



EDUCATIONAL GAMES FOR DEVELOPING CRITICAL THINKING SKILLS: PRE-SERVICE ENGLISH LANGUAGE TEACHERS' VIEWS

ELEŞTİREL DÜŞÜNME VE EĞİTSEL OYUNLAR: İNGİLİZ DİLİ ADAY ÖĞRETMENLERİNİN GÖRÜŞLERİ

Derya ŞAHHÜSEYİNOĞLU*

ABSTRACT: The aim of this paper is to present an application of a sample lesson plan which aimed to develop critical thinking skills through educational games. The participants were 46 second year pre-service English Language teachers who were taking a course titled Advanced Reading and Writing II in the Faculty of Education. The lesson plan included a set of educational games on which the students worked together in groups to solve an educational problem they had set prior to their interaction through Compad educational package. In this paper, educational games and critical thinking relationship is discussed, the procedures of the application are described along with the tutors' and researcher's observation and the pre-service English Language Teaching (ELT) teachers' views on this application are shared. The findings show that although the students had been novice to educational games, they enjoyed the process and expressed that they recognize the value of such games in developing critical thinking skills while giving them a chance to develop their speaking skills by means of providing a real medium for interaction.

Keywords: critical thinking, problem based learning, English

ÖZET: Bu çalışmanın amacı eğitsel oyunlar yoluyla eleştirel düşünme becerilerini geliştirmeyi amaçlayan örnek bir ders planı uygulamasını ortaya koymaktır. Katılımcılar, Eğitim Fakültesi İngiliz Dili Eğitimi Anabilim dalında öğrenim gören ve İleri Okuma ve Yazma Becerileri II dersini alan 46 öğrencidir. Örnek ders planı, öğrenciler tarafından seçilmiş eğitimle ilgili bir problem durumunu "Compad" eğitim paketini kullanarak grup çalışması ve tartışma yoluyla çözmelerine dayandırıldı. Bu çalışmada problem çözmede eğitsel oyunların önemi ve eleştirel düşünme ilişkisi tartışıldı. Ders sorumlusu ve araştırmacının süreçle ilgili görüş ve gözlemleri paylaşıldı ve katılımcıların uygulama hakkındaki görüşleri de incelendi. Katılımcılar eğitsel oyun kavramıyla henüz yeni tanışmış olsalar da elde edilen bulgularda süreci eğlenceli bulduklarını ve eğitsel oyunların problem çözme ve eleştirel düşünme becerilerine olumlu yönde katkıda bulunduğu belirttiler. Bununla birlikte katılımcılar, bu tip etkinliklerin özellikle gerçek tartışma ve konuşma imkanı verdiğini aynı zamanda İngilizce konuşma becerilerinin de gelişmesine katkısı olduğunu ifade ettiler.

Anahtar sözcükler: eleştirel düşünme, problem temelli öğrenme, İngilizce

1. INTRODUCTION

Critical thinking entails defining a problem in a detailed way, finding reasons, meaning, and causes of the events through gathering information, and deciding on ways of solving it by means of original yet sound proposals (Beyer, 1991). As Seferoğlu & Akbıyık (2006) suggest, 'critical thinking is one of the main objectives of the contemporary curricula' (p. 199) although there is no consensus over the best way of teaching it in the foreign language classroom. The need for learning and applying ways of developing critical thinking and reading skills is growing in teacher education programs simply because future teachers must learn what and how to apply the concepts learned in their future teaching contexts. However, it is recommended, as any other educational application that pre-service teachers learn the ways how students can develop their critical and reading skills through meaningful language based activities.

Critical thinking skills can be developed starting at any age (Arikan, 2002). Young learners who are illiterate can develop their critical thinking skills through games and plays that are designed to enhance the learners thinking skills. In education, however, educational games are known to be important and necessary components of planned teaching for various reasons (Açıköz, 2003). Kim (1995, p. 35), for example, articulates that educational games provide us with a break from the usual routine of the language class because they are motivating and challenging while giving opportunities

* Dr., Hacettepe University, Faculty of Education, sderya@mapek.com

for language practice that can help developing language skills. As Anderson articulates (1996), those students taught to think critically learn how to listen better, read more carefully, pay closer attention, and react more knowledgeably to media, government, and commercial propaganda.

