? The most suitable procedures of conducting RT in a regular ELT class?	RT is applicable esp. for less-proficient Ss; superior effect if the T and Ss have prior practice; best procedures: pre-teaching, role modeling, grouping, performance, evaluation, post RT tasks.
W. Tsou (2011)	60 5th grade Ss in Southern Taiwan	The effectiveness of RT in promoting Eng as a foreign L children's reading and writing proficiency; analyzing Ss motivation & feedback toward RT.	RT g outperformed in reading accuracy & fluency but not in reading comprehension; in writing, significant differences in many aspects except for sentence structure; Ss interaction, cooperation, enjoying.

C. A Corcoran; A. D Davis (2013)	12 mixed 2nd and 3rd grade Ss in Miami, USA.	To assess the effectiveness of RT fluency program on Ss with learning disabilities (exceptional education classroom).	RT is effective in improving Ss interest, confidence in reading and Ss overall fluency in number of words read correctly per minute.
S. P Tian; N. T. Wu (2012)	35 Junior high school Ss in Taiwan	To investigate Taiwanese EFL Ss' interaction in RT activities and their perception of using RT in English learning.	A more positive outlook on Eng learning, improvement in pronunciation and reading fluency, and a better relationship with peers; effect on Ss with poor proficiency and motivation.

M. K. Kabilan; F. Kammaruddin (2010)	20 premier school students in Malaysia	If RT is able to enhance learners' understanding of the literary text and increase learners' interest and motivation to learn literature.	RT significantly increased learners' interest, motivation and understanding of literature texts.
S. Mansouri; L. Heidari (2016)	60 pre-intermediate Ss in Iran	The effect of RT on oral proficiency and lexical knowledge of Iranian EFL learners.	Improvement in lexical knowledge, fluency, and complexity; according to the results extension on Ss' active knowledge for real time communication and providing language which is more complex and fluent.

Chapter Three:

Methodology

3.1. Overview

This chapter presents the methodology of the study by introducing the philosophy of meta-analysis and the steps employed to determine the effectiveness of RT approach on students' reading fluency. Therefore, what follows presents the philosophy of meta-analysis, sampling procedure and materials, data collection, reliability of the study, data analysis and publication bias evaluation.

3.2. The Philosophy of Meta-Analysis

Meta-analysis is a type of "systematic review" (Rhodes, 2012, p. 25). Ellis (2015) states that a meta-analysis uses quantitative procedures to statistically combine the results of primary studies to provide a precise estimate of the population effect of an individual construct. In other words, a meta-analysis is the analysis of other analyses (Little, Cororan, & Pillai, 2008; Petticrew & Roberts, 2006). The methodology of a meta-analysis is, therefore, similar to that of an empirical study. The research topic is defined, research questions are developed, data is collected (i.e., quantitative data from the primary studies), the analysis method is made explicit, results are reported and discussed, and conclusions are reached.

According to Cooper and Hedges (2009) a meta-analysis consists of six phases: 1) Problem Formulation: start with the broadly defined problem area; 2) Literature search: carry out a literature search and identify the set of studies to be analyzed; 3) Data Evaluation: meta-analysis typically aims to be inconclusive categories to classify or code the primary studies and aggregation of all effect sizes to obtain an estimate of the population effect, followed by moderator analysis. 4) The meta-analysts presented the results of the primary moderator variables without interpretative comments; 5) Interpretation of Results; 6) Public Presentation.

3.3. Sampling Procedure

The participants of this meta-analysis are the empirical studies participants that provided sufficient information about the effects of RT. In-depth searches carried out to find the most relevant articles. Scholarly works identified through different search engines such as Google Scholar and related thesis databases. Besides, Science Direct, Proquest, Elsevier, and Eric online databases scanned. Journals, master theses, doctoral dissertations, seminars, and books gathered from these various online open-access databases, and references of the identified articles inspected in order to conduct the meta-analysis study. The main reason for the inclusion of dissertations is to arrive at a comprehensive sample of studies addressing the domain of interest and to nullify the probability of publication bias. Located online search keywords to identify articles were RT, reading fluency, repeated reading, reading motivation, reading disabilities, and learning disabilities. I have also examined references of the identified articles. There were quite a few relevant studies, and many of the identified articles were review papers or individual classroom research. Moreover, a primary search for relevant studies resulted in about 70 papers.

3.3.1. Inclusion Criteria

The criteria stipulated for the inclusion of the studies for the current meta-analysis were as follows:

1. The dependent variable in this meta-analysis is reading fluency.
2. Studies should have used an experimental or quasi-experimental design that included control group or comparison group. In particular, the study had to contrast at least two groups: a treatment group (RT group) and a control or a comparison group (without RT intervention).
3. Studies should have statistical or descriptive data.
4. Studies should be published in either thesis or paper forms.
5. To provide the most recent articles, only papers between 2000 and 2018 included and papers before 2000 excluded.
6. The study had to be reported in English.

3.3.2. Exclusion Criteria

1. The study was a literature review, synthesis, and meta-analysis studies.
2. Studies did not provide sufficient statistics for calculation of effect sizes and, or the study had employed a qualitative method.

Afterward, the research papers are subjected to detailed examination to determine their eligibility in the meta-analysis and categorized according to the data they include. Then the research abstracts were reviewed. Upon reviewing the abstracts, a total of 18 studies included according to the criteria stated above. To see a more tangible view of the studies as the participants of this study and their documentation type, see table 3.1.

Table 3.1. Studies as participants of the study

Author	Type of Documentation
1. Young, and Rasinski (2017)	Journal
2. Marshall (2017)	Dissertation
3. Black (2016)	Dissertation
4. Fry (2010)	Dissertation
5. Keehn (2003)	Journal
6. Keehn, Harmon, and Shoho (2008)	Journal
7. Mansouri and Heidari (2016)	Journal
8. Tsou (2011)	Journal
9. Isa, Luen, Sewestian, and Omar(2013)	Journal
10. Jenkins (2014)	Journal
11. Grant (2018)	Journal
12. Bagley (2014)	Dissertation
13. Morris (2013)	Dissertation
14. Smith (2011)	Dissertation
15. Boroujerdi Moghadam and Haghverdi (2016)	Journal
16. Sabry and Helwa (2014)	Journal
17. Poro (2014)	Dissertation
18. Lewis and Feng (2014)	Journal

3.3.3. Data Coding

Two researchers developed a coding scheme to code critical characteristics of the primary studies including 1) research design, includes the type of research, pre and posttest outcomes, 2) possible combined intervention variables with RT treatment such as different levels of reading ability, expressiveness, comprehension or prosody, 3) demographic variables such as student's grade, age, gender, setting, and 4) documentation type, for example, journal or dissertation. Following the suggestions of Lipsey and Wilson (2001), these components could explain the variation in effect sizes among the included studies.

