International Journal of Research in English Education (IJREE)

Original Article **Published online: 20 June 2023.**

Proceedings of the First National Virtual Conference on English Language Teaching in the Iranian Mainstream Education System

The Effect of Reflective Teaching on Iranian EFL Students` Achievement in 2000-2019: A Meta-Analysis

Azam Yaghoobi Hamgini[1], Farahnaz Abedini[1]

* Correspondence:
Azamy3092@gmail.com
1.Department of Foreign Languages, College of Humanities, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran.

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Abstract

Numerous researches have been accomplished in the field of reflective teaching in Iran; however, the dearth of a comprehensive analysis and integration of these studies is still deemed to be essential. The current paper attempted to do a meta-analysis by analyzing of the effectiveness of reflective teaching on EFL (English as a foreign language) students` achievement. To do so, a comprehensive search was directed to collect empirical Iranian studies in the past two decades and a total number of 130 studies were explored; then, they were reviewed and coded, 10 studies with 931 participants acquired the inclusion gauges for doing the meta-analysis research. The analysis was performed using CMA2 software (Comprehensive Meta-Analysis-Version 2) following a random model. Based on Cohen's model interpretation of effect size, the results indicated a large effect size of g=0.794, (95% CI= 0.218, 1.267). By analyzing the categorical and continuous moderator variables it was recognized that sample size of the treatment group influenced the students` achievement scores negatively. Additionally, publication type had a meaningful impact on the effect sizes. The results of current study can be considered as a beneficial enlightening technique for both pedagogical and research purposes.

Keywords: Meta-analysis, Effect size, Reflective teaching, Random model

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1. Introduction

In the dynamic context of the classroom, teacher reflection is an essential issue. The roots of recent thought on reflection can be observed in the seminal writings of education psychologists Dewey (1910) and philosopher SchÖn (1983). Reflection for Dewey (1910) is a special kind of pondering that directs us to the study and resolution of conflicts experienced in practice in a cautious and purposeful manner. In 1987, SchÖn extended Dewey's definition of reflection by observing how practitioners think in action and recommended that learning is dependent upon the assimilation of experience with reflection (as cited in Javidan Mehr & Rashidi, 2011).

According to Kumaravadivelu (2006) in the field of L2 education, most teachers come into the dominion of professional knowledge through "methods" package and begin to teach; however, they quickly distinguish the restrictions of such a knowledge base, and attempt to break away from such a constraining concept of method. In the process, they attempt, to develop their own selective method. Elsewhere, he also mentions that "teachers ought to be enabled to theorize from their practice and practice what they theorize" (Kumaravadivelu, 2006. p. 173).

Akbari, Behzadpour and Dadvand (2010) state that reflection is not a new idea and numerous researchers investigate other variables related to or affected reflective teaching. Correspondingly in Iran, reflection has come to be an important teacher-related factor in the field of TEFL by researchers specially empiricists. Although it is uncontroversial that reflective practice has a crucial role in the process of L2 education, and plentiful studies have been done in this field, the magnitude of reflective teaching effects has been somewhat inconsistent across studies. Indeed, the literature lacks a quantitative synthesis of the extent of the results and no study to date has provided an integration of the computable documents on the effectiveness of reflective teaching by means of a meta-analytic method in Iran.

The goal of the current study was primarily detecting the main concerns of Iranian researchers in the field of reflective teaching in 2000-2019 and then performing a meta-analysis on the effectiveness of EFL reflective teaching on students' achievement during this period. According to Glass, McGrow and Smith (1981), "literature review should be as systematic as primary research and should interpret the results of individual studies in the context of distributions of findings, partially determined by study characteristics and partially randomly"(as cited in Schroeder, Scott, Tolson, Huang, & Lee, 2007, p.6)

This meta-analysis addressed the following questions:

1. What are the distributions of the variables which are studied in relation with reflective teaching during 2000-2019 in Iran?

2. What are the distributions of the effect sizes measuring the effects of teacher reflection on student achievements in the literature?

2. Literature Review

Dewey (1910) asserts two kinds of action "routine action" and "reflective action." The latter is the foundation of reflection. A routine action is not regarded to change conditions and preferences because it is influenced by tradition, habit and authority so it is inert. But reflective action, on the contrary, is flexible and sensitive action conducted by regular self- evaluation and targeted self-progress. Dewey (1910) illustrates "closely related names for reflection are scrutiny, examination, consideration, and inspection terms which imply close and careful vision" (p.56). SchÖn (1983) introduces two key procedures of reflection: "reflection-on-action" and "reflection-in-action" and he also clarifies the importance of being a reflective practitioner. In reflection-on-action practitioners will engage with the prediction for some probable problems and will try to find some solution. In the other hand, in reflection-in-action a practitioner after action reflects to find some solution for the similar problems that may happen in the future (as cited in Keshavarz & Jadidi, 2013).