Computer based educational games have recently become an important asset of today's learning communities (Tüzün, 2006). Today, there are both paper-based and computerized educational games available to the learners of English, the latter including interactive ones as well. However, research on developing critical reading and thinking skills is yet scarce especially in university level classrooms. Although there are a variety of educational games in the market which are used to develop learners' critical thinking skills, Compad is a recent in shape, but a traditional one (as it is explained in the body of this paper) in what it includes and how it works.

In this study, as an educational material, Compad is used in instruction to develop critical thinking skills and its outcomes are described in one university level English Language Teaching (ELT) teacher education programme. The focus of this research is to record how pre-service ELT teachers view the value of developing critical thinking through educational games. In this research, the effect of educational games on pre-service English language teachers' development of critical thinking skills is investigated through collecting and analyzing participants' evaluations of the material following actual classroom application of the material. The findings of this study show that all of the students recognized the value of such activities in their reading classrooms.

2. METHOD

In this research, qualitative analysis is completed with a belief that it was the right methodology since the researcher aimed to gather participants' views on the educational application completed. The role of the researcher was to prepare and put the lesson plan into practice, prepare the most useful tools to gather the data and analyze them. While doing that, the instructor of the class worked in cooperation with the researcher to run the classroom interaction as smoothly as possible and also helped to validate the findings and conclusions by providing second reading of the data set in comparison with the conclusions.

2.1. Research Questions

Qualitative method is often used to provide an in-depth analysis of participants' views on certain issues (Creswell, 1998). In this experimental qualitative research, in order to find out the effect of educational games on students' critical thinking and reading skills, this research study attempted to find answers to the following research questions.

1. What is the perceived usefulness of using educational games to promote critical thinking?
2. What does the classroom interaction reveal in terms of the benefits and handicaps of using educational games such as Compad?

2.2. The Material

Compad (Photograph 1 & 2) is an educational tool allowing people with different experiences and knowledge communicate with each other sharing their opinions in a comprehensible manner (Zimmerman & Luethi, 2003). As an example to educational games, Compad is chosen for the purposes of this research because of its success in developing critical thinking as cited in previous research (Zimmerman & Luethi, 2003). As an educational material, it enables students to share knowledge with their peers via comprehensible and meaningful interaction that aims to solve specific pre-defined problems. Since its coming out in 1996 in Switzerland, a body of research has tested and reported its value in developing critical thinking through problem solving. However, there is a need to do some further investigation about the effect of educational games such as Compad on developing critical thinking due to the scarcity of research based conclusions on the issue as it was mentioned above.

Photographs 1 & 2: The Compad Content



Compad is a combination of a variety of pieces of materials including sticks, coloured clay, beads, pieces of papers in different colours and shapes, plastic coins, and other pin-sized materials. These materials are used by a group of students to depict the problem solving process as it occurs in a pictorial way. It is aimed by means of such materials, to provide the learners with alternative ways of expressing opinions and problem solving procedures through students' active use and structuring of the problem under investigation. Hence, while students try to solve a problem, they use these small materials to concretize their views, which gives them a chance to think in alternative formats (visuals) and new ways. Also, just as students' discussions continue as they materialize their thoughts, they play along with these materials, changing the concrete appearances of their thought processes. As such, it can be claimed that such materials embody both lower and higher order skills while encompassing activation of kinesthetic intelligence as educational tools.

Compad, according to its producers who used the material in many contexts:

1. activates the students more than the use of flipchart and whiteboard,
2. improves the acquirement of knowledge more than the use of flipchart and whiteboard,
3. improves the process of group-dynamic more than the use of flipchart and whiteboard.

2.3. Site & Participants

The course in which this application took place was titled *Advanced Reading and Writing II*, whose curriculum contained lessons aiming to develop critical thinking and reading skills. The applications described in this research were taught as a part of these lessons, but in a separate session apart from the students' course meeting. The volunteers were 46 second-year pre-service English language teachers studying in the division of ELT at Hacettepe University, Faculty of Education. Among the participants, 27 were females and 19 were males. The mean of students' age was 19 and the classroom instructor described the students as 'hard-working, noisy, respectful, fun to learn with, and smart'.

