The present study aims at developing college students’ writing performance in the light of using problem based learning. This study employed the one group experimental design along with mixed research approach incorporating quantitative and qualitative analyses. She carried out a training program that included 115 TEFL students in Al Azhar University in the academic year 2018-2019 in the Gaza strip. The researcher's instruments included a writing performance rubric and a pre/post writing language performance test. During the study, the students received learning their lessons contents through using some problem solving activities which included searching and exploring. The results revealed that the students developed better written performance as they enhanced their problem solving abilities. The researcher recommends the following:

- Incorporating the problem solving approach in all language classroom.
- Choosing topics that appeal to students' interest and background knowledge.
- Presenting materials based on internet search to simulate students' problem solving abilities.
- Participating in oral and written activities as highly appreciated practices of learners.

**Keywords:** Problem Based Learning & Writing Performance

**Abstract**

The present study aims at developing college students' writing performance in the light of using problem based learning. This study employed the one group experimental design along with mixed research approach incorporating quantitative and qualitative analyses. She carried out a training program that included 115 TEFL students in Al Azhar University in the academic year 2018-2019 in the Gaza strip. The researcher's instruments included a writing performance rubric and a pre/post writing language performance test. During the study, the students received learning their lessons contents through using some problem solving activities which included searching and exploring. The results revealed that the students developed better written performance as they enhanced their problem solving abilities. The researcher recommends the following:

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Introduction

It has become clear that education reform in the 21st century should focus on students' performance in all aspects of learning. This elicits the importance of language performance which is grounded in Hymes (1972), quoted by Newby (2011) refers to the actual use of language. It includes students' responses either in an oral or a written form (Abbott & Wren, 2016). The role of language performance is evident in creating a real-life situation for learner to practice language performance either integration of oral and writing areas. Learners should write and speak about issues that they are familiar with and use communication strategies so as to convey messages to someone else.

However, it might be beneficial to deal with the written aspects in order to make it easier for assessment. At the same time the target functions imply the integration of both oral and written activities such as arguments, questioning, group dynamic activities through the students' preparation of providing evidences, comparing cases, discovering contradictions, criticizing, and asking questions (Harpaz, 2013; Nation and Newton 2009; Rivard and Straw, 2000).

Due to the importance of writing performance, students should be given the opportunities that would develop their writing performance. Therefore, it is important to shed light on some strategies and techniques that may enhance the students' writing performance. The following areas may be included in the problem solving inquiries: developing student-centered approach improving critical thinking, increasing higher order thinking, presenting authentic communication, offering hands-on activities, generating students’ questions, giving priority to evidence, explanation, and justification, engaging students in analyzing concrete data for writing task, providing activities that guide learners to generate meaningful questions (Ismail, 2006; Renau, 2016; Graham & Perin, 2007; Hart & Lee, 2003; Lin & Kharrufa, 2014; Duran & Dokme, 2016; NRC, 2000; ElSayed, 2017; Jones, 2009; Ismail, 2006)

The integration of problem solving approach into teaching requires certain features, for example, generating questions, designing experiments, gathering evidence, making claims, and justifying claims. It also includes learning by discovery, learning projects, generating questions, designing experiments, gathering evidence, making claims, and justifying claims. Each of these approaches stresses different parts of what is called “inquiry”. The inquiry also varies along a continuum of teacher-directed to student-directed where students should have an opportunity to understand the whole world around deeply through collecting data, solving problems and thinking logically and critically. Thus, the students of the problem based learning classrooms reported being more interested and satisfied regarding the subjects they studied (Kahle et al. 2000; NRC, 2000; Westwood, 2000). Hence, it is beneficial to make use of such features in the present study.
Context of the Problem

Writing performance is important for students. Most EFL majors in Palestine lack a clear understanding of writing performance. This may be due to the lack of applying strategies and techniques in an authentic context focusing on this type of writing performance. Within the previous frame, the following studies show the weakness of students' writing performance and the reasons behind such situation which could be attributed to several reasons such as; the deficiency of writing argumentative texts Ibrahim (2015), the difficulty of extracting ideas Chin (2016), and the teachers unawareness of the current writing strategies, Kakandee (2017).

