IJQE

International Journal of Quality in Education

Online, https://dergipark.org.tr/tr/pub/ijqe

Volume: 5, Issue 2, 2021

e-ISSN:2636-8412

PEER-LED TEAM LEARNING (PLTL), STUDENT ACHIEVEMENT AND ENGAGEMENT IN LEARNING CHEMISTRY

Omar Gonzales Lamina (Casimiro A. Ynares Sr. Memorial National High School, Philippinnes)

laminaomar@yahoo.com

Abstract

The main purpose of this study was to determine the effects of the Peer-Led Team Learning (PLTL) strategy on the achievement and engagement of students in learning Chemistry. It was conducted at Casimiro A. Ynares Sr. Memorial National High School, Taytay, Rizal during the second quarter of the school year 2019-2020. The participants of this study were chosen using purposive sampling. The sample students belong to one intact section of Grade 9 composed of 36 students. Two students from the class served as the peer leaders that facilitated the workshops for five weeks. This study utilized a one-group pre-experimental research design. The results revealed that there is a significant difference in the chemistry achievement and the engagement mean scores of the students before and after their exposure to Peer-Led Team Learning. A significant difference was found in all the CIP engagement factors which are cooperation, interest, and participation. Overall there is a significant difference in the engagement mean scores of students before and after the implementation of PLTL. It was concluded that the use of Peer-Led Team Learning as a teaching-learning strategy has provided positive effects to the achievement and engagement of students towards learning chemistry. The workshop participants also revealed that they are felt comfortable learning under the peer leaders because they were approachable, friendly, and was able to execute the lessons properly and clearly. The students also enjoyed sharing ideas and working together with each other that triggered cooperation among them.

Keywords: *achievement, chemistry, engagement, peer leader, peer learning*

Background

It is observed that many high school students experience difficulties with many of the concepts in chemistry as a subject. Chemistry had been regarded as a difficult sub-

ject for students by many researchers, teachers, and science educators because of the abstract nature of many chemical concepts, teaching styles applied in class, lack of teaching aids, and the difficulty of the language of chemistry. All these cause students, from primary level to the university, to develop poor understanding and misunderstandings and it also results in low test results and outcomes that serve as an indicator of the effectiveness of the instructions provided by teachers. Motivating students to engage and actively participate in science classroom activities is one of the major challenges teachers face daily. The purpose and importance of actively engaging students in the lesson should also be clearly understood by teachers. The fundamental aim of classroom engagement is to facilitate and stimulate maximum learning participation. When students are properly engaged in the classroom, they tend to show greater interest and participation in lessons thus leading to better performance (Carini, Kuh & Klein, 2013).

The NAT results taken by students of Casimiro A. Ynares Sr. Memorial National High School in the school year 2016-2017 has a mean percentage score (MPS) 38.41 in Science which is the lowest in all learning areas included in examination compared with the MPS in Filipino (58.10), Mathematics (41.63), English (54.44) and Araling Panlipunan (58.45). This only proved that students are confronted with problems in dealing with Science subjects which includes Chemistry as one of the component learning areas of the subject.

The Department of Education calls for the entire nation to see the urgency of addressing the issues and gaps that surrounds the basic education sector of our country. Teachers are specially called to seriously address and take active involvement in this issue since teachers are in the frontline service of the nation's education system. How to make students enjoy and learn in a Science subject is a challenge to every teacher. The need to adopt new teaching strategies is a big challenge nowadays. Teachers should consider a shift in their daily practices and think of better strategies that will encourage students to participate actively in the lessons.

One promising teaching strategy is Peer-Led Team Learning, a model used in teaching Science and Math that introduces peer-led workshops as a remediation approach to students left behind in the class. Students who have done well in the subject are recruited to become peer leaders. The peer leaders meet with the workshop participants each

week for one to two hours to discussed and engaged in a problem-solving activity related to their subject or topics which the participants find difficult or uninteresting.