The primary effect size chosen for this study was *Hedges' g*, standard mean difference, between the pre and post-test outcomes on treatment. Concerning the small sample sizes of almost all studies of RT, *Hedges' g* was more suitable as, unlike *Cohen's d*; it does not overestimate the population effect sizes (Borenstein, 2009). To ensure coding reliability, the studies coded multiple times, and when an inconsistency occurred, the coders resolved the inconsistency through discussion to clarify the consensus of the initial criteria. Furthermore, some of the studies chosen to code randomly, and they were given to an outside coder. The overall interrater agreement was 94%.

3.3.4. Data Analysis

The study calculates the effect size of each prior study using comprehensive meta-analysis (CMA) software (Borenstein et al. 2005). Effect sizes were calculated using the means, standard deviations, and sample sizes of the treatment and control groups in each study. Moreover, if, the studies lacked standard deviations, *t* values were used to calculate an estimate of *Hedges' g.* Then, the main effect size calculated to see whether RT has a positive effect or not. There are two models for calculating the main effect size: random-effects model or fixed-effects model. For our purpose, the random-effects model was adopted, owing to the assumption that the actual effect size varies across studies. In other words, the extent of the effect of a given treatment could be different from study to study in terms of variations in the participant's age, gender, the setting,

and the like (Borenstein, et al, 2011). To calculate the effect size, only a single effect size used per construct for each study than several effect sizes in order to avoid violation of the statistical analysis assumptions (Lipsey & Wilson, 2001).

Once the overall effect size of RT calculated, the heterogeneity across effect sizes checked using *Q* statistics, which estimates the existing variability across effect sizes, so that not to be more immense than assumed sampling error (Lipsey & Wilson, 2001). The significant Q statistic could show that the effect sizes are not homogeneous; hence, heterogeneity is most likely to happen due to variations in the type of intervention, outcome measure, and participants across the studies. Refuting the null hypothesis of homogeneity ensures the test for moderator effects, which serves to identify potential variables that may lower the effects of RT. To show the exact amount of the statistical heterogeneity significance, in addition to Q statistic and p-value, T^2 and I^2 statistics also computed. T^2 is the amount of true heterogeneity, and I^2 gives a confidence interval for the observed dispersion (Borenstein et al, 2011).

3.3.5. Moderator Analysis (Sub-group Analysis)

Sub-group analysis is done to understand better the effect of RT on student's reading fluency and to study the issue in detail according to different sub-groups and moderator variables. Moderator is usually regarded as the source of variation between the mean effects sizes of the study variables, and it may have an effect on the result of a meta-analysis study. Therefore, determining the effect of this level statistically between sub-groups and the average effect sizes of variables is required. In the present study, eight variables selected as the moderators to estimate the extent to which these variables account for the variance in the effects of RT on reading fluency. The variables are grade level, reading level, reading aloud, guided reading, feedback, explicit RT instruction, RT intervention period, and publication type.

3.3.6. Publication Bias Evaluation

Publication bias is a type of bias that occurs in published academic research. It occurs when the results of research studies influence the decision of whether to publish or distribute it. Publishing

only results that show a significant finding disturbs the balance of findings and inserts bias in favor of positive results. As publication bias is an essential issue in meta-analysis studies, defining and evaluating it is a crucial step to validate a meta-analysis study. For publication bias of this study, different questions like whether there is publication bias in this study and if yes, does the publication bias affect on the value of the primary effect size? Moreover, to what extent is the effect size due to publication bias? In the present study, such different methods as Funnel Scatter Plot and Rosenthal and Orwin's Fail-Safe N test used to evaluate the publication bias.

3.3.7. Fnnel Scatter Plot

A funnel Scatter Plot is a graph designed to check for the existence of publication bias. Funnel plots are commonly used in systematic reviews and meta-analyses. Each dot on the funnel plot represents a study; the Y axis represents study precision e.g. standard error, and the X axis shows the study's result or effect size values. In the absence of publication bias, it is assumed that studies with high precision will be plotted near the average, and studies with low precision will be spread evenly on both sides of the average, creating roughly funnel-shaped distribution. Deviation from this shape can indicate publication bias. In this study, this method is used to see whether there is a publication bias in research over the effect of RT or not.

3.3.8. Trim and Fill Method

The trim and fill method aims to identify and correct for arising funnel plot asymmetry from publication bias (Duval & Tweedie, 2000a, 2000b). This method is used to a) trim or remove the small studies which are causing funnel plot asymmetry, b) using the trimmed plot to evaluate the true centre of the funnel, c) replacing the missing studies around the centre (filling), and finally an adjusted intervention effect is derived by performing a meta-analysis including the filled studies.

Chapter Four:

Results

4.1. Individual and Main Effect Size Analyses

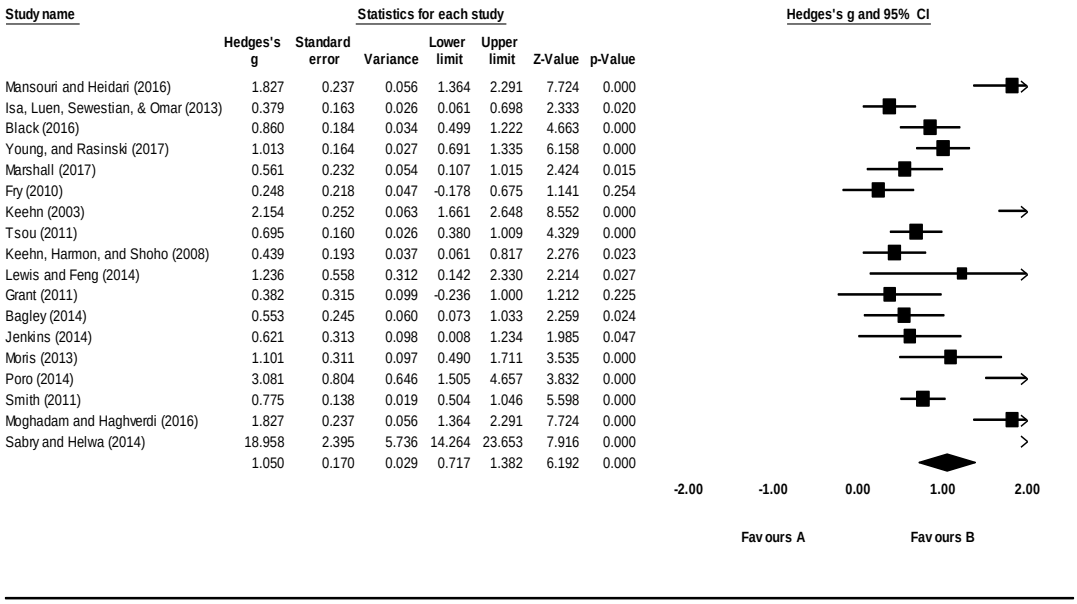
Based on a sample of 18 studies, the 18 independent *Hedges' g* effect sizes showed wide variations in 95% confidence levels. This is clearly presented using the forest plot. The homogeneity test, Q (17) = 165.508, p <0.001, shows a significant heterogeneity across the effect sizes of the studies. Under the random effects, believing that all the studies were not conducted under the same conditions, the estimated overall average *Hedges' g* for the RT effect was 1.05 with a 95% confidence between 0.717 and 1.389, which is a large effect. The I^2 statistic of 89.06, suggesting a large proportion of the observed heterogeneity, was due to systematic differences between studies rather than being a random error. Thus, it justifies the subsequent analysis of moderator variables to explain the variation in the observed effect sizes.

