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Examining the effect of peer and self-assessment practices on writing skills

Aslihan Erman Aslanoglu^{1,*}

¹Ufuk University, Faculty of Education, Department of Educational Sciences, Ankara, Türkiye

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Abstract: This study aims to reveal how peer- and self-assessment practices influence the writing skills of 9th grade students. The study adopted mixed-methods explanatory design. The participants were 102 students attending a public school in Ankara. The quantitative data were collected through a quasi-experimental method, and qualitative data were collected through a case study. There were three groups of participants in this study: the 1st experimental group in which peer-assessment was carried out with 34 participants; the 2nd experimental group in which self-assessment was conducted with 34 students, and 34 students in the control group. The interventions lasted 7 weeks. Writing performance tasks and rubrics were used to gather quantitative data while a Semi-Structured Interview Form was used to collect the qualitative data. For the analysis, paired samples *t*-test, ANOVA, and content analysis were used. The findings revealed that there was a significant difference between pre-test and post-test scores of experimental groups in which peer and self-assessments were conducted whereas there was not a significant difference between the scores of the control group. The findings of ANOVA, the post-test results of the experimental and control groups showed that there was a significant difference between all groups in favor of the 1st experimental group in which peer assessment was applied. The qualitative findings of the study corroborate the quantitative findings. Hence, we can conclude that peer and self-assessment practices were effective both in the development of students' writing skills and on their attitudes and interests towards writing.

1. INTRODUCTION

Writing skill, which is a language skill that students are required to gain and improve from their first year of educational life, is one of the most significant skills used while expressing oneself. It is deemed critically vital for students in terms of their academic success in other courses, expressing their thoughts effectively through writing and noting down what they have learnt (Sperling & Freedman, 2001). Since approximately half of the practices in the school environment require writing, the activities used to improve this skill become more important than any other skills.

*Corresponding Author: Aslihan ERMAN ASLANOGLU ✉ aslihanerman@yahoo.com 📍 Ufuk University, Faculty of Education, Department of Educational Sciences, Ankara, Türkiye.

Writing skill is considered a skill that encompasses steps including designing, organizing thoughts, drafting, formation, and editing (Chamot, 2009). Writing skill, with these aspects, is a higher order thinking skill, which is also simultaneously regarded as a process that incites metacognitive skills (Earl & Katz, 2006). One can describe higher order thinking skills as one's ability to use several skills holistically associating with their personal characteristics. Thinking method used by the students during writing constitutes the cognitive aspect of writing, and the checking technique used in the process of writing constitutes the metacognitive aspect of writing (Collins, 2000). Metacognitive skills can be defined as the level of awareness or knowledge that the individual has of their thinking or cognitive abilities (Desoete & Roeyers, 2002). Metacognitive skills are conceived as important factors to develop the concept of life-long and life-wide learning, and it is asserted that students with improved metacognitive skills will be more successful than others in their future lives (Edwards et al., 2002).

The assessment phase, which comprises the metacognitive aspect of writing skill, is one of the most valuable parts of a writing practice. Students can improve their own writing ability, fix their mistakes, and gain prevalent articulacy in writing through the feedback given as a result of the evaluation (Black et al., 2003). Information about the practices and the impact of these practices are limited in Turkey since there is no distinct writing approach to follow and assess writing skills in our country (Karatay, 2013). However, the development and improvement of students' writing skills necessitate the inclusion of processes such as planning, regulating at certain intervals, reviewing, correcting, and re-writing the teaching of writing (Collins, 2000). During these processes, when students receive feedback particularly on what they have written, they can be aware of the impact their writing has created on their readers and find the opportunity to improve themselves.

Teacher is mostly the primary evaluator in the assessment of students' written products. However, feedback should not be provided by a single source, but multiple and different sources are required. It is especially emphasized that diversification of sources that provide feedback is a necessity in order to have effective feedback practices (Ferris, 1997). These sources can be teachers, peers or even students themselves (Sun & Feng, 2009).

Peer- and self-assessments are metacognitive strategies helping students create recognition in what works and what they are supposed to improve regarding their performances. They ensure that the students make their mind in problem solving and decide for themselves regarding their attitude and attitudes of their peers. Once a teacher gives assignments for peer- and self-assessment, students will have the opportunity to reveal things and draw implications regarding their writing ability. They can improve their metacognitive skills by assessing not only their peers' but also their own work (Kulm, 1994). Additionally, thanks to these approaches, students will have the opportunity to criticize their learning and make it more permanent by taking the responsibility of their learning process (Sadler & Good, 2006). This condition, thus, creates a positive learning environment for students (Noonan & Duncan, 2005).

Peer assessment is defined as giving feedback to peers regarding a particular task, problem or performance on the basis of a standard set of criteria (Boud & Falchikov, 2007). Students already assess themselves and their peers in the educational environment. With the help of these assessments, they compare what they have learnt with that of the others and use it in order to make inferences about their own learning process. To include peer- and self-assessment to existing assessment and evaluation process allows students to systematize and formalize the assessments they have already made.

Researchers state that peer feedback has a significant role in students' educational life to improve their written products (Ruegg, 2015). Thanks to peer assessment, students not only get feedback from their peers and give feedback to them. With the help of this approach, students get the opportunity to compare their writing with those of the others and to widen and deepen

their grip of writing process and language use. In return, their critical reading skills, as a reader, are improved, and general critical thinking skills are developed (Moussaoui, 2012).