Dewey (1933) points out a reflective teacher analytically scrutinizes his activities and acquires some notions as how to progress his acting to improve students` learning, and practically performs those notions (as cited in Aghaei & Jadidi, 2013). According to SchÖn (1983), "The reflective teacher may reflect by looking back on several issues: the base line of decisions, their role in situations, the impact of events on students, and the consequent influence on the organization as a whole" (as cited in Kosar & Razmjo, 2019, p.19).

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2.1 Empirical Studies on Reflective Teaching in Iran

Akbari et al. (2010) have provided a model of reflectivity and have subsequently offered a scale for measuring EFL reflective teaching. Baleghizadeh and Javidan Mehr (2014) explain that this model comprises of six key elements. At first, this model concentrates on the students 'knowledge and background. Secondly, it regards teacher`s attitudes and thinking. Thirdly, it considers tools and techniques which a reflective teacher applies in the context. fourthly, it focuses on teacher`s professional development. Fifthly, teacher`s relationship with society takes into consideration. Finally, the morality and ethical standards in the context of teaching is emphasized.

According to a review of reflective teaching literature in Iran, some research papers have engaged in the effect of reflective teaching on student outcomes. As a pioneer, Taghilou in 2007 attempted to survey the influence of "reflective teaching" on "learning outcomes." In this study two homogeneous groups (control and experimental) of students, the same materials and similar standard achievement tests were used. And two teachers with different teaching practices on reflection thought participated in this study. Video and audio recordings of the lessons, peer or expert observation checklists and students' feedback checklists were two gauges of reflective teaching. The results indicated that reflective practice positively influenced the student learning outcomes. In the similar vein, some other researchers investigated the influence of EFL teacher's reflection on their students' achievement.

Hosseini Fatemi, Elahi Shirvan, and Rezvani (2011) in their exploration with 100 EFL teachers and 1000 students found that teachers with high level of reflectivity had a higher effect on their students' writing scores. Correspondingly, Taghadomi, Atai and Babai (2012) in their study investigated the influence of EFL reflective teaching on final course grades of the students and recognized that it influenced them positively. In 2016, Rahnama, Abdolrezapour and Ayatollahi tried to search for the effectiveness of EFL reflective teaching on students 'speaking skill (accuracy, fluency and complexity). They concluded that it affected the learners 'fluency and complexity positively although it hadn't a meaningful effect on learners 'accuracy. Similarly, Alishahi and Ashraf (2016) investigated the impact of teacher reflection on students` speaking and listening. Based on their findings, students with reflective teachers get better results.

2.2 Meta-analysis and Student Achievement

Plenty of meta-analyses have detected factors which impacted or were related to student achievement. According to Schmit (2008) meta-analysis assimilates the findings of individual studies to disclose simpler patterns or relations that lie beneath research literature, thus basis for theory development. In fact, there are a plenty of studies directing a meta-analysis in the field of teaching English as a foreign language (EFL). For example, Huitt, Huitt, Monetti and Humnel (2009) developed a structure presenting a system-based method regarding characteristics allied to school achievement by pinpointing home, school-level, and classroom-level variables and presenting how they are interconnected.

In Iran. Ghonsooly, Hosseini Fatemi and Elahi Shirvan (2013) synthesized 26 papers in a meta-analysis and found out that SBI (strategy-based instruction) in the milieu of ESL is less effective than in the milieu of EFL. Likewise, Ghonsooly, Shirvan and Taherian (2016) accomplished a meta-analysis which scrutinized the association of foreign language classroom anxiety (FLCAs) and 18 variables in the context of EFL classroom. In 2017, Zaree, Shams and Pourvaez meta-analyzed the magnitude of effect size of Genre-based Instruction (GBI) on EFL learners' reading skill and come to a moderate effect size. Similarly, Zare-ee and Khalili (2017) led a meta-analysis including 255 studies, searching for effectiveness of Genre-based Instruction (GBI) on writing of EFL students. While it was showed a totally average effect, they found that GBI was meaningfully less effective for high level learners.

3. Methodology

3.1 Design of the Study

This study utilized a meta-analytic research design. The procedure consists of six key phases: attainment of studies, coding of studies, establishing inter-coder objectivity, ascertaining gauges for election of studies, calculation of effect size and launching statistical techniques and piloting analyses as represented in Schroeder, Scott, Tolson, Huang, and Lee (2007).