It is in this light that the researcher decided to conduct a study to determine the effects of Peer-Led Team Learning on students' achievement in Chemistry and learning engagement of Grade 9 students of Casimiro A. Ynares Sr. Memorial National High School in Taytay, Rizal. The outcome of this study may also change the students' perception of chemistry and could serve as an eye-opener to teachers in a classroom with more than 50 diverse learners to think of ways and strategies on how to make every learning experience enjoyable in a friendly and accepting environment.

Research Questions

The main purpose of this study is to determine the effects of Peer-Led Team Learning (PLTL) on the achievement and level of engagement in Chemistry of Grade 9 students. Specifically, it sought the answer to the following questions:

1. What is the students' achievement in Chemistry before and after their exposure to PLTL?
2. Is there a difference between the pretest and posttest mean scores of students in Chemistry before and after their exposure to PLTL?
3. What is the students' engagement in Chemistry before and after their exposure to PLTL in terms of:

    a. cooperation
    b. interest
    c. participation

4. Is there a difference between the students' pretest and posttest engagement scores in Chemistry before and after their exposure to PLTL?
5. What are the learning experiences of students on Peer-Led Team Learning?

Literature Review

A total of 18 studies were found to be related to the present study. Fourteen of these related studies are foreign and four are local. The breakdown of the studies is presented as follows: (1) nine studies exploring PLTL on different fields of studies including science subjects and (2) nine studies revealing the relationships between engagement and science learning.

It is also important to take note that the studies of Winterton (2018), Snyder and Sloane (2016), Wells (2014), Bramaje and Espinosa (2013), Samaroo (2012), Finn and Campisi (2011), Tenney and Houck (2009) and Quitadamo, Brahler and Crouch (2009), they revealed the effectiveness and positive impact of PLTL in the teaching and learning process in the secondary and higher education science courses. Unanimously they exposed that PLTL improved the academic success of the students they've observed. Winterton stressed that the ability of peer leaders to relate to the student is an important factor in improving learning gains and in establishing a positive relationship between the workshop participants and teachers. Snyder and Sloane revealed that students in introductory biology courses performed significantly better when engaged in PLTL. There was also a drastic reduction in the failure rate of underrepresented minority students with PLTL, which further resulted in closing the achievement gap. The investigation made by Wells on the impact of Peer-Led Team Learning (PLTL) on secondary students has identified positive attitudes towards the implementation of PLTL with students reported gains in conceptual understanding, academic achievement towards learning biology topics. Bramaje and Espinosa conducted a study to assess the effectiveness of the Peer-Led Team Learning (PLTL) approach against the traditional teaching approach (TTA) in enhancing students' conceptual understanding and attitude towards chemistry, the results of the study showed that students exposed to PLTL performed better as revealed by the results of the assessment given to them. Samaroo also investigated the effectiveness of Peer-led team learning (PLTL) and it showed that students had better grade performance when PLTL was used in the course. Comparative data before and after the implementation of PLTL demonstrated improvement in grades, as well as understanding in chemical concepts, which were revealed by Tenney and

Houck. Lastly, PLTL appeared to help underperforming students make positive gains in critical thinking, according to Quitadamo, Brahler, and Crouch.

On the other hand, the study conducted by Chan and Bauer (2015) found no difference in the exam achievement of students who participated in PLTL versus those who participated in documented alternative study activities.

Wood (2019), Espejo (2018), Schmidt, Rosenberg, and Beymer (2017), Virtanen et al., (2016), Francisco (2015), Selim (2015), Jung (2014), Reeve (2014), and Thompson and Bennett (2011) unanimously cited the importance and relationship between student engagement and science learning. Wood revealed that relatedness, cooperation, and autonomy have positive impacts on students' engagement in classroom-based learning activities. Schmidt, Rosenberg, and Beymer stressed the importance of the person-in-context approach to student engagement in science. Espejo concluded that students who perceived their learning environment to be autonomy-supportive showed significantly higher academic engagement in their classes compared to the teacher-controlled counterparts. The assessment made by Virtanen et al. to the learning engagement of junior high school provided corroborating pieces of evidence between the engagement of junior high school students to self-esteem and academic achievement.