Self-assessment is an evaluative process in which students critically make reflections their works' quality, comment on what extent their work reflects the explicitly stated aims, and review their writing performance accordingly. In other words, self-assessment can be explained as a skill to criticize and decide upon one's thoughts and skills as a way of reinforcing their learning skills (Noonan & Duncan, 2005). With this aspect, self-assessment enables students to become autonomous learners and to mirror their progress and criticize their work (Pierce, 2003).

Self-assessment in writing practices is considered a necessity rather than a preference (Lam, 2010). By means of self-assessments, students grasp the performance expected from them and improve their writing skills by determining their weaknesses and strengths about writing (Oscarson, 2009). If self-assessment activities are carried out effectively, student grading may help the teacher save time, and provide feedback in the shortest time (Boud 1989; Sadler & Good, 2006). Self-assessment gives students the chance to analyze their writing skills and make alterations accordingly (Boud, 1989; Mistar, 2011). Academic success of the students who find the opportunity to notice their shortcomings and work on them is positively affected (Desoete & Roeyers, 2002; Gardner, 2000).

While students fulfill performance tasks that require higher order thinking skills like writing, the rubrics are instructive in evaluating these tasks. Rubric is a kind of rating tool that shows the dimension of the quality to be assessed in the evaluation of students' performances, and it comprises assessment criteria, criteria definitions and a rating strategy (Popham, 2006). Rubrics help not only the teachers but also the students capture the criteria to be deployed to assess a work and realize the level of the present performance of the students (Kutlu et al., 2010).

Studies on classroom assessment have demonstrated that peer- and self-assessment based upon a rubric improve students' writing performance and enhances the reliability of the grades by providing concrete criteria for performance evaluation (Andrade et al., 2008; Ross et al., 1999; Weigle, 2002)

The assessment phase that constitutes the metacognitive aspect of writing skill which has critical importance for students is one of the most important parts of an effective writing practice. Even though peer- and self-assessment are recommended to be used from primary school to higher education in evaluating writing skills, researchers indicate that there are restricted number of experimental studies in the international literature on this matter (Nielsen, 2021; Ruegg, 2015; Strijbos & Sluijsmans 2010). First group studies addressing self and peer assessment and writing skill are mainly based upon the comparison of the rating of teachers, peers and the students themselves in order to make evaluations about the reliability of peer- and self-assessment scores (Cho et al., 2006; Eckes, 2008; Falchikov & Goldfinch, 2000; Topping, 2003). These studies depend upon the hypothesis that if there is resemblance between teacher's scores and the feedback given to oneself or peers, then it is reliable. Second group studies involve the teachers' and students' opinions of peer- and self-assessment practices (Brown et al., 2009; Cheng & Warren, 1997; Fallows & Chandramohan, 2001; Hanrahan & Isaacs, 2001; Young & Jackman 2014). Third group studies focus on how the use of rubric influences students' peer- and self-assessment practices during the evaluation of students' writing performance (Andrade et al., 2008; Ross et al., 1999; Weigle, 2002). Studies in the international literature regarding peer- and self-assessment in writing skill is predominantly centered around writing skills in teaching English as a second/foreign language (Javaherbashsh, 2010; Meihami & Varmaghani, 2013, Nielsen, 2021, Wang et al., 2017). Similarly, studies in the national literature regarding peer- and self-assessment are associated with writing skills in foreign language teaching (Cömert & Kutlu 2018; Uysal, 2008). Additionally, the reliability of peer,

self and teacher rating in the assessment of writing skills have also been addressed (Erman Aslanoglu et al., 2021).

Previous literature shows that there is a necessity to conduct studies with regard to the influence of feedback based upon peer- and self-assessment on writing skills in mother tongue and to observe the influence of the process of peer- and self-assessment on writing skills following its application in the classroom environment. Therefore, this study attempts to illuminate the influence of peer- and self-assessment practices on the writing skills of high school freshmen year students. In this respect, the present study seeks answers to the questions given below:

1. Is there a significant difference between the pre-test and post-test writing task scores of the students in the experiment group in which peer-assessment has been implemented?
2. Is there a significant difference between the pre-test and post-test writing task scores of the students in the experiment group in which self-assessment has been implemented?
3. Is there a significant difference between the pre-test and post-test writing task scores of the students in the control group in which peer- and self-assessment methods have not been implemented?
4. Is there a significant difference between the pre-test and post-test writing task scores of the students in the self-assessment, peer-assessment and control groups?
5. What are the opinions of the students regarding the effect of peer-assessment practices on writing skills?
6. What are the opinions of the students regarding the effect of self-assessment practices on writing skills?

2. METHOD

2.1. Research Model

This research adopted mixed methods design in which quantitative and qualitative research techniques are jointly used. Mixed methods, the joint use of qualitative and quantitative methods, serve to carry out a thorough analysis and interpretation of the research problem (Yıldırım & Şimşek, 2011). This study implemented the “Exploratory Research Design” of mixed method designs. Accordingly, quantitative data of the study was analyzed first, then qualitative data were obtained and analyzed. The findings obtained were interpreted in correlation to one another.