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3.2 Materials

For acknowledging the first research question a population of 130 studies including 84 journal articles, 41 unpublished M.A theses and 5 Ph.D. dissertations were checked and reviewed (abstract or the whole text). And for elaboration of the second research question, a meta-analysis has been done based on a sample size of 10 studies and 931 participants.

3.3 Data Collection and Search Strategies (Acquisition of Studies)

A widespread search in the literature was piloted using key word searches of the following terms: "reflective teaching" "Iranian EFL reflective teaching" "Iranian EFL teacher reflection" and deviations of these terms in electronic databases Science Direct (Elsevier), Tylor and Francis, Ricest, Iran Doc (Ganj) and Springer. Because link between reflective practice and L2 education has captured the attention of Iranian EFL researchers for over two decades, the search was restricted to the twenty years from 2000 to 2019.

Additionally, an exhaustive search was arranged in some university libraries (Marvdasht Azad University, Shiraz Azad University, Shiraz University, Tehran University, Kharazmi University, Allameh Tabatabaee University, Tarbiat Modares University, Isfahan University), electronic libraries of universities (Shahid Beheshti University, Shahid Rajaee University, Tabriz University, Oroomiyeh University) for unpublished studies.

3.4 Inclusion Gauges

Examining of the research papers for attaining the data sources performed in two steps: abstract examining of the primary electronic databank explorations and full-text examining of papers that accepted in the abstract examination. By accomplishment of these two steps all high-quality studies in the field of EFL teaching have been obtained. All the studies which represented the concept of reflective teaching as a discrete variable have been reviewed and coded for replying first research question but in this paper the main purpose is the accomplishment of a meta-analysis method based on the studies which met the following inclusion gauges. Studies had to have:

• been published between 2000 and 2019

• been concerned with EFL reflective teaching in Iran,

• used students` achievements (writing, reading, speaking and listening) as the dependent variable,

• used teacher reflection as an independent variable,

• used experimental or quasi-experimental design,

•had the statistics essential for computation of effect size (means and standard deviations) (as cited in Schroeder et al., 2007).

•not been totally correlational

Qualitative studies which do not provide one of these statistical reports will be addressed in first research question accomplishment.

130 records identified through library/database searching	
21 studies excluded	qualitative studies (not enough statistical information)
90 studies excluded	correlational studies
5 studies excluded	did not address student achievement
2 studies excluded	did not address teacher reflection
2 studies excluded	could not be obtained

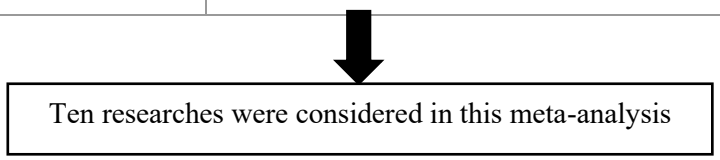


Fig 1. The process of selecting researches based on inclusion gauges

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3.5 Instruments

A coding sheet as an instrument for data collection was retrieved from doctoral dissertations (Rachel, 2011; Dent, 2013). Every study involving in this meta-analysis was coded by using: paper facets, sample features, result computations on the dependent variables, and effect sizes.

3.5.1 Paper Facets

For coding every study following facets regarded: number of authors, date of publication, country of the study, study design classification (experimental or quasi-experimental), publication type (published or unpublished studies , dissertation, unpublished master thesis), dependent variables (type of test, test name), independent variable (reflective teaching and related tools and techniques, questionnaire name, reliability of questionnaire) and length of the study.

3.5.2 Sample Features

Sample features included students (number of students in control and treatment group, gender, age, and level), teacher(s) (number of teachers, age/experience and gender), and schools (public/private).

3.5.3 Effect Sizes

For every paper, an effect size was computed by comparison between functions of treatment group and control group. Basically, Cohen's *d* was used for computation of effect size (as cited in Schroeder et al., 2007). According to Borenstein, Hedges, Higgins and Rothstein (2009) declare that for the rectification of subjectivity of Cohen's d value for small samples (under 50), Hedges g is applied instead of Cohen`s d. In this study Hedges' *g* was calculated by CMA2 software. Based on Schroeder et al. (2007) the independence of effect sizes must be regarded consequently for each study one effect size must be considered. If any paper has more than one effect size, it must be averaged.