Table 4.1. Fixed and random effect model statistics

		Effect size and 95% confidence interval					**Test of null (2-tail**			**Heterogeneity**		
Model	number studies	Point Estimate	Standar Error	Varianc	Lower Limit	Upper Limit	Z Value	P Value	Q Value	Df(Q)	P Value	I Squared
Fixed	18	0.88	0.05	0.003	0.78	0.98	17.24	0.000	165.50	17	0.000	89.12
Random	18	1.05	016	0.028	0.76	1.42	6.55	0.000				

A forest plot based on 18 studies distributed in figure 4.1. The 18 independent *Hedges' g* effect sizes showed wide variations in 95% confidence intervals as presented in the forest plot. The homogeneity test, Q (17) = 165.508, p <0.001, shows a significant heterogeneity across the effect sizes of studies. Under the random effects, believing that all the studies is not conducted under the same condition, the estimated overall average *Hedges' g* for RT's effect was 1.05 (z = 6.19, p < 0.001) with a 95% confidence interval between 0.717 and 1.389, which is an evidence of a large effect. The I^2 statistic of 89.06 suggests that a large proportion of the observed heterogeneity was due to systematic differences between studies, not a random error. As a result, subsequent moderator analyses to explain the variation in the observed effect sizes are required.

Meta Analysis



Study name	Hedges's g	Standard error	Variance	Lower limit	Upper limit	Z-Value	p-Value
Mansouri and Heidari (2016)	1.827	0.237	0.056	1.364	2.291	7.724	0.000
Isa, Luen, Sewestian, & Omar (2013)	0.379	0.163	0.026	0.061	0.698	2.333	0.020
Black (2016)	0.860	0.184	0.034	0.499	1.222	4.663	0.000
Young, and Rasinski (2017)	1.013	0.164	0.027	0.691	1.335	6.158	0.000
Marshall (2017)	0.561	0.232	0.054	0.107	1.015	2.424	0.015
Fry (2010)	0.248	0.218	0.047	-0.178	0.675	1.141	0.254
Keehn (2003)	2.154	0.252	0.063	1.661	2.648	8.552	0.000
Tsou (2011)	0.695	0.160	0.026	0.380	1.009	4.329	0.000
Keehn, Harmon, and Shoho (2008)	0.439	0.193	0.037	0.061	0.817	2.276	0.023
Lewis and Feng (2014)	1.236	0.558	0.312	0.142	2.330	2.214	0.027
Grant (2011)	0.382	0.315	0.099	-0.236	1.000	1.212	0.225
Bagley (2014)	0.553	0.245	0.060	0.073	1.033	2.259	0.024
Jenkins (2014)	0.621	0.313	0.098	0.008	1.234	1.985	0.047
Moris (2013)	1.101	0.311	0.097	0.490	1.711	3.535	0.000
Poro (2014)	3.081	0.804	0.646	1.505	4.657	3.832	0.000
Smith (2011)	0.775	0.138	0.019	0.504	1.046	5.598	0.000
Moghadam and Haghverdi (2016)	1.827	0.237	0.056	1.364	2.291	7.724	0.000
Sabry and Helwa (2014)	18.958	2.395	5.736	14.264	23.653	7.916	0.000
	1.050	0.170	0.029	0.717	1.382	6.192	0.000

Mean Effect Size= 1.050 Std= 0.17 Variance= 0.02 I^2= 89.06 P-value= 0.000
Q-value= 155.43 Z-value= 6.19

Figure4.1 Forest plot of the effect sizes

4.2. Moderator Analysis (Sub-group Analysis)

Moderator is a variable that changes the relationship between two other variables, and always considered as the main variable for the variations between the mean effects sizes of the study; therefore, it will affect the outcomes of a meta-analysis study. Moderator analysis or sub-group analysis finds the differences between sub-groups and the average effect sizes of the variables. In this study, sub-group analysis done to study the effect of RT in detail among different sub-groups, and to test the moderator variables. To reveal the heterogeneous distribution, grade level, reading level, reading aloud, guided reading, feedback, explicit RT instruction, RT intervention period, and publication type selected as moderator variables. The results of examining the effects of RT on student's reading fluency using the moderator variables presented in Table 4.2.

Table 1. Subgroup Analyses under Random Effects by Possible Moderating Variables.

Variable			Hedges'g 95% CI						
	N	M	SE	LL	UL	Q	dF	P	I^2
Grade level									
elementary	15	0.82	0.06	0.70	0.94	111.93	14	0.000	87.49
kindergarten	1	0.37	0.75	-1.1	1.86		0.000	1.000	0.000
Pre-intermediate	2	1.82	0.77	0.3	3.34	0.000	0.000	1.000	0.000
Reading level									
Average elementary	5	1.13	0.34	0.45	1.81	60.61	4	0.000	93.4
Mixed	5	0.93	0.35	0.23	1.63	33.85	3	0.000	91.13
Pre-intermediate	2	1.82	0.5	0.83	2.81	0.000	1	1.000	0.000
Special education	2	0.64	0.55	-0.44	1.72	2.71	1	0.090	63.16
Struggling readers	4	1.08	0.39	0.3	1.85	10.31	3	0.010	70.92
Reading aloud									
Yes	12	1.2	0.22	0.76	1.63	122.66	11	0.000	91.03
No	6	0.81	0.28	0.25	1.38	30.56	5	0.000	83.64
Guided reading									
Yes	14	0.9	0.17	0.55	1.25	106.49	13	0.000	83.36
No	4	1.45	0.32	0.81	2.08	18.02	3	0.000	87.79
Feedback									
Yes	8	0.74	0.25	0.24	1.25	16.61	7	0.020	57.87
No	10	1.27	0.22	0.83	1.71	125.93	9	0.000	92.85
Explicit RT instruction									
Yes	8	1.44	0.28	0.89	1.99	91.25	7	0.000	92.32
No	10	0.82	0.21	0.39	1.24	58.48	9	0.000	84.61