As a quantitative dimension of the study, quasi-experimental design was used. Out of the quasi-experimental groups, pretest-posttest matched control-group approach was chosen for the study, and among the groups that showed similar qualities as a result of the analyses conducted, one control group and two experimental groups were objectively appointed. Quasi-experimental design studies with pre-test and post-test groups require the objective selection of the groups. The researcher objectively chose a control and an experimental group out of the existing groups and applied the pretest to both groups. Within this context, following the experimental activities carried out in the experiment group, posttest were administered in both groups and the differences between them were evaluated (Creswell, 2005).

The second phase of the research was based upon the interviews conducted with the students. Case study was chosen for the analysis of qualitative data. Case study is a qualitative research method in which a case or cases, namely a program, a social group or systems that are linked to one another are thoroughly investigated, and themes dependent on these cases are defined (Merriam, 2015).

2.2. Study Group

The study group comprises 102 students attending the 9th grade in a state high school in Ankara. Prior to determining the experiment and control groups, the students’ average grade point in the

Turkish Language course in the previous term was taken into consideration. General Turkish language course average grade point of 9th grade students of 6 groups was calculated to be 72.01 on the scale of 100.

One-way ANOVA test was employed in the analysis of the data since variance homogeneity could be met in the class divisions identified (Levene test $F=.68, p>.05$), score distributions were normal, and there were more than two groups. ANOVA analysis detected that the average grade point of the Turkish language course of the class divisions did not show a significant difference [$F(5-226)=.28; p>.05$]. This result demonstrates that there is no significant difference among the 6 class divisions regarding Turkish language grade point mean scores. Following these results, three of the class divisions were randomly selected as the study group. Moreover, prior to the experimental procedures carried out in the experimental groups, ANOVA test was used again to detect if there was a significant difference between pre-test scores of the study groups related to the writing skills. Table 1 illustrates the result of the ANOVA test conducted.

Table 1. ANOVA results regarding the comparison of the pretest scores for writing skill.

Group	<i>N</i>	\bar{X}	<i>S_x</i>	<i>sd</i>	<i>F</i>	<i>p</i>
1st Experimental (Peer) group	34	12.56	5.06			
2nd Experimental (Self) group	34	12.79	4.33	2-99	0.023	.98
Control group	34	12.65	4.24			

When Table 1 was reviewed, a significant difference was not detected between the groups regarding the mean scores for writing skills [$F(2-99)=.023; p>.05$]. As a result of the analyses performed, one control group two and experimental groups were randomized out of the three groups. In this study, among 102 students, there were 34 students in the First Experimental Group (Peer Assessment), 34 in the Second Experimental Group (Self Assessment) and 34 in the Control Group. Table 2 summarizes gender distribution of the students attending the control and experimental groups.

Table 2. Distribution of the students to experimental and control groups by gender.

Grup	Gender	<i>N</i>	Toplam
1 st Experimental group	Female	16	34
	Male	18	
2 nd Experimental group	Female	15	34
	Male	19	
Control group	Female	18	34
	Male	16	

Table 2 indicates that 47.1% of the students in 1st experimental group were female, and 52.9% of it were males. In the 2nd experimental group, females comprised the 44.1% of the group while males formed the 55.9% it. In control group, females formed the 52.9% while males comprised 47.1% of the group.

2.3. Procedures

Writing skill pre-test was primarily administered to all the groups within the scope of the research. Having completed the writing skill pre-test, writing skills of each group were rated by two raters, and their mean scores were used as the pre-test scores of the students. Following the application of the pre-test, the learning and teaching process in the study was conducted differently in the experimental groups where peer- and self-assessment were conducted, and in the control group where normal education was continued. The intervention phase of the research took 7 weeks (21 hours in total). The following section presents the practices applied in the experimental and control groups during this process.

2.3.1. Procedure steps in the first experimental group (peer-assessment) and second experimental group (self-assessment)

Fachikov (2005) recommends an effective guide oriented at carrying out writing skills practices with peer- and self-assessment approaches in the classroom environment. Peer- and self-assessment studies in this study were performed based upon these steps. The steps and the practices carried out are as follows:

1. Informing the students on peer- and self-assessment practices: The students had no prior knowledge of peer- and self-assessment practices. Within the scope of this step, the students in the 1st Experimental Group were informed on what peer- assessment was, how it was made, and the benefits of peer-assessment in the first week. The students attending to the 2nd Experimental Group were informed on the self-assessment approach.