Jung suggested that educators, policymakers, and the research community need to pay more attention to student engagement and think of ways to enhance it to improve the performance of students in school. On the other hand, Reeve in his study stated that exploring the engagement level of students is highly essential and could result in a long-term commitment to their learning goals and academic success in science. The results of the study conducted by Thompson and Bennett indicated that there is an association between students' engagement and future orientation towards learning science.

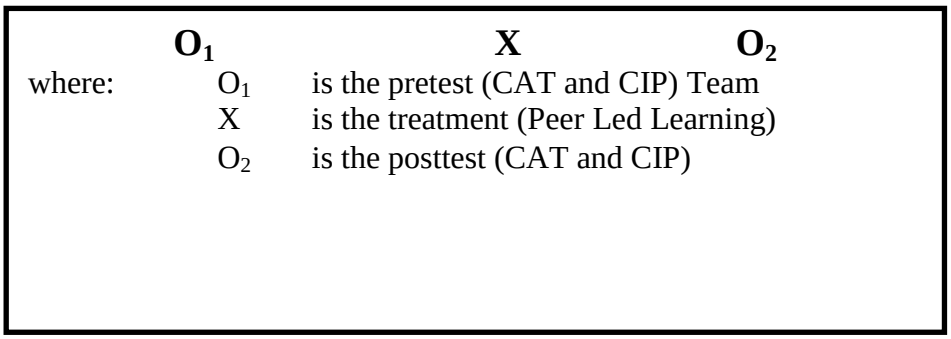
Methodology

Research Design

A single group pre-test-post-test pre-experimental research design was utilized in this study in determining the effects of Peer-Led Team Teaching (PLTL) on the chemistry achievement and learning engagement of Grade 9 students of Casimiro A.

Ynares Sr. Memorial National High School for S.Y. 2019-2020. Quantitative analysis was used in interpreting the results of the achievement test and the student engagement instrument to measure the effects of PLTL. Qualitative analysis was utilized in describing students' experiences during and after undergoing PLTL workshops. Figure 1 presents the research design.

A single group pre-test and post-test pre-experimental research design are shown below:



The Research Participants

The students that participated in this study are Grade 9 students of Casimiro A. Ynares Sr. Memorial National High School (CAYSMNHS), a public junior high school located at the municipality of Taytay in the province of Rizal. Purposive sampling method, a non-probability sampling technique was used in selecting the participants of the study from the existing school population.

For the school year 2019-2020, Casimiro A. Ynares Sr. Memorial National High School has 14 sections in the Grade 9 level which are: Acacia, Aguho, Apitong, Banaba, Dao, Ipil-ipil, Kamagong, Lauan, Mahogany, Molave, Mulawin, Narra, Talisay and Yakal. Twelve out of the fourteen sections are heterogenous, one section (Aguho) is under the special program for journalism while the other one is the pilot section. Section Acacia served as the participants of this study. The researcher handles section Acacia which is composed of 16 male students and 20 female students.

Research Instrument

In the conduct of the study, the researcher used five research instruments: (1) Lesson Plans with PLTL features and Workshop Plans (2) CIP Engagement Instrument based from the Student Engagement Instrument (SEI) developed by Appleton and Christenson (2006), used to determine the engagement scores of students in learning science (3) Chemistry Achievement Test (CAT) developed by the researcher (4) Open-Ended Questions (OEQ) and the (5) Students' Workshop Reflection developed by Tenney and Houckin (2004). Three of the research instruments were developed by the researcher and two were adopted which are the CIP Engagement Instrument and the Students' Workshop Reflection.

Peer-Led Team Learning Lesson and Workshop Plans

Five lesson plans in Chemistry were developed by the researcher following the prescribed format stated in DepEd Order 42 series 2016 and reflective of the 4A model of learning: Activity, Analysis, Abstraction, and Application. The PLTL lesson plans with PLTL features were designed in a way that enabled students to cooperate, made use of available resources, and developed the science process skills. The lesson plans underwent face and content validation from the experts before it was formally used in the class.