Statement of the Problem

Based on the previously mentioned analytical points, there is a necessity to investigate the effect of the problem solving approach to develop the EFL majors' writing performance at Al-Azhar University in Palestine.

The present study attempts to answer the following main question:
What is the effect of using the problem solving approach on developing the EFL majors' writing performance at Al-Azhar University in Palestine?

Research Sub-Questions:

In an attempt to answer the above question, the following sub-questions were also raised:
1- What is the existing level of the EFL majors' writing performance?
2- What are the activities and writing prompts based on the problem solving approach to develop writing performance?
3- What are the components of the problem solving approach to develop writing performance?
4- How far is the effect of the problem solving approach on the target students' writing performance?

Literature Review & Previous Studies

Writing Performance & Problem solving

With regard to the definition of writing and performance, they are related to each other since writing is considered as an act of performance (Harris & Jones, 2016). The function of writing is not just to translate what students think about a suggested topic; it also serves to help students construct and evaluate their knowledge. Woolfolk (2013) ensured the importance of developing writing in order to help students express and perform their knowledge. The following studies showed the importance of developing writing performance, various studies presented the impact of writing performance in TEFL. Some of these studies examined the effectiveness of different approaches and strategies of teaching writing such learning styles in Bahgat's study (2014), feedback in Lackey's study (1997), blog in Eldesouky's study (2018), instruction in Mirlohi et al. (2012) and higher-order thinking in Abed study (2014), linguistics activities based on rhymes in Elsoud’s study (2016).
Writing, by nature, integrates with other components and activities based on thinking of English language. It cannot take place in isolation, however, it comes out as an integration process through which students can interact orally, raise questions, solve problems, engage in conversations and discussions and take notes, or write some stories, or write various viewpoints.

Problem solving is a scientific process which a person passes through. This process aims at understanding the problem correctly, providing the necessary information to solve the problem and finally, solving it by choosing the most appropriate solution (Williams, 2003). It is a learner-centered approach that improves learners to conduct research, integrates theory and practice, and applies knowledge and skills (Savery, 2006).

In terms of the strong connection between problem-solving and writing process, many studies were conducted in the field. The study of Flower and Hayes (2007) introduced problem-solving approach to writing as an alternative strategy for confronting the thinking process. Another study conducted by Whitfield and Xie (2002) showed the high positive coloration between problem-based learning and writing performance at Penn State College of Medicine. That means the relationship between problem-solving and writing performance is highly considered.

According to Barron et al. (2008), problem-based learning involves students working in small groups to “explore meaningful problems, identify what they need to know in order to solve the problem, and come up with strategies for solutions”. In the same way, Harevy et al. (2013) suggested that group work is an essential component of learning and teaching in problem-based learning (PBL), and is compromised if students’ experiences of PBL are colored by dissatisfaction with the process or outcomes. Students provided written reflections on PBL that enabled representations of their group work experience to be mapped using an attitude, skills, and knowledge framework to gauge understanding of the collaborative learning process.

The integration of problem solving and inquiry is noted by Hmelo-Silver et al. (2007) who stated that the inquiry process takes place when the person faces problem. He described the process of problem-solving as a process by which students confront with a problem that launches their inquiry as they collaborate to find solutions. Accordingly, students identify and analyze the problem based on the facts from the scenario; and then begin to generate hypotheses about solutions and they identify missing information. Then, students apply their knowledge, evaluate their problem solutions, recycle to research again if necessary and finally reflect on the knowledge and the skills they have gained. The steps of problem solving include the person’s perspective, considering present or past interactive factors, visioning the future, promoting things forward to and supporting own vision (Gheith, 2009).

However, the main limitation of solving problems as argued by Yuliani et al. (2014) is that solving problem does not consider the ultimate goals and a positive image of the desired future. This
could encourage participants to look backward and analyze the past rather than creatively develop strategies for the future.