3.5.4 Result Computations

All related computations for calculation of effect size were extracted from each study. These computations included *p*(s), t(s), F(s) and standard deviations. In a few studies the effect size has been calculated but in most of the studies it has been passed over.

3.6 Data Analysis

In current meta-analysis for analyzing the data, Comprehensive Meta-Analysis (CMA2) software was used. Hedges' *g*, confidence intervals, Q values, fixed effects, random effects, and meta-regression analysis were extracted by using this software (Schroeder et al., 2007). In the current study, random effects model was used since the heterogeneity of effect sizes was considered. These analyses were supported with forest plot so some treasured information was offered. Additionally, the data were examined for the presence of outliers and one study as an outlier had been omitted because of the noticeable difference in effect size with other studies.

The prerequisite statistical analysis for accomplishment of any meta-analysis project is evaluating the publication bias. For recognizing the existence of publication bias, test of fail-safe N is accomplished (Lipsy & Willson, 2001). Homogeneity and heterogeneity of the primary studies were examined based on Q-statistical analyses and I-squared was used for the same purpose. And based on Schwichow et al. (2015), meta-regression analyses were directed for checking moderator variables.

4. Results

4.1 Inter-rater Reliability

Election and coding of the studies have been done by researcher and two other professionals in the field separately in order to ascertain the impartiality and consistency of coding process (Schwichow, Crocker, Zimmerman, HÖffler, & Härtig, 2015). The degree of impartiality shows high consistency (83%). At the end of negotiation among researchers, two studies were removed.

The present research was designed to inquire a sample of studies that had investigated the main concerns of Iranian researchers about reflective teaching. In fact, for replying the first research question a population of 130 studies including 84 journal articles, 41 unpublished M.A theses and 5 Ph.D. dissertations were checked and reviewed (abstract or the whole text). And for elaboration of the second research question, a meta-analysis has been

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accomplished based on a sample of 10 studies and 931 participants. In fig. 2 it is demonstrated that 56% of the researchers used mixed method in their papers 26% quantitative method and 18% of them used qualitative method. As well, the convenient sampling was the most frequent sampling and only in 5% of the studies, participants were randomly selected.

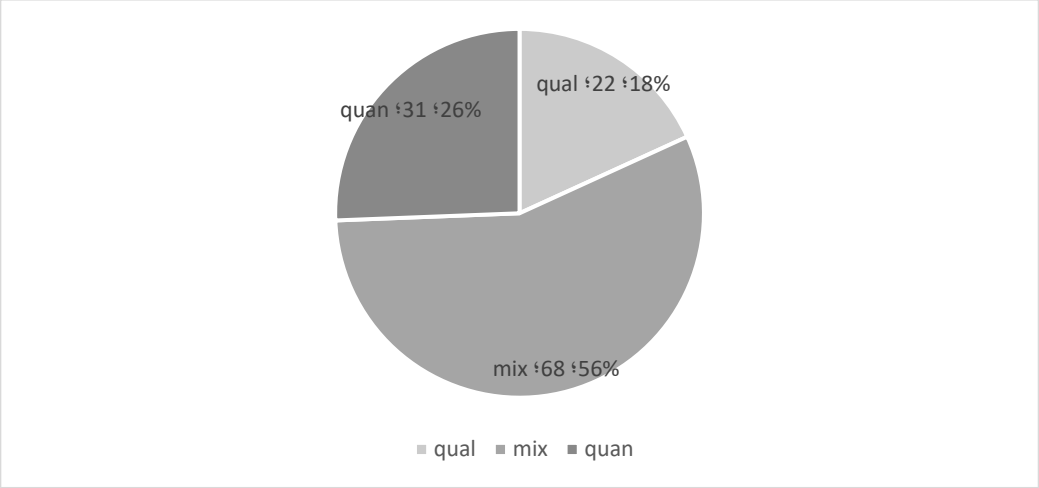


Fig. 2 different kinds of research methods used in studies during 2000-2019

The eligible search had been performed in electronic databases, the distribution of the studies is indicated in Table 1.

Table. 1 The frequency of the studies based on the source of the studies

No.	Source of studies	Keywords	Obtained studies
1	Iran doc	EFL Reflective teaching and	29
2	Tylor and Francis	EFL reflective teaching and	5
3	Springer	EFL reflective teaching and	3
4	Science Direct (Elsevier)	EFL reflective teaching and	15
5	Ricest	EFL reflective teaching and	12
6	Others	EFL reflective teaching and	66
	Total	EFL reflective teaching and…	130

Furthermore table. 2 indicates the publication frequency of studies considering reflective teaching as a variable during 2000-2019 in Iran. Highest frequency appears to be in the years 2010 to 2019 though a small number of studies published in 2000-2010.