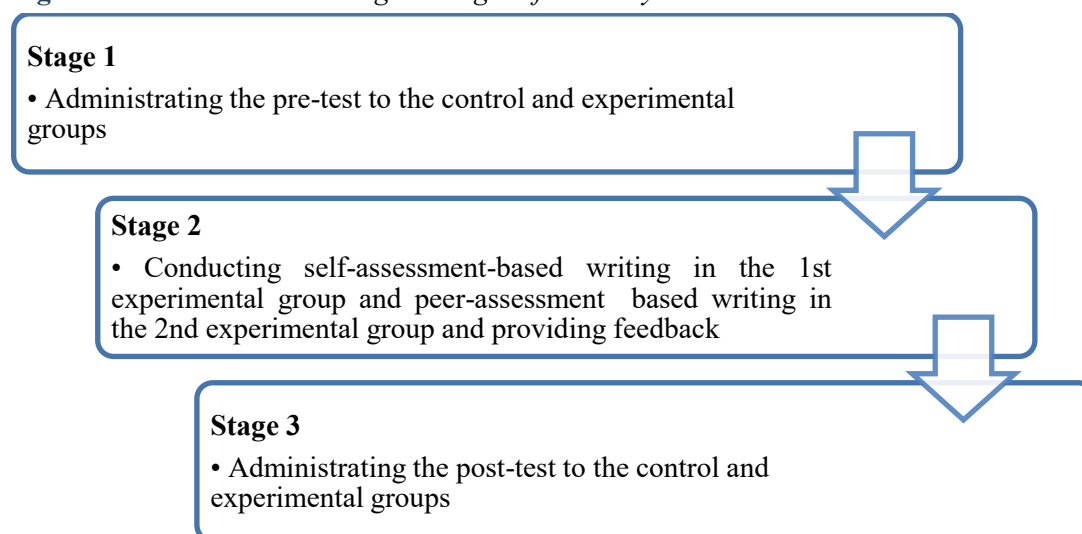
2. Explaining students that participating in peer- and self-assessment is beneficial and providing evidence: Within the scope of this step, the students were enlightened about what feedback was and that feedback could be provided from different sources (teacher, peer, self) and examples on how peer- and self-assessment could be made were introduced to the 1st and 2nd Experimental Groups in the second week. How the students would be involved in the assessment was also explained at this phase.

3. Explaining the assessment criteria to students: Writing assessment rubric was introduced to peer- and self-assessment groups, and information was provided on the criteria and criteria definitions found in the rubric.

4. Conducting sample studies: It is important to carry out studies as examples so that students can gain practicality and see their shortcomings in peer and self-assessment practices. Within this scope, the 1st Experimental Group (peer assessment) and the 2nd Experimental Group (self-assessment) were asked to write two more narratives during the process. Students attending to the 1st Experimental Group were randomly divided into groups of 3 or 4. The written product of each student in the group was assessed by two friends in the group, and feedback was given. When peer feedback had been completed, the teacher laid specific examples that carried perfect, average and weak qualities on the table and provided feedback on these matters. The students in the 2nd Experimental Group assessed their own written products. The teacher laid specific examples that carried perfect, mediocre and weak qualities on the table and provided feedback on these matters. During this process, the attention of the students was drawn to the mistakes they had made so that they could gain and improve their auto-control skill.

Following the completion of the above-mentioned processes in the peer- and self-assessment groups, the last test in which they were required to write a narrative was administered. Writing skills of the groups were rated by two raters, and the mean scores were used as post-test scores of both groups. Afterwards, interviews using a semi-structured form were administered to 15 students from varying levels of writing skills. A flowchart including the three-stage experimental process is presented in [Figure 1](#).

Figure 1. Flowchart illustrating the stages of the study.



2.3.2. Control group

Writing practices of the control group were implemented with regard to the curriculum of the relevant course. The teacher was asked to use a rubric in assessing students' writing tasks, and the essays of the students were evaluated accordingly using a rubric, and feedback was provided to the students as such.

2.4. Data Collection Tools

This section provides information about the data collection tools used during the research.

2.4.1. Writing performance

Four writing performance tasks were prepared to be used during peer- and self-assessment activities and to assess students' writing ability. Writing performance tasks were based on writing narratives. It is known that students mainly deal with narratives as text types in schools (Ateş, 2011). Equality in difficulty and class-level appropriacy of the writing performance tasks were considered. Two of the writing performance tasks that had equal difficulty levels were used in the pre-test and post-test practices of the experimental and control groups. The other two equally difficult writing performance tasks were used during the process for the writing practices of the control and experimental groups. Opinions were sought from two experts of the field, three Turkish literature teachers and two measurement and evaluation experts regarding the writing performance tasks prepared, and the tasks were put into their final form according to the received feedback.

2.4.2. Rubric evaluating narrative writing

A rubric was prepared following the steps recommended by Andrade (2001) so that the students' writing skills could be assessed and evaluated by peers, teacher, and themselves. The following are the steps and their explanations:

- 1) Identifying the criteria to be utilized in the assessment of writing skills: Since the students were going to be asked to write narratives, literature of the subject was reviewed, and 6 criteria were determined that provide the opportunity to assess students' writing skills as content-wise and format.
 - a) Textual Structure: Text should contain exposition, complication and resolution parts, and transition between the parts should be logically employed.
 - b) Characters: The name and physical-mental qualities of the characters should be given.
 - c) Setting and Time: The setting and time of the incident should be given in detail.

- d) Chain of Events: The text should contain a chain of events, and transition from an event to another should be logical.
- e) Language and Narration: Rich vocabulary should be used, statements should be clear and easy-to-comprehend, and meaningful connections between the statements should be sought.
- f) Spelling and Punctuation Rules: Spelling and punctuation rules should be sought, words should be spelled correctly, and appropriate punctuation marks should be used.