2.4. The Procedures

Students are first divided into groups of five because 'small groups of around five students provoke greater involvement and participation than larger groups (Harmer, 2001: 117). The groups were asked to choose names to represent their group identity and were then called accordingly. At last, they were asked to find a serious educational problem to discuss and find solutions. By using the Compad package of materials as tools that help constructing models of their solutions, the students discuss ways for solving the problem they have chosen. A card board was distributed to each group so that they could mount the materials on it and draw the relationship amongst ideas and events described with the help of the material. In order to see the difference between using the Compad and not, each group used the Compad in rotation. If group A started with Compad, group B started without it. Hence, each and all of the groups completed two sets of problem solving through critical reading sessions, one by using and the other without using the Compad material.

Photograph 3: Groups working



The groups worked with two tutors who helped students when they needed it and who observed and wrote observation notes of to assess how the discussions went. Photographs and video recordings were also shot by these tutors to record the process of the application. After all discussion was completed, students reported their project to whole class by showing and explaining their project work and answered questions that were asked to them (see Photos 3 and 4 for the groups at work).

Table 1: Group work

1st discussion	2nd discussion
Group A (uses Compad) · Problem I · with tutor A	Group A (uses Compad) · Problem II · with tutor A
Group B (works without Compad) · Problem I · with tutor B	Group B (works without Compad) · Problem II · with tutor B

2.5. Data Collection and Analyses

Data for this research come from two main resources:

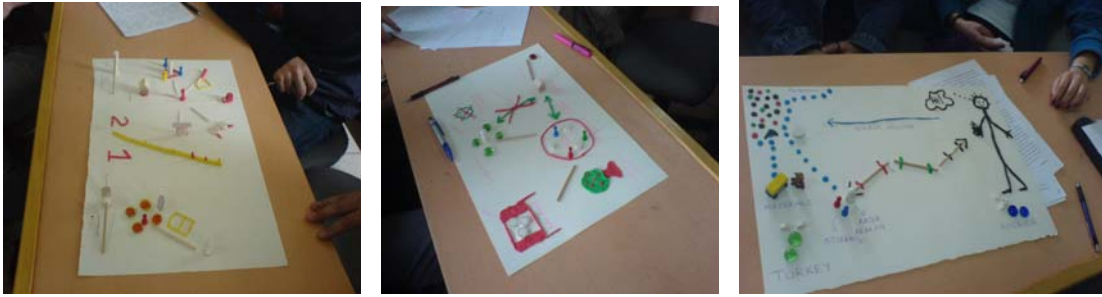
1. Students' written feedback on the value of the application procedures. The students were asked to answer the following questions:

- Do you think it was a useful and beneficial educational activity?
- How did you feel during the activity?
- Would you apply similar activities in your future classrooms? Why? Why not?
- Comments.

2. Tutors' observation notes which aimed to collect the nature and quality of the discussions starting from the students' deciding on a problem and finding ways of solving it.

Data in this research are collected and analyzed through qualitative methods among which close and multiple readings of the data is the most important one. A thematic analysis of students' feedback forms included a numerical analysis of the students' answers was conducted to record their reactions to the application. In order to ensure the validity of the interpretation of the findings, classroom instructor, who was knowledgeable on qualitative research, was asked to review students' papers and compare them with the interpretations the researcher had made. The instructor, following his study, concluded that the interpretations were correct and were in support of the findings.

Photograph 4. Students' Projects



3. FINDINGS

The answers to the research questions are found to be as follows:

3.1. Do Students Think that They Develop Their Critical Thinking Skills through Educational Games?

• Do you think it was a useful and beneficial educational activity?