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Table 2. Publication frequency of studies during 2000-2019

Years of publication	2000-2005	2006-2010	2011-2015	2016-2019
Number of studies	0	5	53	72

Reviewing the literature showed that the main focus of Iranian researchers in the field of reflective teaching have been on correlational studies. The most frequent variables investigated in relationship with teacher reflection were teacher experience in 22 studies and teacher`s efficacy in 13 papers. These variables showed a positive relationship with reflective teaching. Beyond these variables, it was scrutinized that teacher`s burn out had shown a significant negative relationship with teacher reflection in 9 studies.

The main goal of the current paper is following the procedures of a meta-analysis method to integrate the studies in which the effect of EFL reflective teaching on Iranian EFL student's achievement was investigated. Random effect model was directed for the synthesis of the outcomes of results and determining the effect size. In this model, the factor which changes the studies is also considered in the calculations. Indeed, to be mentioned the processes were conducted using the CMA2 software. Figure 4 represents a forest plot and random effects model meta-analysis for effectiveness of teacher reflection on students` achievement.

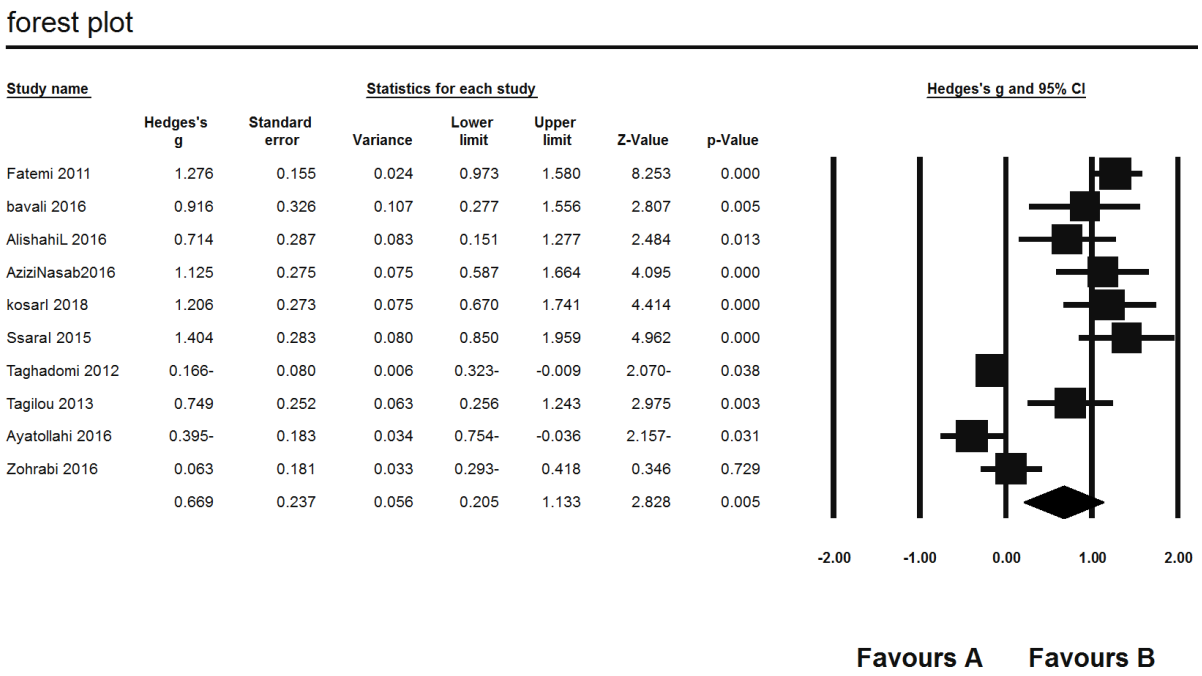


Fig. 4 forest plot of effect sizes of reflective teaching on students` achievement and 95% confidence intervals (CIs).

Lipsy and Wilson (2001) illustrate that the most important hypotheses of the meta-analysis is homogeneity and heterogeneity of the primary studies, so it is examined based on Q-statistical analyses. Q is distributed as a Chi-Square, df= number of effect sizes (ESs)-1, Critical Value for a Chi-Square with df=9 and p=0.00 is 16.92, since our calculated Q (133.706) was more than 16.92 the null hypothesis of homogeneity was rejected (Lipsy & Wilson, 2001). In other words, there were variances in studies` effect sizes.