2) Determining the rubric type: In evaluating a written product, different rubrics including holistic and analytic ones can be used. Analytic rubrics provide better results compared to holistic rubrics since they give more detailed feedback in assessing students' performance and ensure intra-rater and inter-rater reliability (Knoch, 2009). Due to these qualities, analytic rubric was used in this study.

3) Defining the criteria: Considering the level and age of the students, the criteria determined in order to assess the writing ability of the students were ranked between 1 and 4; 1 is the lowest and 4 is the highest. Detailed definitions were also written considering the criteria and ranking. Consequently, the rubric that was developed consisted of 6 criteria, and each criterion is scored from 1 to 4. One can get 24 points at most from this rubric.

4) Expert opinion: The rubric prepared was sent to 3 experts in the field, 2 Turkish Literature teachers and 3 measurement and evaluation experts, and the experts were asked to evaluate the rubric as "adequate, partly adequate and inadequate" in terms of content validity (content, structure, criteria), appropriateness to the level of the class, and spelling and narration mistakes. The rubric was organized again compatible with the recommendations of the experts.

Receiving expert opinion is of vital importance in terms of evaluating the validity of the analytic rubric developed. Rubric development steps were followed to ensure validity, and using formula recommended by Miles and Huberman (1994), compatibility percentages of the expert opinions was found to range between 89% and 97%. These compatibility percentages were evaluated as evidence of the content validity of the rubric prepared.

For satisfying the reliability of the scores obtained from the rubrics, inter-rater coherency was investigated. To that end, writing performance tasks of the students were scored by two teachers, and inter-rater coherency of the total scores the students received from the test was analyzed through Kendall's W test. Kendall's W coefficient receives values between 0 and 1. If the value calculated is closer to 0, it indicates an inter-rater incoherency, and if the value is closer to 1, it indicates an inter-rater coherency (Howell, 2002). As a result of the calculations, inter-rater coherency for the pretest and posttest was found as 0.87 and 0.89, respectively.

Furthermore, intra-rater agreement coefficient was also calculated to ascertain if there was a difference between the rating made by the same rater at different time frames. To that end, responses belonging to randomly selected student were re-scored by a randomly selected rater at three-weeks intervals. The result was found as 0.92 applying the formula recommended by Miles and Huberman (1994).

2.4.3. Interview

An interview form was utilized in the research to unearth students' opinions of the influence of peer- and self-assessment practices on their writing skills. Within this scope, a semi-structured interview form with two items was prepared. The items were sought to be easily understood by the students, fit the purpose of the interview and not to contain any controlling expressions. Opinions of two expert linguists were asked to evaluate the quality of the items. Amendment was made compatible with the recommendations, and the form was completed. Interviews were performed with the students at the end of the data-collection process. When an open response could not be received from the students, the questions were paraphrased in a different way considering the level and age of the participants.

2.5. Data Analysis

The pre-test and post-test scores of the students had normal distribution. Two factors of normality are skewness and kurtosis. Having a skewness coefficient within the limits of ± 1 can be interpreted as the fact that scores do not show any important deviance (Tabachnick & Fidell, 2013). In this context, the pre-test and post-test scores were found to be within the limits and meet normality hypothesis. Therefore, statistical approaches were used in the analysis of data. In data analysis, t-test was used for dependent groups in the comparison of pre-tests and post-test scores since pre-test and post-test scores showed normal distribution, variances were homogenous, and covariance matrixes were equal. In inter-group comparisons, one-way ANOVA was used. Since a significant difference was detected between the groups after ANOVA analysis, Scheffe's test was used based on variance homogeneity. Statistical significance was set at 0.05 in all analyses conducted in the research. Moreover, in the event of a significant difference between the groups, effect size was calculated to determine how significant this difference was between the variables. While determining effect size, eta-squared (η^2) was used for the dependent group t test that analyzed the difference between the average of the two groups, and Cohen's f value was calculated in variance analysis (Creswell, 2005). $0.01 \leq \eta^2 < 0.06$ eta-squared value is interpreted as small effect, $0.06 \leq \eta^2 < 0.14$ range is considered as moderate effect, and values ranging between $0.14 \leq \eta^2$ show large effect. Cohen's f value belonging to the data was interpreted as small at .10, moderate at .25 and large at .40 (Cohen, 1988).

Content analysis was used to analyze qualitative data. The most general definition of content analysis is a systematic coding of qualitative or quantitative data within a specific theme or classifications (Creswell, 2005). In content analysis, the main aim is to reach notions that could explicate the collected data, thus similar data are brought together and interpreted in relation with the notions and themes determined (Yıldırım & Şimşek, 2010).

3. FINDINGS

The findings of the analyses are given in this section.

3.1. Findings Related to the Pretest and Posttest Score of the 1st Experimental Group (Peer Assessment)

Following the experimental procedures carried out in the 1st Experimental Group within the scope of the question: "Is there a significant difference between the pre-test and post-test writing task scores of the students in the experimental group in which peer-assessment method has been implemented?" paired samples t-test was used to unearth if there was a significant difference between pretest and posttest scores belonging to writing skills, and the results were illustrated in Table 3.

Table 3. Paired Samples t-test results regarding pretest and posttest scores of the 1st experimental group.