The researcher also developed five workshop plants that are parallel with the lesson plans and it was likewise used in the implementation of PLTL to the class. The workshop plan is composed of four stages. Stage I is the peer leaders' training, a resource for leader training which is Peer-Led Team Learning: A Handbook for Team Leaders by Roth, Goldstein, and Marcus (2001) was utilized as a guide in the study. The peer leaders' training included: content knowledge, pedagogical knowledge, pedagogical content knowledge, and leadership roles. In the content knowledge, the peer leaders were given advanced learning sessions of the concepts included in the workshops. Second, in pedagogical knowledge, the peer leaders were taught the process of teaching and learning that included motivational strategies, engaging and involving the workshop participants in the learning process. Next, is the pedagogical content knowledge, it was explained to them the specific teaching strategies and methods of teaching that were used in handling the specific content area. Lastly in the leadership

role, it was defined to the peer leaders the roles and duties that they must accomplish in the class being the workshop facilitators. They were also thought how to properly act as workshop leaders. Since peer leaders don't have any teaching experience; the researcher gave them an insight into the teaching strategies that were used in every workshop session. The training of the peer leaders occurred during the entire duration of the study. As the study progressed, daily meetings happened at the end of every session to ensure smoothness and effective PLTL implementation. Stage I took placed weeks before the implementation of the workshop proper that was facilitated by the supervising teacher.

The peer leaders are students that are at the same grade level and section of the mentees, they were selected from the class by determining the stanine score of students using their final grade in Science Grade 8 as the input score. Based on the summary of the stanine score, the two peer leaders have a score that is verbally interpreted as high. Aside from having a high stanine score, another basis for choosing the peer leaders are the positive character, discipline, and confidence demonstrated by the students during the first quarter. The class adviser and other subject teachers were also consulted and unanimously agreed on the capabilities of the two peer leaders.

Stage II is the preparation of workshop materials, at least three days were allotted for the preparation of materials needed for the lesson and this was assisted by the supervising teacher. Stage III is Peer-Led Team Learning (PLTL) workshop proper that was done from 8:30 to 9:20 in the morning at their classroom, during the workshop proper the researcher was not present inside the classroom to avoid contaminating and meddling the lessons. The workshop proper followed a systematic pedagogical process that included a review of the previous lesson, activity proper, discussion, analysis of guide questions, abstraction, and application.

The PLTL Workshop was divided into a 5-week session. Each week has a certain activity and was facilitated using a specific teaching strategy. The developed lesson plans and workshop plans were presented to the researchers' mentor and other experts for content validation.

The PLTL workshop commenced with the lesson atomic models as their first workshop session, focusing on the models proposed by Rutherford, Bohr, and Schrodinger. The students constructed different atomic models using simple available materials like paper plates and colored papers. The teaching strategies used in the first

workshop session are a group activity, scientific modeling, art integration, and gallery walk.

The second workshop was about the electronic structure of matter with two topics, the first topic is about the electron configuration of elements belonging to Groups 1-8 and the second topic is on how to represent the spin of electrons following Hund's Rule. Group activity and interactive discussions were used in facilitating the second workshop.

The third workshop was about Lewis dot symbol and electronegativity. The peer leader used group activity, interactive discussions, and picture analysis in facilitating the third workshop.

The fourth and fifth workshop was about chemical bonding; ionic and covalent bond. The students used PhET interactive simulations and group activity during the workshops and this was done at the school computer laboratory.

All workshop materials were provided by the teacher and other instruction materials were prepared by the peer leaders with the supervision of the teacher.

Cooperation-Interest-Participation (CIP) Engagement Instrument

The Cooperation-Interest-Participation (CIP) engagement instrument was based on the Student Engagement Instrument (SEI) developed by Appleton and Christenson in 2006. The original SEI is composed of 35 item question statements and is divided into six factors, which are the Control and Relevance of School Works, Future Aspirations and Goals, Extrinsic Motivation, Teacher Student Relation, Family Support for Learning and Peer Support at School. Karim (2013) examined the factor structure of the Student Engagement Instrument (SEI) using the Malaysian sample. The results showed that the SEI has enough internal consistency, with an overall Cronbach alpha (α) value of .900. Two factors were considered from the instrument because it is the most appropriate in this study, the Control and Relevance of School Work (CRSW) factor, which is composed of nine-question statements and the six-item Peer Support for Learning (PSL) factor. The 15 items adopted questions had undergone reclassification into cooperation, interest, and participation. The reclassification was based on the available literature on the internet and it was further validated by experts.