RT-intervention period									
1 semester	2	0.85	0.33	0.19	1.51	1.92	1	0.160	47.93
2-week	1	0.56	0.5	-0.42	1.54	0	0	1	0
4-week	2	1.08	0.46	0.16	2	9.76	1	0.002	89.76
5-week	1	1.82	0.5	0.84	2.81	0	0	1	0
6-week	5	0.49	0.23	0.03	0.94	3.12	4	0.53	0
8-week	1	18.95	2.43	14.18	23.73	0	0	1	0
9-week	2	1.46	0.35	0.78	2.15	17.18	1	0	94.18
10-week	4	1.08	0.25	0.58	1.58	16.44	3	0.000	81.85
Publication type									
Dissertation	8	0.81	0.25	0.31	1.32	16.54	7	0.02	57.7
Journal	10	1.25	0.23	0.79	1.71	132.26	9	0.00	93.19

Mixed = very poor and very good readers in the one group

4.2.1. Grade Level

To examine the effect levels of RT on students' reading fluency, grade level was taken as one of the moderator variables in this study and was classified under three groups as elementary, kindergarten, and pre-intermediate. According to Table 1, RT intervention was the most effective on pre-intermediate students (*Hedges' g*= 1.82). However, in the other two levels, RT had a positive and significant effect:

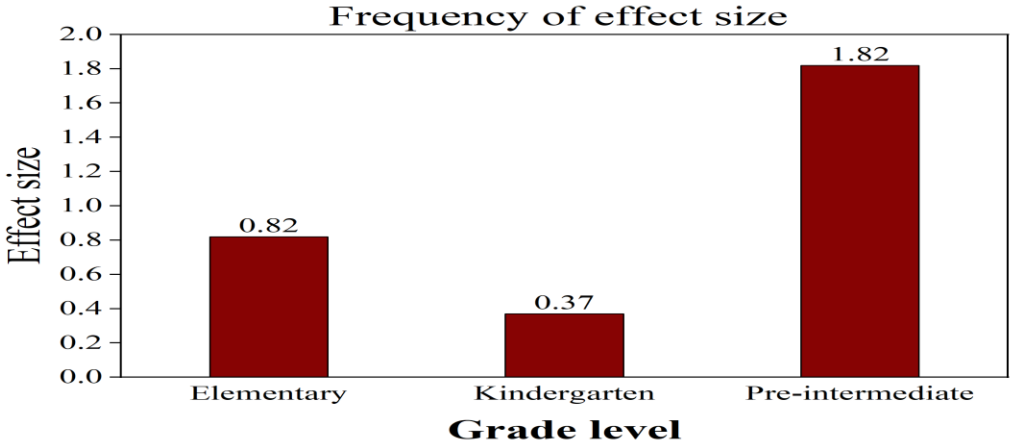


Figure 4.2.Comparison of effect sizes between different grade levels

4.2.2. Reading Level

To examine the effect levels of RT on students' reading fluency, reading level was taken as one of the moderator variables in this study. Next, it was classified under five groups as average elementary, mixed (low level, on the level, or fluent readers in one group), pre-intermediate, special education, and struggling readers. According to Table 1, RT was the most effective on average elementary students (*Hedges' g = 1.13*). However, it had a positive and significant effect on all the other groups, as well:

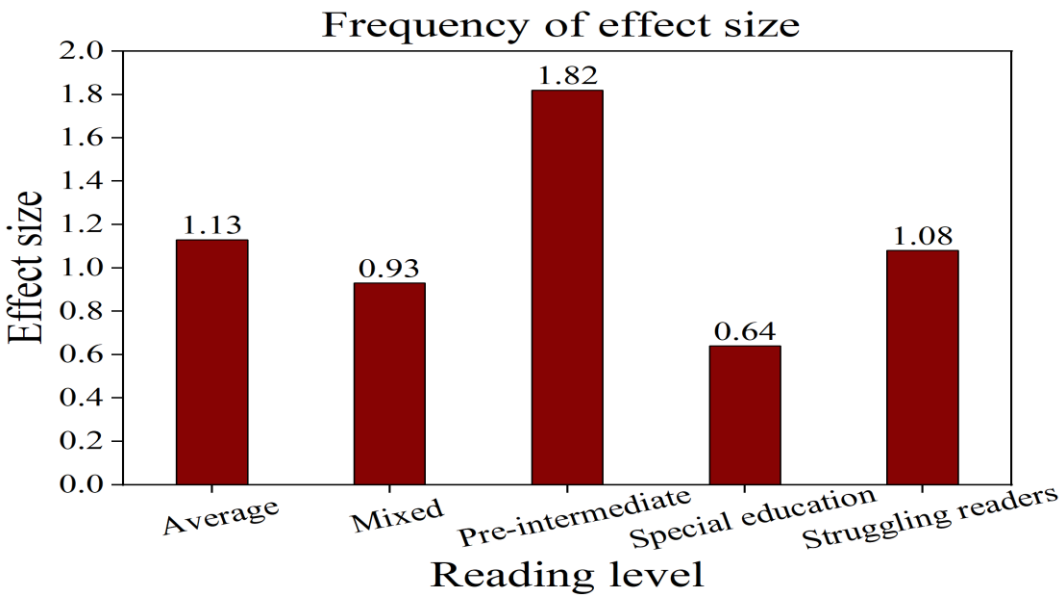


Figure 4.3.Comparison of effect sizes between different reading levels

4.2.3. Reading Aloud

With RT intervention, the use of reading aloud was more effective than not using it (*Hedges' g* = 1.2). According to Table 1, the difference was statistically significant, Q (11) = 122.66, p = 0.000:

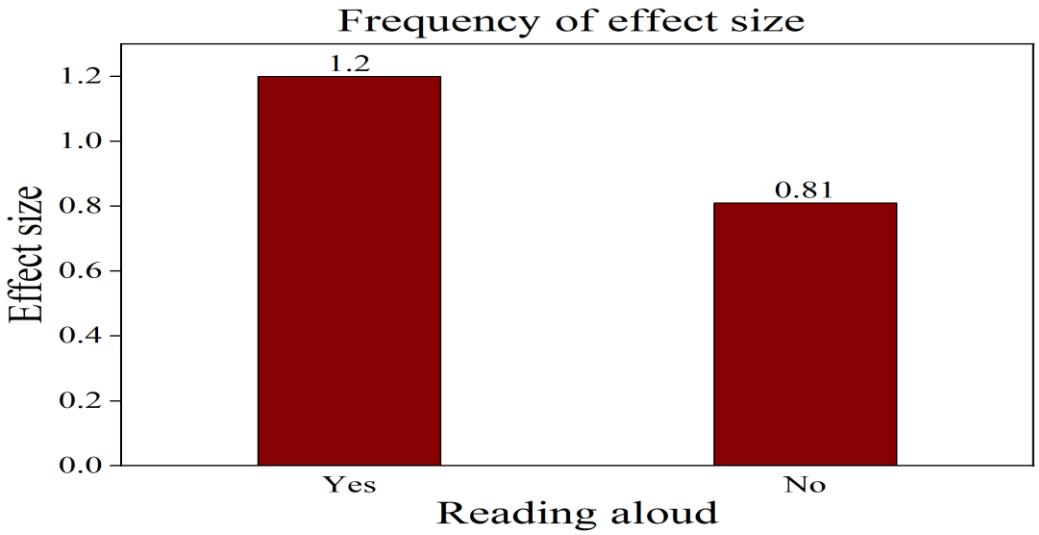


Figure 4.4.Comparison of effect sizes using reading aloud and without it

4.2.4. Guided Reading

Subgroup analyses of RT intervention with guided reading showed a significant effect on reading fluency (*Hedges' g* = 1.44) compared with the case of not using it (*Hedges' g* = 0.82). Therefore, studies without guided reading seem to be more effective:

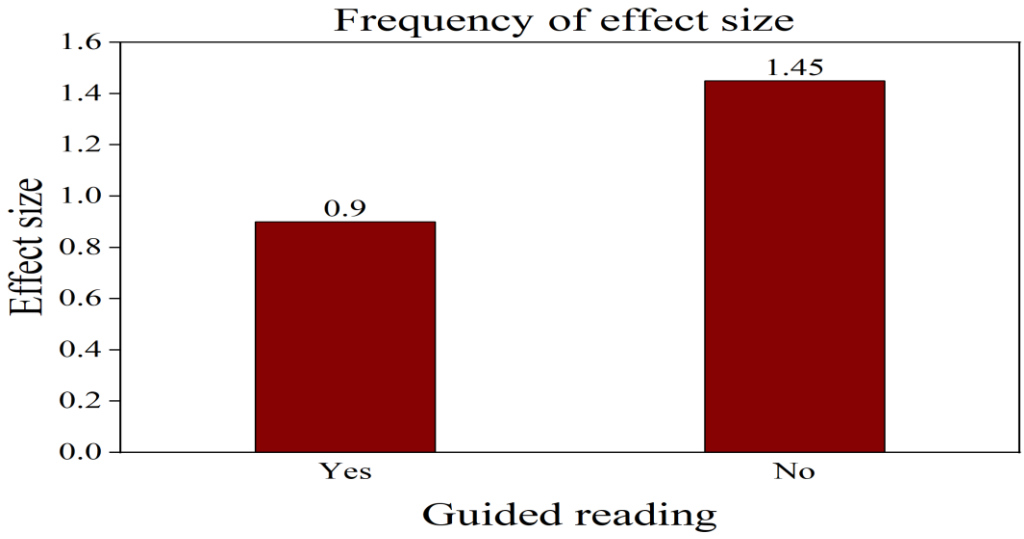


Figure 4.5.Comparison of effect sizes with guided reading and without it

4.2.5. Feedback

With RT intervention, teacher's feedback on students' progress was positive and effective, but it was not significant (*Hedges' g* = 0.74) in comparison to RT without teachers' feedback (*Hedges' g* = 1.27):

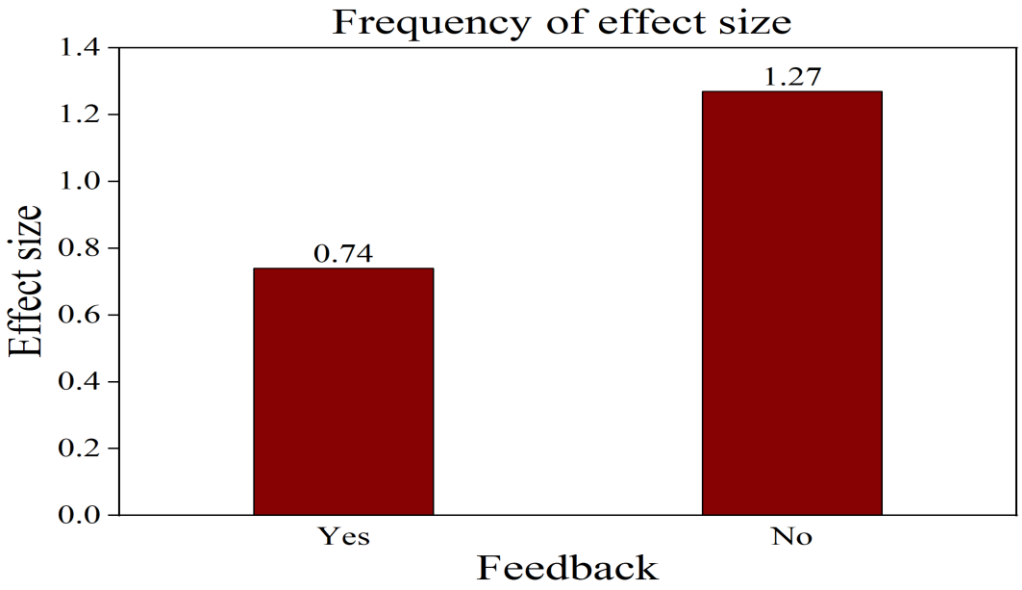


Figure 4.6.Comparison of effect sizes with feedback and without it

4.2.6. Explicit RT instruction

Subgroup analyses grouped by explicit RT instruction revealed a positive and significant effect if RT is implemented by this variable (*Hedges' g* = 1.44) in comparison to the condition without explicit instruction (*Hedges' g* = 0.82):

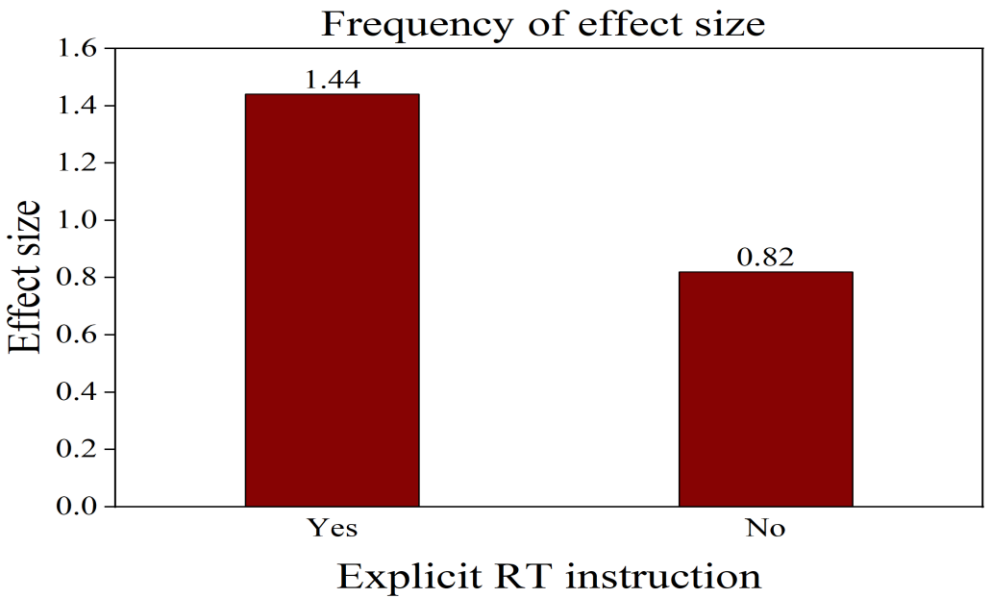


Figure 4.7.Comparison of effect sizes with explicit RT instruction and without it