It would have been more useful if it had included what is beyond the problems as Orem et al. (2007) reported that most people became discouraged as more problems were uncovered using a problem diagnosis approach, and sometimes could not think beyond those problems. Obstacles can be overcome by trying different solutions which represents the cognitive side of problem-solving; on the other hand, perseverance in the process, worrying, giving up the search for a solution, and hurrying to find a solution exemplify the affective side (Aksan & Sozer, 2007).

The effective problem solver and the opposite is a good comparison made by Murawski (2014) by which he showed that the effective problem solver reads a problem and determines how to overcome and solve it well. Furthermore, the effective problem solver does his best to simplify, define, and maintain a critical attitude throughout the problem. Ineffective problem solver, in contrast, lacks knowledge needed for this process. The learner cannot decide where or how to begin, jumps haphazardly from one part to another, justifies first impressions instead of testing them, tends to distrust reasoning and lacks confidence and a critical attitude as well.

Having taken in consideration the importance of problem-solving in writing, the findings of the previous studies discussed that integration of such components has positive impacts in the learning of problem solving approach. Therefore, the current research considers multiple ways to solve problems and deeply goes beyond what students think is at the core of good teaching. It tries to focus on the solving beyond the problems. Cooperative problem-solving among university students and group discussions of concepts such as empathy, building self-esteem in others and tolerance of differing abilities resulted in a productive experience for all students involved. Problem-based learning is a teaching strategy where students work collaboratively in "real world" problems to develop society problems that surround them.

**Design of the Study**

This study employed the one group pretest/posttest design along with a mixed research approach incorporating quantitative and qualitative methodologies.

**Delimitation**

The current research is delimited to the following:

- The participants of this study were third year English majors (n=115) enrolled in the English Department, Faculty of Education, Al-Azhar University, in the academic year 2018-2019, Palestine.
- Writing performance was selected for flexibility of assessment
- Some face to face and online activities based on the problem solving approach relevant to the targeted writing performance for the study participants.
Significance of the Study
This study is expected to be of importance for:

**Students:** as they can apply various strategies and activities by which they can enhance writing performance towards different issues, thinking deeply to ask questions and thinking positively to suggest solutions of problems.

**Teachers:** as they will be provided with a variety of suggestions and activities that can effectively enhance their EFL students' writing performance.

**Policy makers:** as they make use of problem solving approach in attempting to develop or renew the curricula and teaching materials, in order to enhance learners’ writing performance.

**Instruments**
The following instruments were used in the study:

- The Pre/post-test,
- The Writing Performance Rubric.

**Piloting of the Test**
To pilot the test, it was administered prior to teaching the writing performance course to a group of English majors (no=50) who did not participate in the study. The purpose of that piloting procedure was to:

- Establish the reliability of the test;
- Determine the appropriate time needed to answer the test;
- Ensure the validity of the test; and
- Check the suitability of the test to third year students in the clarity of the questions.

**Description**
The program is based on the problem solving approach. It consists of five sessions of problem solving. The following are the general procedures of the program:

All the activities focused on solving problems and aimed at developing writing performance. They were tackled through the following:

- In each session, the instructor or the students, as requested by the instructor, used internet research, posed a question or an issue or read books from library to start the problem solving approach process. (Warming up)
- Participants were involved in the didactic discussions or debate to start suggesting solutions.
- Participants and the instructor tried to suggest alternative solutions about the suggested issue. (Conclusion)

**Teaching the Program**
The program was taught by the researcher herself. In order to prepare the program’s activities, the researcher made use of several resources research online. All the activities were selected to suit the program’s objectives to develop writing performance. The program was
conducted in the first term of the academic year 2018-2019. It took 15 hrs. And 5 sessions over 3 weeks.

Assessment

Assessment of the student' writing performance development through the program was as follows:

- Every activity aimed to assess the students' writing performance whether by themselves or others
- Throughout the program, the students' tasks and oral discussion were checked regularly and the instructor provided them with regular feedback on their writing performance.
- Summative assessment was applied at the end of the program through the writing performance test.