44 students wrote that the activities were beneficial and only 2 students responded to the question by writing 'somehow'. Those students who found these activities 'somehow beneficial' stated that the activities 'help students to be more imaginative... On the other hand, using English can be limited in these activities. Activities can be more complex so that we use English more effectively.' The other student showed his or her partial satisfaction by claiming that the activities 'can increase the creativity of the student, but they take so much time.' As these two students' partial satisfaction shows, even those students who found these activities somehow beneficial agree that the activities were seen by them as imaginative and creativity enhancing. As the data analysis reveals, answers suggested by the participant students representing all other answers can be seen in the following:

- I think these kinds of activities make all students active in the class.
- Although the materials were limited in number, we had to be creative. I believe these activities can mostly be used as speaking activities.
- This activity helped us to produce new ideas which we could use in our classrooms in the future. We have realized that there is no problem without solution. As students, we have stated our problems and found solutions on our own.
- I wish our teachers had taught their classes like this one.
- In enjoyed this activity because it was a group work and we really created something like a model together.
- I believe that listening others' opinions while respecting them was the most beneficial outcome of this activity.

Some students, on the other hand, criticized the activity because of the following reasons:

- It was a good way of communicating, but the time we spent on it was too much.
- I think it was a good activity and I learned with it, but we are old students. This activity is better for children.

• How did you feel during the activity?

All of the students expressed positive attitude towards the atmosphere these activities helped building in the classroom. The keywords the students used while describing their feelings were enjoyable, amusing, responsible, interesting, advantageous, entertaining, creative, cheerful, having team spirit, effective, and important. One student's answer is representative of the others':

- All of us share the same problems. The university and the process of entering it is highly problematic. I remembered those very hard years when I was trying to get into the university. While working on our activity, I constantly remembered those years and I felt as if I was going to solve my own problem by providing solutions.
- I felt like an important individual of my country. I forced myself to find solutions and noticed that I was capable of findings solutions to my country's real problems.
- Because it was a group activity, I felt our "team soul." Our thoughts were like bricks and we put them on top of another. In the end, we built a wall.

• Would you apply similar activities in your future classrooms? Why? Why not?

All of the students stated that they will use these kinds of activities in their future classrooms because, for them, the activities enhance students' creativity, enable classroom interaction, incorporate peer and group work, result in problem solving and proposing real solutions to real problems, and activate students' willingness to learn.

3.2. What does the Classroom Interaction Reveal in Terms of the Benefits and Handicaps of Using Educational Games Such as Compad?

The tutors' observation notes indicated that although the students had asked some questions for clarification in regards to what was expected from them to complete the activity, they had started the task within the first three minutes. The following were the main notes the tutors noted down during the classroom activity:

- The students chose real and meaningful problems to solve that were relevant to their educational lives,
- The students actively discussed how the activity would be completed although one student in each group participated in the activity less actively most probably because of shyness and inward personality. However, these relatively silent students were given the role of a referee when certain arguments or disputes occurred within the group,
- There were one or two instances of argumentation in each group while finding the best idea that fits well into the activity, but students persuaded each other by extending discussions through active rationalization of their reasons.
- All students, including the silent ones, worked hard and effectively while mounting the concrete tools on their card boards.
- The students eagerly asked questions to the tutors when they needed help or extra information.
- All groups proposed alternative and accurate solutions to the problems they specified, none being less successful than the other.

4. DISCUSSION & CONCLUSION

This study applied a lesson plan by using an educational game called Compad to see whether or not the students thought that such materials could have the potential of developing students' critical thinking skills. The major finding was that pre-service English language teachers valued educational games as innovative and helpful tools and agreed that such materials should be used in English language classrooms. However, it would be necessary to investigate the effects of such materials in foreign language classrooms at all levels. As far as developing critical thinking skills is concerned, in contrast to traditional classroom-based learning, pre-service English language teachers must be educated to identify, explain, and model alternative patterns of thinking and small group interaction so that they can help educating their future students through such activities.

It was noted above that the pre-service English language teachers had not been exposed to educational games in this university setting. As a new educational experience, the students were fascinated with the quality of the conversations they experienced. The words the students used to describe this process were enjoyable, amusing, responsible, interesting, advantageous, entertaining, creative, cheerful, having team spirit, effective, and important, all of which show that as an educational game, Compad provided the students with a positive educational experience.