4.2.7. RT Intervention Period

To examine the effect levels of RT on students' reading fluency, treatment sessions with RT were taken as a moderator variable. The range of intervention periods was 1 semester, 10 weeks, 9 weeks, 8 weeks, 6 weeks, 5 weeks, 4 weeks, and 2 weeks. According to the results, it can be concluded that the best intervention period with RT is an 8-week intervention, which has the highest effect on average (*Hedges' g* = 18.94). Nevertheless, RT was positive and effective during all other intervention periods if not very significant:

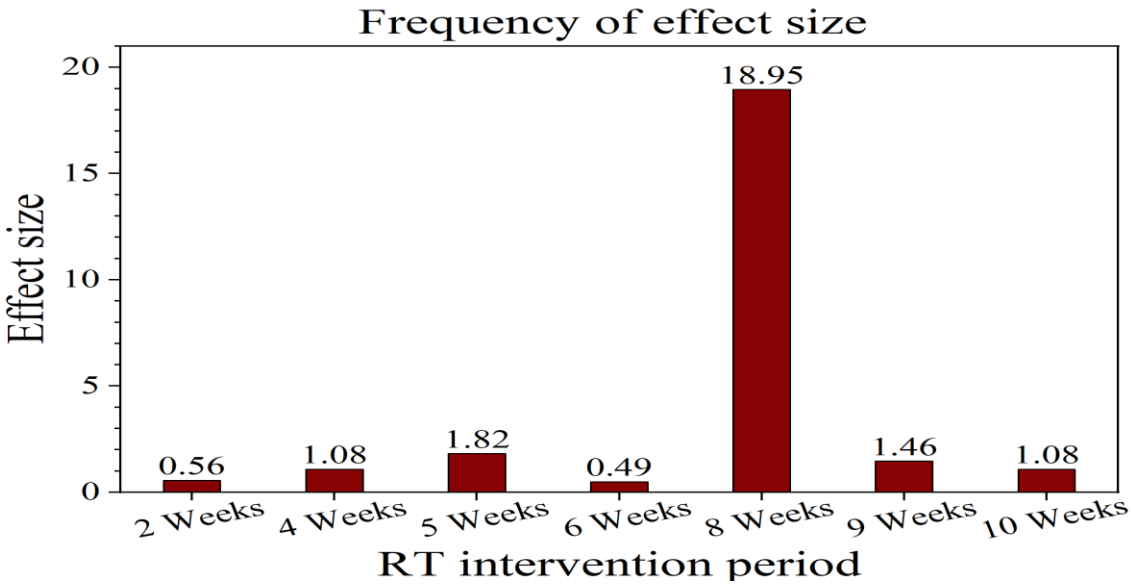


Figure4.8.Comparison of effect sizes between different RT intervention periods

4.2.8. Publication Type

Studies conducted on the effect of RT on students' reading fluency can be classified under two groups according to their publication types, namely, dissertations and journals. As a result of the analysis in Table 1, the most effective practices were among journals (*Hedges' g* = 1.25) rather than dissertations (*Hedges' g* = 0.81). The difference between two types was statistically significant for journals (Q (9) = 132.26, p = 0.000) and for dissertations (Q (7) = 16.54, p = 0.020).

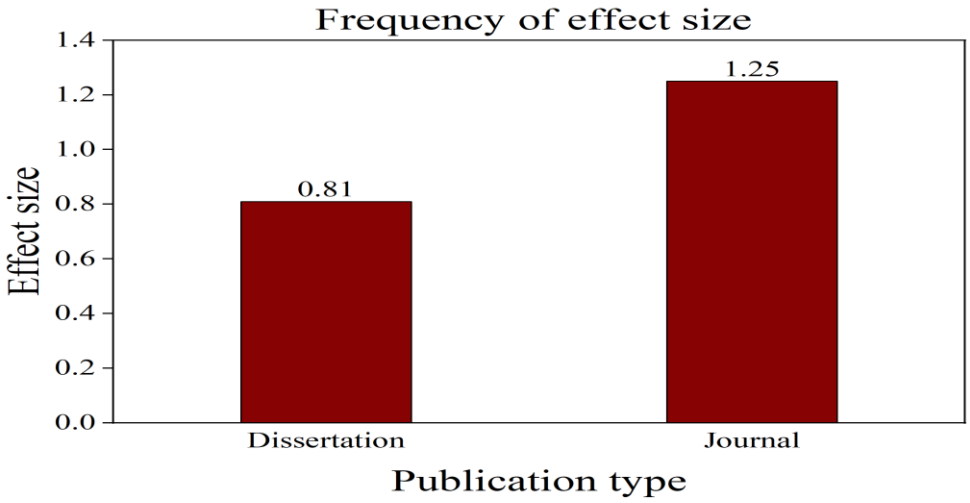


Figure 4.9.Comparison of effect sizes between different publication types

4.3. Publication Bias Evaluation

To determine whether there was a publication bias, or more clearly, whether effect sizes came equally from studies with large or small sample sizes, a funnel plot of effect sizes across 18 studies conducted. The distribution of effect sizes on the funnel plot shows that the most extensive samples presented at the top of the funnel, and the small ones are at the bottom (Duval & Tweedie, 2000a, 2000b).

If publication bias were present, the funnel plot's bottom would show a higher concentration of studies on one side of the primary mean effect size than the other, or the studies would provide an almost asymmetrical distribution. Moreover, if the distribution is like so, there would be a tendency for smaller studies with larger than average effect sizes to be published (Borenstein, 2009). Furthermore, when publication bias is not present, studies are concentrated symmetrically around the main effect size on the top, and smaller studies spread across a wider range near the bottom. As shown in Figure 1, the studies included in this meta-analysis form almost symmetric distribution on either side of the main effect size on top of the funnel,

indicating that the sample is free from publication bias.