Quantitative Analysis

Verifying the following hypothesis

The hypothesis states that there is no difference between the mean scores of the pretest and of the post-test of the study group in terms of problem solving in favor of the posttest. In order to verify the hypothesis, the researcher compared the mean scores of the study group in the pre and post measurements of the test. These results are clarified in the following Table (1)

Table 1

<table>
<thead>
<tr>
<th>Skill</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>tc</th>
<th>sig</th>
<th>Effect size(η² )</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
<td></td>
</tr>
<tr>
<td>Problem solving</td>
<td>1.92</td>
<td>3.61</td>
<td>0.78</td>
<td>0.88</td>
<td>20.894</td>
</tr>
<tr>
<td>Sequential model</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stages of problem solving</td>
<td>2.31</td>
<td>3.67</td>
<td>0.79</td>
<td>0.85</td>
<td>19.881</td>
</tr>
<tr>
<td>Introduction</td>
<td>2.47</td>
<td>3.99</td>
<td>0.83</td>
<td>0.84</td>
<td>19.777</td>
</tr>
<tr>
<td>Body paragraph</td>
<td>1.69</td>
<td>3.63</td>
<td>0.79</td>
<td>0.91</td>
<td>24.143</td>
</tr>
<tr>
<td>Conclusion</td>
<td>1.72</td>
<td>3.68</td>
<td>0.81</td>
<td>0.93</td>
<td>21.275</td>
</tr>
<tr>
<td></td>
<td>10.00</td>
<td>18.69</td>
<td>3.16</td>
<td>3.99</td>
<td>27.140</td>
</tr>
</tbody>
</table>

Table (1) shows that there is difference at the significance level of 0.01 between the mean scores of the pretest and of the post-test of the study group in terms of problem solving (the sub elements and the whole one) in favor of the posttest. So, there is a statistically significant difference between the mean scores of the pretest and of the post-test of the study group in terms of developing problem solving in favor of the posttest”. Thus, it can be concluded that the students' ability of problem solving developed
due to the program; and that the problem solving approach was effective in developing the students' writing performance.

Also, table (1) shows that the experimentation's effect size for solving problems. The effect size value of the test's total scores is 0.80, which is a large effect size indicating the effectiveness of the study's program in developing the students' problem solving.

**Qualitative Analysis**

The following examples are what participant A, participant B and participant C suggested as solutions for the topics of Unemployment and Future career

**Answers of pretest: (Pre treatment)**

**Participant A wrote about Unemployment topic**

Nowadays we faced a real problem which is unemployment. Great number of educated people can not find job because of financial problems. I hope that our government could build some projects to help these people finding jobs.

**Participant B wrote about Future career topic**

1. Unemployment is the biggest problem in the public one.
2. Getting used to hand crafts and try to make it as a job.
3. The government must support the workers by the equal distribution.
4. Getting used to the internet as a job online.
5. Stop import the things from other side and give the chance to the youth to work and to be creative.

**Participant C wrote about Unemployment topic**

Unemployment is not having a job and being without doing anything, and not having a salary. The person should be responsible for finding a job to provide his living. The government must provide jobs for unemployed by building many factories and make their work. They can also work in suggesting the needed.

So, in my opinion, I think that the country and the government must provide new jobs for the unemployed people.

Finally, when the man works, he will find money to get the living and keep looking for a new job where of get almost like it.
From the previous samples, it can be inferred that most participants mentioned the definition and discussed the problem in general. Participant A wrote their opinions towards the problem without suggesting any solutions while participant B and participant C suggested one solution but did not follow systematic stages of solving problems.

**Answers of posttest: (After treatment)**

**Participant A wrote about future career**

"If you really hard to find your future career, if you don’t have any ambitions come, students set on the university, more than to your selling or changing their college, other have more luck and get successful from the first years but they fail on their jobs. This is a small problem that most students face.

The problem can set up because of some reasons like they haven’t ambition, other students feel some pressure from their parents and the others wanted to stay with their friends. For example, have heard her father asked to be doctor in medicine and the decided to do what she already told me. I think parents could be the first reason for this problem.

Although the problem is really hard to solve, but we have to do our best. Parents should put some ambition on their children to grow up with them and get bigger, they also need to know their children abilities to help them on choosing their future. Probably, some need to give their children risk on themselves.