Because these pre-service English language teachers are the future teachers who will continue instructing what they have been exposed to, using educational games, as this study revealed, seems to possess the power of altering the way various skills and concepts are taught. The pre-service English language teachers expressed their willingness to use these kinds of activities in their future classrooms by claiming that these activities will enhance students' creativity, enable classroom interaction, incorporate peer and group work, result in problem solving and proposing real solutions to real problems, and activate students' willingness to learn. Future research, then, should look for the ways educational games can be used and the success it will be attained through such applications.

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Extended Abstract

Critical thinking entails defining a problem in a detailed way, finding reasons, meaning, and causes of the events through gathering information, and deciding on ways of solving it by means of original yet sound proposals. The need for learning and applying ways of developing critical thinking and reading skills is growing in teacher education programs simply because future teachers must learn what and how to apply the concepts learned in their future teaching contexts. However, it is recommended, as any other educational application that pre-service teachers learn the ways how students can develop their critical and reading skills through meaningful language based activities. Educational games are known to be important and necessary components of planned teaching for various reasons. It is articulated in related literature that educational games provide us with a break from the usual routine of the language class because they are motivating and challenging while giving opportunities for language practice that can help developing language skills. Today, there are both paper-based and computerized educational games available to the learners of English, the latter including interactive ones as well. Nowadays, there are a variety of educational games in the market which are used to develop learners' critical thinking skills among which Compad is a recent one.

In this study, Compad, as an educational tool used to develop critical thinking skills, is described and its application in university level ELT teacher education programme is described to learn how pre-service ELT teachers view the value of such games as language teaching materials. Compad is a tool that allows people with different experiences and different know how to communicate with each other and makes knowledge from their individual fields comprehensible. Since the development process started in 1996 in Switzerland, a lot of experience has been done. But there is a need to do some serious investigations about effects of Compad. In order to find out the effect of educational games on students' critical thinking and reading skills, this research study attempted to find answers to whether the students think that they develop their critical thinking skills through educational games, what the classroom interaction reveals in terms of the benefits and handicaps of using educational games such as Compad, and if educational games increase students' success in exams testing students' critical reading abilities. 46 second-year pre-service English language teachers studying in the division of ELT programme at Hacettepe University, Faculty of Education participated in this application. Among the participants, 27 were females and 19 were males. The course in which this application took place was titled *Advanced Reading and Writing II*, whose curriculum contained lessons aiming to develop critical thinking and reading skills.

Students are divided into groups of five because 'small groups of around five students provoke greater involvement and participation than larger groups (Harmer, 2001: 117). The groups are asked to choose names to represent their group identity and were then called as Group A and B. At last, they are asked to find a serious educational problem to discuss and find solutions. Whether the first group starts with Compad or not is defined by random selection. If group A started with Compad, group B started without Compad. There took place two sessions of discussion. The groups worked with two tutors who helped students when they needed it and who observed and wrote observation notes of to assess how the discussions went. Photographs and video recordings were also shot by these tutors. Data in this research are collected and analyzed through qualitative methods among which close and multiple readings of the data is the most important one. A thematic analysis of students' feedback forms included a numerical analysis of the students' answers was conducted to record their reactions to the application. The findings of this study revealed that all of the students claimed the value of such activities in their reading classrooms. 44 students wrote that the activities were beneficial and only 2 students responded to the question by writing 'somehow'. Those students who found these activities 'somehow beneficial' stated that the activities 'help students to be more imaginative... On the other hand, using English can be limited in these activities. Activities can be more complex so that we use English more effectively.' The other student showed his or her partial satisfaction by claiming that the activities 'can increase the creativity of the student, but they take so much time.' As these two students' partial satisfaction shows, even those students who found these activities somehow beneficial agree that the activities were seen by them as imaginative and creativity enhancing. All of the students expressed their positive attitude towards the atmosphere these activities helped building in the classroom. The keywords the students used while describing their feelings were enjoyable, amusing, responsible, interesting, advantageous, entertaining, creative, cheerful, having team spirit, effective, and important. All of the students claimed that they will use these kinds of activities in their future classrooms because, for them, the activities enhance students' creativity, enable classroom interaction, incorporate peer and group work, result in problem solving and proposing real solutions to real problems, and activate students' willingness to learn.