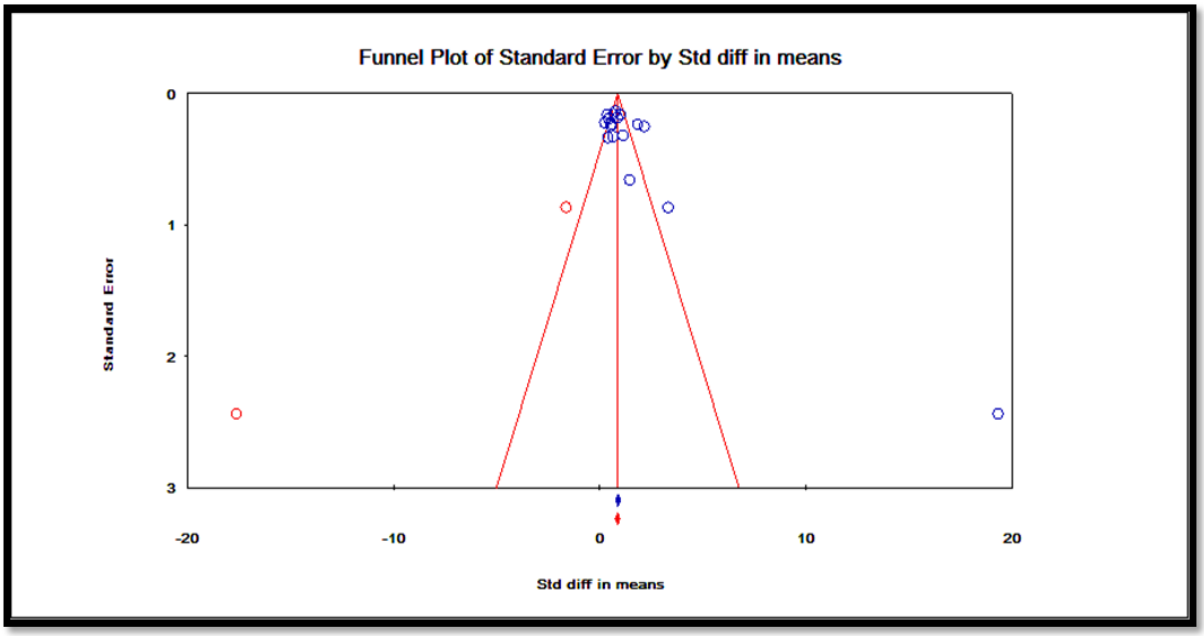


Figure 4.10. Funnel Plot of observed studies

4.4. Trimm and Fill Method

To avoid the subjectivity of funnel plot (as a visual tool for detecting publication bias), a trim-and-fill was also carried out to inspect missing studies, if any, that may have been ignored owing to publication bias. Next, they were added to the analysis to re-impute an overall effect size. In this way, the size of observed data can be augmented to make the funnel plot more symmetric. The method should not be regarded as a way of yielding a more valid estimate of the overall effect or outcome but as a way of examining the sensitivity of the results to one particular selection mechanism (i.e., one particular form of publication bias.

As shown in Table 4.3, no value of the overall effect size was missing. Under the random-effects model, the overall effect size for the combined studies was g = 1.04. The trim-and-fill analysis showed that the re-imputed estimate was the same, suggesting the consistency of the results:

Table 4.3. The result of trim and fill analysis

		Fixed effects			Random effects			Q value
	Studies Trimmed	Point Estimate	Lower Limit	Upper Limit	Point Estimate	Lower Limit	Upper Limit	
Observed values	0	0.85	0.75	0.96	1.04	0.71	1.38	155.43
Adjusted values	0	0.85	0.75	0.96	1.04	0.71	1.38	155.43

Chapter Five: Discussion and Conclusion

5.1.Overview

The objectives of the present study are investigating the overall effectiveness of RT on students' reading fluency, estimating the effectiveness of this method with moderator variables such as educational level and RT intervention period. 18 experimental studies included in this meta-analysis. This chapter presents a summary of the findings, a discussion of the findings concerning the previous studies in the field, the pedagogical implications of the study, and the suggestions for further research.

5.2.Discussion and Conclusion

This section addresses the two research questions posed in this meta-analysis. The primary purpose of the present study was to investigate the overall effectiveness of RT in the reading fluency of developing language learners. These analyses yielded the overall combined effect of 1.05, which indicates a large effect size on Cohen's (1987) and Plonsky and Oswald's (2014) scale. However, Hedges (2008) believes that combined effect sizes are best interpreted when compared with other overall combined effect sizes. All the calculated effect sizes were positive, indicating a significant positive effect of RT on students' reading fluency. Several experimental studies, both as papers and dissertations, have investigated the effectiveness of RT on reading fluency (Keehn, 2003., Keehn et al. 2008., Clark, Morrison, & Wilcox, 2009., Isa et al. 2013; Corcoran & Davis, 2005., Mansouri & Heidari, 2016); however, their results were inconclusive and are of little use in decision making. Hence, this study was conducted to synthesize the previous findings and help policymakers whether to incorporate RT in language teaching materials and methodology.

Although the overall combined effect size in this meta-analysis shows a high level, it should be considered cautiously since the squared-I is 89.06, suggesting a high level of heterogeneity. This figure shows the proportion of observed variance that reflects differences in effect sizes. According to Borenstein et al. (2009), squared-I should be used as a criterion to decide whether the study needs to be analyzed through moderator variables. Literally, when squared-I is high, it is required to have a moderator analysis to see the dispersion of effect sizes. Since the heterogeneity of the sample was high, any conclusion based on the effect size would be immature. Therefore, the next logical step was to analyze the moderator variables.

The second research question addressed in this meta-analysis study concerns how possible variables moderate the effectiveness of RT. With sub-group analyses, RT was inspected through different possible variables such as grade level (elementary, kindergarten, and pre-intermediate), reading level (average elementary, mixed, pre-intermediate, special education, and struggling readers), reading aloud, guided reading, feedback, explicit RT instruction, RT intervention period, and publication type.

Regarding the moderator variable and grade level, the largest effect size was observed among pre-intermediate students. Our findings are in line with those of Liu (2000), as she reports RT would be an effective strategy for intermediate and advanced ESL students. It is noteworthy that although the effect of RT is significant on first and second graders, as well, the unequal sample size in the present analysis may have skewed the results. The sample in question (Table 2) included two studies as pre-intermediate and third grade, seven for second grade, three for fifth grade, and one for first, fourth, eighth, and kindergarten. Therefore, the finding must be taken with caution.

Taking the moderator variable reading level, RT was highly effective among students with pre-intermediate, average elementary, and struggling readers. Based on the obtained results, RT appears to be effective among learners with different reading abilities. The results confirm the idea that RT could be effective for all learners with various reading abilities (Young et al. 2017). Furthermore, the analysis of the moderator reading aloud indicates that reading aloud is a necessary part for improving reading fluency through RT. In this connection, Farell (1966) suggests that reading aloud is a critical component to improve a learner's reading fluency, including prosody. However, ambivalent findings from the analysis suggest that guided reading and providing students with feedback have no significant effect on learners. However, findings of the previous meta-analysis predicted that there would be a stronger positive effect when interventions are guided by an experienced facilitator such as a researcher, classroom teacher, or teaching artist (Lee et al, 2015). In this regard, Heidari and Mansouri (2016) have also recommended using feedback as an effective factor in increasing reading fluency. And, teaching RT explicitly seems to be quite significant; therefore, it can be suggested that apart from performing the appropriate RT format in classrooms, teachers should also explicitly explain how RT components work and the goal of using them for their students. According to the moderator variable RT intervention, RT indicates significant effects during the 8-week intervention and

small effects during the 2-week intervention. Also, higher average group was inspected in studies published as research papers rather than dissertations; therefore, it can be concluded that articles have more critical viewpoints on the effect of RT on students' reading fluency.