The best solution is growing their children up on a good environment to bring up someone knows what they want doing an important role in their society and can rewarding to help others even it was only small step in the advantage of growing their children up on kindness. Finally, they have to do that in order field to teach our the parents hurts and give a good example.

In sum, up future career is an important one that should teach doctors, lawyers and so on so we have to put more awareness for parents who need their children up for that the future."
Participant B wrote about Unemployment (Problem Solving Topic)

Global warming has many causes which happen whether natural events or human behavior. It is a natural event that is accelerated by human activity. The two biggest causes which reach and later kill its earth atmosphere. The second reason is green houses. These houses trap carbon dioxide and other gases which are not able to rise up but lie in the surface. The third person is volcanos.

When volcanos erupted, it produced some rare gases and also carbon dioxide that all human earth and people. So human activity played a role about carbon dioxide and reduce it. It is very important to plan all of this gas on air. Also, learning about global warming and how to reduce it.

Global warming has effects on all human beings. When human beings breathe, they release carbon dioxide. Fruits and vegetables cannot absorb it. All of these cause global warming. Greenhouses are used by people causing their different plants, like and vegetables and chives and fruits. It can also be used by most people by carbon dioxide on air which means spreading our toxic gases that humans breathe. They are not able to escape high temperatures. Also, many animals will die and cannot breathe. They need to live in a moderate weather. So, if the weather changes, they would all die and cannot breathe.

Many universities and organizations or organizations search for solutions to solve this pollution and abolition substances in the problem. There are many things we can do to reduce global warming. First, you have to buy an energy-saving product. To reduce the average of carbon dioxide in the air.

If you decide to recycle the rabbit, instead of burning it. Also, you can depend on yourself in manufacturing products instead of machines that consume fuel to work. Greenhouses are used by most people by carbon dioxide but in turn, can reduce its averages so the less solution is photosynthesis and recycling products to make the world better and to maintain the world, a responsible human, you must be aware of this problem and seek to reduce and finish this danger. By doing some, you are expected to participate in solving this problem, by trying to apply the solutions above which were mentioned before. In this way, you will spread out this issue to the whole world. We all try to spread out the awareness in order to live a healthy life.
Participant C wrote about Future career (Problem Solving Topic)

As we live in this large world, we face a lot of difficulties due to the huge amount of populations and the high number of new birth. One of the most dangerous problems we may face as a result of all these previous reasons is unemployment. Unemployment is considered to be one of the troubles that youth may face, but it is like anything in this world; it can be solved in many ways.

Unemployment causes a lot of problems among people and it has really affected others in an extent of their lives. It will displease the poverty among them and hurt their will to learn in school because people don't have another source or to get money from so they try to find another solution to cover their need and expenses which is different from the studying. Above all, unemployment may deprive many students to get the appropriate education and it may deprive them from going to school because parents can't provide them with the decent life which helps them get to schools.

For example, my 32-year-old aunt is suffering from unemployment and her husband works in many companies but he is illiterate. As a result, he is deprived of his income to go to school because he can't afford its expenses to solve all of these troubles.

There are many solutions which should be considered to solve all of these problems. All private jobs should be encouraged to improve our bad conditions. For example, every one should try to find a specific job which is related to his or her interests such as the hard work of cleaning or cafes because it will be better than the government job. Equally important, as we live in this globalized world, the interest is very useful to show our industries to the outside world. So, we should work as a free-lancer and get used to this technology.

To conclude, this world is full of new actions, development, and difficulties. As a result, we should stand up and take the right decisions to improve ourselves and to solve these difficulties such as the unemployment and any other things.
Commentary

First, the participants provided a good introduction starting from what is general to what is specific and wrote an overview of the key stages of the solving problem process. Whereas a big number of students attempted to solve the problem, a very few number of students did not follow the stages of solving the problem. This is in line with a qualitative study which was conducted by Ozturk and Guven (2016) on five students who described the problems they encountered while attempting to solve problems. Some students commented that the problems were complex and away from reality, while the others merely mentioned their background knowledge of the problem itself without thinking deeply to solve the problem. Also, the difficulty may lie in the problem itself which may put the knot in the solution. There is another reason why solving the problem may be difficult, which is paying attention to details. Moreover, the lack of participation in solving the problem itself may keep away from the optimal solution. Therefore, in the post test, the participants followed systematic procedures for identifying the problem first then finding solutions.