Grup	Test	N	\bar{X}	S_x	sd	t	p
1st Experimental Group	Pretest	34	12.56	5.06	33	-12.058	0.000*
	Posttest	34	19.53	3.82			

* $p < 0.05$

As it is illustrated in Table 3, a significant difference was found between the pretest and posttest scores of writing skills of the 1st Experimental Group [$t(33) = -12.058, p < .05$]. According to the findings obtained, it was found out that the mean score of the posttest scores ($\bar{X} = 19.53$) of the 1st Experimental Group was significantly higher than the pretest scores ($\bar{X} = 12.56$). These findings indicate that peer assessment has a positive effect on the improvement of writing skills

of the students. Eta-squared effect size was found as $\eta^2 = 0.815$. This value is an evidence that peer-assessment has a “large effect” on the enhancement of the students’ writing ability.

3.2. Findings related to the Pretest and Posttest Score of the 2nd Experimental Group (Self-Assessment)

Following the experimental procedures carried out in the 2nd Experimental Group within the scope of the question: “Is there a significant difference between the pre-test and post-test writing task scores of the students in the experimental group in which self-assessment method has been implemented?,” paired samples t-test was used to unearth if there was a difference between pre-test and post-test scores related to writing skills, and the results were illustrated in Table 4.

Table 4. Paired Samples t-test results regarding pretest and posttest of the 2nd experimental group.

Group	Test	N	\bar{X}	S_x	sd	t	p
2 nd Experimental Group	Pretest	34	12.79	4.33	33	-7.983	0.00*
	Posttest	34	16.09	4.13			

* $p < 0.05$

Table 4 shows that a significant difference was found between the mean scores of the pre-test and post-test scores of writing skills of the 2nd Experimental Group [$t(33) = -7.983$, $p < .05$]. Accordingly, it was seen after experimental practices that the mean score of the post-tests ($\bar{X} = 12.79$) of the 2nd Experimental Group was significantly higher than the pre-test scores ($\bar{X} = 16.09$). These findings suggest that self-assessment has a positive effect on the improvement of writing skills of the students. Eta-squared effect size was found as $\eta^2 = 0.658$. This value is an evidence that peer-assessment has a “large effect” on the improvement of the students’ writing ability.

3.3. Findings Related to the Pretest and Posttest Score of the Control Group

Following the educational procedures carried out in the Control Group (no peer and self-assessment) within the scope of the question “Is there a significant difference between the pre-test and post-test writing task scores of the students in the control group in which peer- and self-assessment methods have not been implemented?,” paired samples t-test was used to compare and find out the pre-test and post-test scores related to writing skills of the students, and the findings were illustrated in Table 5.

Table 5. Paired Samples t-test results regarding pretest and posttest scores of writing skills of the control group.

Group	Test	N	\bar{X}	S_x	sd	t	p
Control Group	Pretest	34	12.64	4.24	33	-1.496	0.144
	PostTest	34	13.18	4.21			

As can be seen in Table 5, there was no significant difference between the mean scores of pre-test and post-test of writing skills of the Control Group [$t(33) = -1.496$, $p > .05$]. According to this finding, it can be inferred that the current education process carried out in the control group has no significant effect on writing skills.

3.4. Findings Related to the Posttest Score of the Experimental and Control Groups

In order to answer the question “Is there a significant difference between the pre-test and post-test writing task scores of the students in the self-assessment, peer-assessment and control groups?” one-way ANOVA was carried out to illuminate if there was a difference between the posttest scores of the students belonging to the control and experimental groups. The findings were illustrated in Table 6.

Table 6. Results of the ANOVA of the posttest scores in the experimental and control groups.

Group	N	\bar{X}	S_x	sd	F	p
1st Experimental Group (Peer)	34	19.53	3.82			
2nd Experimental Group (Self)	33	16.09	4.13	2-99	20.857	0.00
Control Group	34	13.18	4.22			

As seen in Table 6, writing skill post-test scores of the groups significantly differed between the groups [$F(2-99)=20.857$]. Since group variances were homogenous, Scheffe’s test was used. The results suggest that writing skills of the students who attended to the 1st Experimental Group (peer assessment) were significantly higher than those of the 2nd Experimental Group (peer assessment) ($p < .05$) and Control Group ($p < .05$). Moreover, the writing skills of the students in the 2nd Experimental Group (self-assessment) were found to be higher than those of the Control Group ($p < .05$). When Cohen’s f effect size value (Cohen’s $f=.30$) of the difference between groups is investigated, it is found out that the difference has a “large effect” size.

3.5. Findings Related to Student Opinions Regarding the Effect of Peer Assessment on Writing Skills

Responses to two questions found in the interview form to answer the question “What are the opinions of the students regarding the effect of peer-assessment practices on writing skills?” were analyzed using content analysis. The 1st item of the interview form was the question “Do you think that peer assessment practices carried out to improve your writing skills have contributed to improve your writing skills? Please explain.”, and findings related to the responses are presented below:

Students’ opinions regarding the contribution of peer-assessment to writing skills were reviewed, and it was found out that these opinions could be brought together under two dimensions: cognitive and affective. These findings are illustrated in Table 7.

Table 7. Opinions of the students in the 1st experimental group regarding writing processes.