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The prerequisite statistical analysis for accomplishment of any meta-analysis project is evaluating the publication bias. For recognizing the existence of publication bias, test of fail-safe N was accomplished (Lipsy & Willson, 2001). And the fail-safe N was equal to 168. This indicates that 168 studies with meaningful impacts of reflective teaching on student achievement would be needed to prove the hypothesis. Obviously, it was a large number.

Meaningfulness of Q-Value indicated the heterogeneity of the primary researches, but since this degree is sensitive to the volume of the effect size and by increasing the number of effect sizes, the strength of this test increased for rejecting the homogeneity, I-squared was used for the same purpose. I-squared is a value from 0-100% and actually shows the heterogeneity by percentage. The more this value approaches to 100, the more heterogeneity of the effect sizes of initial researches it shows. As I-squared in this study was equal to 93.26, so heterogeneity was proved (Oswald & Plonsky, 2010).

Regarding the heterogeneity of primary studies, random effect model was directed for the synthesis of the outcomes of results and determining the effect size. In this model, the factors which alters the researches were also considered in the calculations. Thus, it can be stated when effect sizes are heterogeneous, the results of the random model evaluation are generalizable in comparison with the fixed effects model (Lipsy & Wilson, 2001).

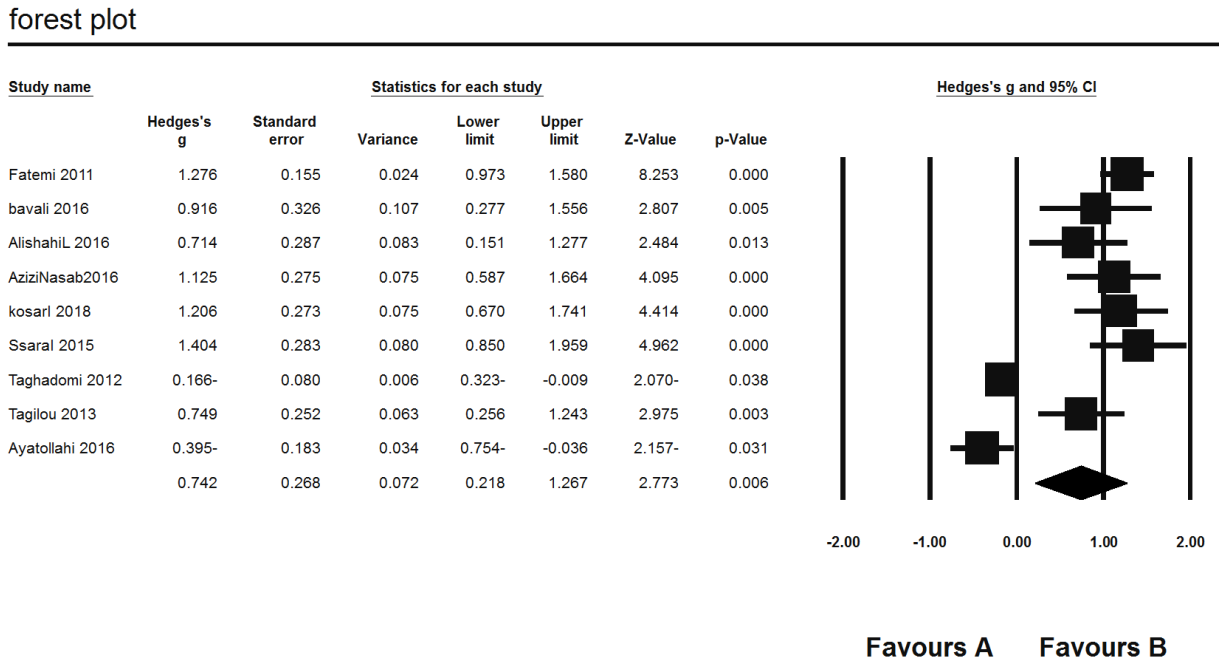


Fig. 5 Forest plot shows meta-analysis results in which a study as an outlier was removed.

We reran the analyses with nine studies. Zohrabi (2016) (n=120) as an outlier with p-Value=0.729, g=0.063 was removed. Fig. 5 shows the forest plot and random effects model meta-analysis for effectiveness of teacher reflection on student achievement. With the one outlier removed, the random effect model shows the overall mean of Hedges' g is equal to 0.742 with 95% CI= (0.218, 1.267), with heterogeneity I-squared=93.94%, Q (8) =132.045, p-value=0.000. Interpretations of Hedges' g are like Cohen's d. For interpretation of effect sizes Cohen offered some general rules. As well he cautioned that by using the words "small" and "large" different meanings may be taken in different fields of scientific research, for example, the word "small" is valuable for reducing suicide, while it is priceless for losing weight.