The statistical analysis showed that some participants developed less in identifying the problem and putting appropriate solutions to find the best ones. The problem solving approach can be used effectively to achieve a high level of the performance. It could be seen throughout implementing its activities as stated by Jones, (2009) where students are encouraged to develop their understanding by solving problems and working through solutions in subsequent class discussions, which allows the students to appreciate the availability of alternative solutions. Following this approach students learn to find solutions of problems in their real life.

However, there was still a weakness in their ability to suggest more than one solution. This may be attributed to the limited prior knowledge they had. With regard to using prewriting techniques, they got used to generating and drawing ideas before they started writing.

This positively affected participants' writing performance to organize the ideas before writing. The following are some examples of their writing.

Participant A and Participant C

Regarding the students' engagement into learning, it is noticed that they enjoyed solving problems in the current study. In the same line, Sindelar (2010) asserted that problem-solving was an effective strategy that the experimental group was also observed to be more engaged in the learning process due to the problem-based learning strategies.

Providing constructive feedback and introducing strategic methods and modeling can be observed in the progress of the student in their activities throughout the course. Jeon, Huffman & Noh, (2005) suggested that feedback helps learners to improve their problem-solving performance.
It could be concluded that the study was almost effective in developing the writing performance for the third year, English department students. This was evident through the qualitative analysis of the students' writing productions through the study.

Suggestions for Further Research
Researchers may further explore the effectiveness of using the problem solving approach in developing writing performance. The following are some examples of the studies that may be attempted:

- Conducting ethnographic case studies using the problem solving approach to develop writing performance.
- Investigating the effect of using the problem solving approach on teachers' professional development.
- Exploring the students' perceptions of using the problem solving approach in learning the English language in general and in improving their writing performance in particular.
- Designing a training program to encourage teachers to use the problem solving approach.
- Enhancing self-expression ability as a prerequisite for language learners.
- Developing teachers' pedagogical knowledge of the problem approach and the attached strategies.
- Using the task based problem solving approach to develop students' writing performance.
- Using storyboard based problem solving research in an action study.

Limitations
There are some difficulties encountered throughout the treatment:

- It was found that most participants were afraid of writing and using graphics or storyboard. Therefore, the researcher provided different techniques and tasks that facilitated the process. This will likely to be effective in developing their ability to write topics with little mistakes.
- It was less difficult for most participants to solve problem because they did not have enough knowledge. As a result, the researcher suggested different topics related to their interest. With this variety of topics, they will expand their knowledge so that they could discuss any topic easily.
- In the beginning of the classes, the participants were a bit careless. However, as they benefited more from the course, they started to attend class regularly. Therefore, instructors should motivate their students in order to engage them into learning.
- The classes were not really adequate for learning through the problem solving sessions. There were some obstacles which included; a regular cut of electricity and poor use of computer lab. However, the researcher tried to use the microteaching labs and the library to create a rich environment for the participants.
- It was a challenge for the researcher to meet all the participants' needs and wishes. Therefore, it is necessary to use different techniques based on effective approaches to enhance their writing performance.
Conclusions

The purpose of this study was to investigate the effectiveness of a program based on the problem solving approach for enhancing the English department students' writing performance. Based on the previously discussed findings and quantitative and qualitative analyses, the following conclusions were gleaned:

- Implementing the problem solving approach proved to be effective in developing English language majors' writing performance.
- The qualitative analysis of students' writing performance indicated that they became more aware of what is meant by writing performance, had the chance to practice writing easily without stress, received constructive feedback on what they wrote and finally developed their vocabulary and oral performance along with their writing performance.
- The participants were provided with successful language learning experiences which motivated their participation and improved their writing performance.
- The participants were satisfied with the problem solving approach as they expressed in their opinions.
- The program provided hands-on experiences that included different techniques of the problem solving approach.
References