The disparity of effect sizes may suggest how moderators affect the overall effectiveness of RT. In this way, it can better be decided on how to implement RT effectively on the large-scale as the overall combined effect shows the effectiveness of RT differently from the sub-group analysis effect sizes. In the current study, it was found that RT, as reading intervention, has a significant influence on improving reading fluency (*Hedges' g* = 1.05) and can be used as a reading instruction in EFL and ESL contexts. This result adds to Ludwig et al.'s (2019) meta-analysis study, in which they investigated whether reading interventions are effective for English language learners (ELLs). The results revealed large effects for reading accuracy and fluency, suggesting the use of reading interventions in literacy instruction for ELLs.

In terms of grade level, RT was found to be more effective when implemented in pre-intermediate classrooms (*Hedges' g* = 1.82). It is in contrast with Lee's (2015) meta-analysis study, in which the effect of RR was examined on reading fluency for students with reading disabilities. Lee (2015) found the RR method, as a reading intervention for fluency development, more effective when used at the elementary level. In the same vein, Lee et al. (2015) conducted a meta-analysis study to investigate the effectiveness of drama-based pedagogy and found that in terms of grade level, it has stronger positive effects on lower elementary students compared to older ones.

Two basic tests of evaluation of publication bias, including Funnel Scatter Plot and Trim-and-Fill, indicated a low level of publication bias among the studies in this meta-analysis. The results show that there is no unpublished missing study that may change the calculated main effect size in this meta-analysis study. Therefore, the final result of these two methods guarantees the validity of the meta-analysis study.

Meta-analyses are increasingly used as a tool for testing the effectiveness of educational interventions. However, it would be highly effective if they are used to explore the dispersion of effect sizes existing between the effect sizes of moderator variables and the overall combined effect size and make more informed decisions based on this dispersion. In this regard, some suggestions for meta-analysts are as follows. First, meta-analyst should provide moderator analysis if the squared-I show a high level of heterogeneity like the one in the current study.

Second, if the included studies in the meta-analysis are homogeneous, policymakers should pay attention to the combined effect size of educational intervention and then carefully undertake its moderating variables. Third, the forest plot provided by meta-analysis shows useful information such as the pointed effect size of each study, the corresponding confidence interval, the precision of each study, and the overall combined effect size. Hence, a meta-analyst must consider these findings in their meta-analysis study.

The findings of this study could add important contributions to the existing related literature. Thus, teachers, material developers, and even education policymakers are addressed to pay more attention to the role of RT in ESL and EFL settings. The reason is that putting much more focus on this methodology in the classrooms leads to some improvements easier and faster. The unresolved issue here is the question of what variables enhance RT more effectively than the other ones. To gain such insight, teachers and material developers need to be called for constructing hypotheses and models that provide highly effective techniques on the issue.

5.3.Pedagogical Implications

Every research in the scope of TEFL is done to provide the stakeholders including teachers, students, testers and material developers with some useful insights. In the same vein, this research expected to exert some useful points as pedagogical implications. To provide a better clarification of the pedagogical implications, they are presented in the order of numbers:

5.3.1. Implications for Material Developers

They can benefit from the findings of the present research, and be the target of pedagogical implications of this research owing to some reasons. First, as English textbooks play a crucial role in steering teachers' path, textbook writers and material developers should insert some instructions in guide books (teacher manuals). Moreover, teachers can use RT for developing reading fluency, which is a good predictor of reading comprehension.

5.3.2. Implications for Teaching Other Language Skills

Teachers can use RT for all skills of language. Listening, reading, writing and speaking are the areas, where teachers can improve learner's abilities with RT. It is worth noting that RT can increase learners' motivation, which is an essential and indispensable predictor of learning.

5.3.3. Language Education Policymakers

In each country, there is a master plan based on which the main agenda of educational system is determined. This contains a hierarchy of policymakers who are ranged from very top levels to lower ones. All policymakers at different levels of decision-making hierarchy should take empirical findings seriously, especially the results of meta-analyses as they synthesize the findings of many previous studies. Therefore, since the results of this study clearly confirm the effectiveness of RT, policymakers should turn the findings of this meta-analysis and other similar studies in policies to improve teaching practice.

5.4.Suggestions for Further Research

The findings of the study have practical implications for researchers who are interested in techniques of developing reading fluency. Research must try to consider different aspects such as the number of participants, different contexts, and types of treatment. This study highlighted essential gaps in the following areas of research a) the effect of RT on the acquisition of vocabulary and lexical knowledge, b) the modifying effect of RT instruction on different age groups. Future research should inspect other possible variables effective in RT intervention including different learning contexts, be it instructed or naturalistic and different learning styles. Moreover, meta-analysts should include dissertations in their syntheses in order to get access to rich descriptions of the research procedures, and gain rich data to analyze more.

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چکیده

پژوهش حاضر روش فراتحلیل در محاسبه تأثیر خواندن به روش تئاترگونه برروان خوانی ارائه نموده است. با بکارگیری مجموعه ای از معیار شمول و غیرشمول،۱۸ مطلعه ی اصلی از منابع مختلف اعم از پایان نامه ها و مقالات مختلف در سال های ۲۰۰۰ تا۲۰۱۸ که به زبان انگلیسی میباشند گردآوری شده است. هشت متغیر واسطه شامل مقطع تحصیلی، سطح خواندن، بلند خوانی، خواندن هدایت شده، بازخورد، آموزش مستقیم خواندن به روش تئاترگونه، مدت زمان بکارگیری، و نوع نشر شناسایی شدند. میزان تأثیر کلی در این تحقیق **۱.۰۵** محاسبه شد که میزان اثر بالایی را براساس مقیاس پلانسکی و اسوالد نشان میدهد. نتایج تحلیل واسطه نیز نشان میدهد که روش آموزشی خواندن تئاترگونه بالاترین تأثیر را در مقطع دانش آموزان در سطح متوسطه و در مدت زمان هشت هفته دارد. طبق نتایج، تکنیک خواندن تئاترگونه برروان خوانی موثر است، هرچند متغیرهای واسطه اعم از سن و مدت زمان بکارگیری تکنیک بر میزان تأثیر آن اثر دارد. مطالعات آینده با بکارگیری روش فراتحلیل میتوانند به اطلاعات کامل و جامعی در رابطه با سوال تحقیقشان برسند.

کلمات کلیدی: خواندن تئاترگونه، به کارگیری روش، روان خوانی، فراتحلیل، میزان اثر

گروه زبان انگلیسی

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