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- Small effect (cannot be recognized without evaluating precisely) = 0.2
- Medium Effect = 0.5
- Large Effect (can be recognized without any evaluation) = 0.8

4.2 Moderator Analyses

Study characteristics, sample characteristics and outcome measures were checked for moderator variables, as a result two variables were recognized as moderators, treatment group sample size and publication type. Figure. 6 shows meta-regression analysis of the negative effect of treatment group sample size of studies on effect sizes.

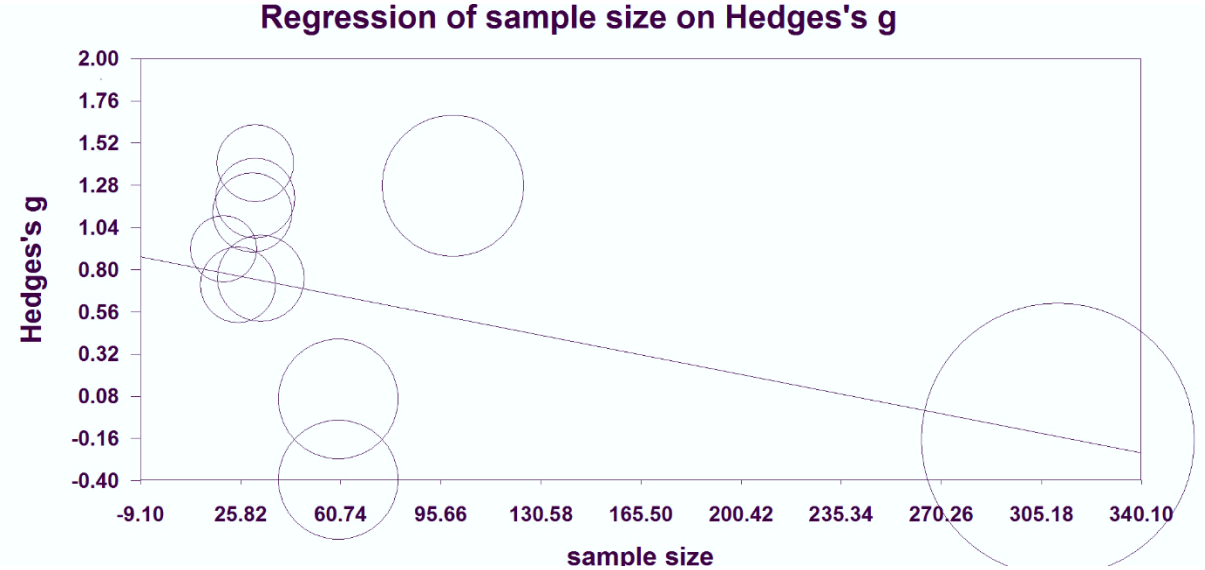


Fig .6 showing meta-regression analysis

5. Discussion

By accomplishment of an exhaustive search in literature of EFL reflective teaching, around 130 Iranian studies were detected. It was found that by publishing the reflective teaching inventory Akbari, Behzad pour and Dadvand in 2010 an evolution came about in the history of teacher reflection research. They have provided a model of reflectivity and have subsequently offered a scale for measuring EFL reflective teaching. Subsequently Iranian researchers after 2010 by using this scale have done numerous studies, about 68.56% of them have used correlational procedures. As a result, relying on correlations limits causal inferences can be made to the extent to which reflection affects outcomes of learning and other dependent variables (Zarie et al., 2017).

Akbari et al. (2010) asserts that teacher reflection has recently been considered as an important teacher-related element in the field of TEFL/ TESL by researchers, especially empiricists. They also point out that reflective teaching has had an effective and efficient relationship with different valuable results in the field of teaching, such as increasing optimal relationships between teachers and students and teachers themselves.

Based on the distribution of the studies trough 2000 to 2019, it was detected that the main focus of Iranian researchers in the field of EFL reflective teaching is on the relationship between this variable and three other variables: self-efficacy, burn out and teacher experience. the concepts of reflective teaching and teachers' self-efficacy are not novel in teaching and learning literature, the value of these notions is extensively debated where reflective teaching and the sense of self-efficacy have been regarded the essential segments of teacher's professional development.