Category	Code	Frequency
Cognitive	Feedback given provided for realizing shortcomings and correcting mistakes	12
	Identifying the shortcomings of one’s own work while assessing the work of others	7
	Receiving quick feedback	6
Affective	Positive emotions (Enjoying the process, finding it enjoyable, being happy, having a fruitful time)	12
	Decreased anxiety towards writing	6
	Increased motivation for writing	10

12 of the students stated that feedback given by peers during writing practices provided for realizing the shortcomings of their writings and contributed to their correction. 7 of the students indicated that they also identified their shortcomings while assessing the writings of others. 6 of the students remarked that quick feedback contributed to their studies. Regarding to the affective characteristics, 12 of the students found it positive to receive peer feedback while 6 students realized a decrease in the anxiety they had towards writing practices. 10 students specified that their motivation to write increased. Opinions of some students regarding this subject are as follows:

“... While assessing the work of my friends, I realized the shortcomings in my own work and could correct them.” (Student A)

“... Talking to my friends and getting help from a rubric in essay writing decreased my anxiety. When the teacher told us to write an essay in the past, I would feel anxious about where and how to start.” (Student B)

“... In the past, I could not decide on what to write and just wrote down a few sentences. Now, I started to write longer and more carefully since my friends would be the ones to assess me.” (Student C)

“... I became aware of my shortcomings thanks to the feedback I received from my friends. It helped me focus on these points in my future writing practices.” (Student D)

“... The practices were fun. Normally, I would only learn my grade after having written an essay but now I could quickly see my mistakes.” (Student E)

The 2nd item on the interview form was “What were the things that gave you a difficult time in making peer assessment? Please explain.” The findings obtained herein indicated that the students had a difficulty in assessment, rubric use, and writing skills. The opinions are illustrated in Table 8.

Table 8. Opinions of the 1st experimental group regarding the situations they had most difficulty in during peer assessment.

Kategori	Kod	Frekans
Assessment	Disliking being assessed by a friend	2
	Feeling insufficient in assessing a friend	1
Rubric	Finding it hard to use a rubric since it was the first time	1
Writing skill	Having problems with writing	2

Among participants, 2 of the students expressed that they did not like being assessed by friends, one student felt insufficient while assessing friends, 1 student found it difficult to use a rubric, and 2 students had problems with writing. Opinions of some students regarding this subject are as follows:

“..... my friend criticized my essay a lot, which made me feel insufficient.” (Student A)

“..... I found it difficult to use this tool since it was the first time I used it.” (Student B)

“.... It is very difficult for me to write, but assessing the work of others was fun. I had difficulty because I do not like writing.” (Student C)

3.6. Findings Related to Students’ Opinions Regarding the Effect of Self-Assessment on Writing Skills

Content analysis was performed to analyze the responses to two questions found on the interview form designed to reveal answers to the question “What are the opinions of the students regarding the effect of self-assessment practices on writing skills?” The 1st item of the interview was the question “Do you think that self-assessment practices carried out to improve your writing skills have contributed to improving your writing skills? Please explain,” and findings related to the answers are illustrated below.

Students’ opinions regarding the contribution of self-assessment to writing skills were reviewed, and it was revealed that these opinions could be brought together under two dimensions: cognitive and affective. The summary of the findings is illustrated in Table 9.

Table 9. Opinions of the students in the 2nd experimental group regarding writing processes.

Category	Code	Frequency
Cognitive	Quality of the essays written increased	10
	Identifying the shortcomings of one’s own work	12
	Leading to contemplating more on one’s own work	11
Affective	Positive emotions (Enjoying the process, finding it amusing, being happy, having a fruitful time)	11
	Decreased anxiety towards writing	4
	Increased motivation for writing	9

Among the participants, 10 of them stated that self-assessments during writing practices increased the quality of their writings. 12 of the students indicated that they also identified their shortcomings, and 11 students specified that thanks to self-assessment, they could contemplate more on their own work. Regarding to the affective characteristics, 11 of the students found it positive to assess themselves during writing practices while 4 students realized a decrease in the anxiety that they had towards writing practices. 9 students specified that their motivation to write increased. Opinions of some students regarding this subject are as follows:

“...In the past, I used to complete my writing and not contemplate on what I had written. I did not know what to pay attention to. Contemplating on what I had written increased the quality of my writings.” (Student A)

“... I was happy to find the opportunity to contemplate on my work. With more practices, I started making less mistakes in my writing.” (Student B)

“... It contributed a lot. My motivation increased. In my opinion, if students practice more like this, the quality of our work will increase because once we are done with something, we usually do not have the chance to contemplate on it.” (Student C)

The 2nd item on the interview form was “What were the things that gave you a difficult time in making self-assessment? Please explain.” The findings indicated that the students had difficulty in assessment, rubric use, and writing skills. The opinions are illustrated in [Table 10](#).

Table 10. Opinions of the 2nd experimental group regarding the situations they had most difficulty in during self-assessment.