Moradian and Ahmadi (2015) in their paper found that among experienced EFL teachers there is a progressive correlation between teacher reflection and teacher self-efficacy but novice EFL teachers under study were less reflective and had less self-efficacy in their act of teaching in the classroom. In the same vein, Baleghizadeh and

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Javidan Mehr (2014), Nosratinia and Moradi (2017), and Babaei and Abednia (2016) discovered a progressive association involving teacher reflection and teacher self-efficacy.

In addition, some researchers concentrated on the correlation involving reflective teaching and teachers' burn out. All of these researchers came to the same conclusion, as burn out has had a negative relation with teacher reflection. The next variable which has been taken a lot of attention was teachers' experience. Surprisingly, researchers came to diverse results in investigating the association between teachers' practice of reflective teaching and their experiences. It was indicated that every so often novice teachers can demonstrate teacher reflection tools in their teaching process more effectively than experienced teachers.

The second research question guided us for undertaking a meticulous meta-analysis research. In the same vein, Schwichow et al. (2015) attempted to provide a reliable meta-analysis of the effect of "teaching the control-of-variables Strategy (CVS)" on student achievement. The mean effect size of g=0.61 (95% CI=0.53-0.69) in their meta-analysis is minor than the mean effect size of g=0.742 (95% CI= 0.218, 1.267) assessed in current study. By evaluating of the mean effect sizes of these two papers, it can be cautiously concluded that reflective teaching is more effective than CVS considering student achievement.

In their study Schwichow et al. (2015) found that "two instruction characteristics – the use of cognitive conflict and the use of demonstrations-"(p.5) were moderators and significantly originated variability of outcomes. Also, in this study moderators' analysis has been conducted precisely, only two moderators were detected by using meta-regression analysis. The first one was publication type, unpublished studies revealed larger effect sizes than published papers. Unpublished studies in this study were university MA theses, so they have been perfectly evaluated and data have been analyzed; in addition, they had higher methodological quality than published studies.

The second moderator variable which has had a meaningful impact on the magnitudes of effect sizes was sample size of treatment group, as the number of students in treatment group increases the magnitude of effectiveness of reflective teaching on students' achievement decreases. So, teachers should manage the context of teaching in populated classes. Ababneh (2012) explains that it is time for teachers to evaluate their performance in the classroom and search for new ways of assessment, reinforcement… and change their teaching techniques considerably.

Additionally, the findings of this study are consistent with 800 meta-analyses that Hattie (2009) reviewed on variables associated with school achievement in initial sources and identified classroom and school variables that could be addressed by educationalists. Consequently, he recognized 138 variables meaningfully linked to school achievement. Based on this appraisal Huitt et al. (2009) categorized, subcategorized, and selected those individual variables with an effect size of 0.40 or greater, and reduced the quantity of variables from 138 to 66 and made a framework. They identified three variables "home, school-level, and classroom-level" associated with school achievement and presented how they are correlated in a system-based method.
Overlay, Hattie (2009) found that teacher characteristics mean effect sizes (d=0.32) were not as dominant as school mean effect sizes (d=0.48).

According to the results, meta-analysis method in the field of L2 education in Iran is a new born baby, so researchers must take care of it, and find inconsistencies and inconclusiveness of studies that investigated independent variables related to students' achievement in the context to develop theories and answer this question " Which works better?".

6. Conclusion

In this study it was found that Iranian researchers in the field of EFL reflective teaching are more involved in accomplishment of correlational studies. Besides Iranian researchers in the literature of EFL reflective teaching gave their priority to the correlation between teacher reflection and three other teacher related variables: self-efficacy, burn out and experience. Based on the main goal of current paper, this meta-analysis summarized studies investigating the effect of reflective teaching on students' achievement (writing, speaking, reading and listening) within the two decades. The distribution of the effect sizes of teacher reflection on students` achievement specified a large effect (g=0.742). Furthermore, the effect sizes of the initial papers were heterogeneous and two moderator variables for this variance were detected: the sample size of treatment group and the publication type.

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This analysis also had limitations such as unavailability of studies meeting gauges for inclusion and dearth of conducted studies which examined effectiveness of reflective teaching on student achievement. Unfortunately, all moderator variables of interest couldn't be investigated. For example, teacher reflection tools used by teachers in order to improve student outcomes, were not reported in the half of the researches comprised in this meta-analysis. Executing a meta-analysis is a kind of reflection-in-action, by repeating this replication approach, researchers reflect and ponder over previous studies in order to construct a theory in a specific context, to answer what works better in real life practice. So, it makes theory and practice adjacent friends. The findings of the current investigation have pedagogical guidance for Iranian EFL teachers, educationalists, and curriculum and material designers.

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