Category	Code	Frequency
Assessment	Feeling insufficient in assessing oneself	2
Rubric	Finding it hard to use a rubric since it was the first time	1
Writing Skill	Failure in self-assessment due to having problems with writing	2

Among the participants, 2 of them expressed that they felt insufficient for self-assessment, 1 student found it difficult to use a rubric, and 2 students had problems with self-assessment due to not their dislike towards writing. Opinions of some students regarding this subject are as follows:

“... I felt insufficient in assessing my own work. I was anxious about if I was assessing myself correctly” (Student A)

“.... There was detailed information on how to use a rubric but it took some time to get used to it” (Student B)

“.... I cannot write long because I do not like writing. So, there is not much to assess” (Student C)

4. DISCUSSION and CONCLUSION

Prior to the writing practices on the grounds of peer- and self-assessment activities, findings obtained from the pre-test application of the students in the experimental and control groups suggested that students’ writing skill was not adequate. This finding validates the findings of other studies related to writing skills in the literature (Çağınlar & Oğlazoğlu, 2002). This present state implies that sufficient importance is not given to the improvement of this skill in our country.

Another finding of the present study is that there is a significant difference between the pre-test and post-test scores of the experimental groups. As for the control group, there is not a significant difference between pre- and post-test scores. Almost all of the studies investigating the effect of peer- and self-assessment on writing skills show that peer- and self-assessment

have a positive effect on writing skills in general (Andrade & Boulay, 2003; Andrade et al., 2010; Cömert & Kutlu, 2018; Javaherbashsh, 2010; Meihami & Varmaghani, 2013).

In the final part of the study, a significant difference was found in all groups when a comparison was made between the mean score of the post-test scores belonging to the control and experimental groups. Post-test scores of the 1st Experimental Group (peer assessment) were detected to be significantly higher than those of the 2nd Experimental Group (self-assessment) and Control Group (teacher assessment). This finding coincides with the findings of experimental studies demonstrating a more positive effect of peer-assessment in writing in the mother tongue when compared to traditional feedback techniques (Cho & Schunn, 2007; Richer, 1992; Topping, 2003). For instance, in a study by Richer (1992) conducted on university students, the researcher has investigated the influence of peer and teacher assessment on writing skill and found that the writing skill of the students receiving peer feedback is significantly better than that of the students receiving teacher feedback. Additionally, Cho & Schunn (2007) have revealed that students receiving feedback from six peers were more successful than the students getting teacher feedback in improving the writing practices they have carried out for the Scientific Research Methods course. In the present study, post-test scores of the 2nd Experimental Group (self-assessment) were detected to be significantly higher than those of the Control Group (teacher assessment). This finding is parallel with the finding of other experimental studies in which self-assessment approach has been compared with teacher assessment (Andrade & Boulay, 2003; Andrade et al., 2010). For instance, according to the findings of the study by Andrade et al., (2010) which investigates the effect of self and teacher assessment on the writing skills of junior year high school students. Feedback based on self-assessment using a rubric has been found to have a more positive influence on the improvement in writing skills when compared to teacher assessment. The present study also found out that writing skill post-test scores of the 1st Experimental Group in which peer-assessment was used were significantly higher than those of the 2nd Experimental Group in which self-assessment was used. In the literature, experimental studies questioning which assessment is more effective in enhancing writing skills in the mother tongue could not be found; however, there are studies reporting that peer feedback is more effective in English as a second language teaching compared to self-assessment (Conrad & Goldstein, 2009; Khonbi & Sadeghi, 2012; Nakanoshi, 2015). Peer-assessment approaches are relatively more common when compared to self-assessment approaches (Fallows & Chandramohan, 2001). This context may even have helped students gain more advantage from peer-assessment approaches in writing practices.

Qualitative data of the study supports the findings obtained from quantitative analysis. Findings related to qualitative data obtained from the students in the experimental groups assessing writing skills with peer and self-assessment approaches suggest that peer- and self-assessment approaches contributed to the cognitive-affective characteristics of the students, enabled them to see their shortcomings, and gave them the opportunity to contemplate on their own work.

The findings in this report are subject to at least three limitations. First, the study was limited to freshmen year high school students. Second, different teachers conducted the writing processes in the experimental and control groups. As in any educational study, teacher differences may affect the presentation of the method and the results. Therefore, teachers should be supported, and care should be given to construct the same educational practices in each classroom. However, anyone teacher cannot be the same, and differences between the teachers may affect educational outcomes. Research with more than one teacher is affected by this limitation. On the other hand, two experienced raters obtained the students' pre-test and post-test scores using a rubric, and reliability of the scores was satisfied through this way; however, it should be kept in mind that subjective judgements during the rating process have limitations for the reliability of the scores.

Some future recommendations can be made regarding the results of the present study. When writing skill is considered as a critically important skill for students, feedback depending on peer- and self-assessment can be provided as of primary school within the scope of writing lessons. Thus, while writing skills of the students improve, so do their interest and motivation. Using metacognitive skills including peer- and self-assessment in writing practices can also improve these skills in students and help them be aware of their writing skills and processes. Therefore, teachers can receive vocational training on how to perform peer- and self-assessment activities in classroom. Researchers can investigate how peer- and self-assessment influence students' writing skills in mother tongue in different levels of grades. Moreover, it is also important to investigate in what way students with different proficiency levels in terms of writing are affected by peer- and self-assessment practices.

Declaration of Conflicting Interests and Ethics

The author declares no conflict of interest. This research study complies with research publishing ethics. The scientific and legal responsibility for manuscripts published in IJATE belongs to the author.

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Orcid

Aslihan Erman Aslanoglu  <https://orcid.org/0000-0002-1364-7386>

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