The CIP engagement instrument is a four-point scale, self-assessment tool that was used to determine the engagement scores of students in learning chemistry as a subject in school. The students responded to the instrument by checking one of the four categories ranging from Strongly Agree (4), Agree (3), Strongly Disagree (2), and Disagree (1).

Chemistry Achievement Test (CAT)

An achievement test is a test that measured the student's achievement and progression about the identified topics in Grade 9 second quarter Science (Chemistry). In this study, a 40-item multiple-choice competency-based examination developed by the researcher was used as an achievement test. The CAT was developed based on a prepared table of specifications (TOS) which measured three domains of learning, specifically: remembering, understanding, and applying. It covered five learning competencies which are (1) describe how the Bohr Model of the atom improved Rutherford's atomic model, (2) explain how the quantum mechanical model of the atom describes the energies and positions of the electrons, (3) explain the formation of ionic and covalent bonds (4) recognize different types of compounds (ionic or covalent) based on their properties such as melting point, hardness, polarity, and electrical and thermal conductivity and (5) explain how ions are formed. The CAT underwent face and content validation by seeking opinions from the adviser of the researcher. Comments and suggestions were considered in the preparation of the final draft of the test. The original 70 items first draft CAT was pilot tested to one of the Grade 9 sections, the students took the examination before the end of the school year 2018-2019. After the pilot testing of the CAT, results of the item analysis showed that nine items must be rejected and 20 need to be revised. The remaining 41 were retained.

Items with a difficulty index of 0.21-0.80 and a discrimination index of 0.30 and above were included in the final draft of CAT consisting of 40 items. In the final draft of CAT, 11 items (27.5%) were adapted from the learning module provided by the Department of Education, while the 29 items (72.5%) were originally constructed by the researcher. The final draft has undergone a reliability test using the Kuder-Richardson

Formula 20. The reliability estimate of the final draft of CAT is .7881 which indicates that the test has high reliability.

Open-Ended Questions (OEQ)

Five open-ended questions were used to find out how the workshop participants understood or feel about the situation, people, or environment that they have experienced during the conduct of the research study. The OEQ was employed after the implementation of PLTL and it was validated first by the researcher's adviser and research panels before employing the students. All students took the OEQ but the response from six randomly selected students were considered in this research. Their response was compared with the results of their answer to the student engagement instrument and was treated as qualitative data.

Students' Workshop Reflection

The students' workshop reflection is an instrument that was adopted from Tenney and Houck (2004) and it appeared on the paper of Hooker in 2006. It is a 15 item, four-point scale, self-assessment tool that was used to evaluate the performance of the peer leaders. It was given every week after the end of each workshop topic. The students responded to the instrument by checking one of the four categories ranging from Strongly Agree (4), Agree (3), Strongly Disagree (2), and Disagree (1). The minimum score for this instrument is 15 and the maximum is 60. The range of means score in every evaluation done by the research participants to the peer leaders was described using the following verbal interpretation or remarks:

3.3 - 4.0	=	Strongly Agree
2.5 - 3.2	=	Agree
1.7 - 2.4	=	Disagree
1.0 - 1.6	=	Strongly Disagree

Data Analysis

To determine the achievement of the students that was measured by the CAT, a pre-test and post-test was administered, the scores of the students were individually

checked, scored, totaled, and recorded. Mean, standard deviation, highest and lowest scores obtained were described and compared analytically.

On the other hand, the engagement scores of students in each factor were calculated by adding their scores to the questions. The cooperation factor is composed of four questions, interest has nine, and participation in two. The overall engagement scores of students were determined by adding the scores in all 15 questions.

The reaction, interest, and involvement of students in chemistry after undergoing PTLT were determined using open-ended questions. The open-ended questions were utilized to gather the responses of the participants towards learning chemistry under the Peer-Led Team Learning strategy and to generate common ideas regarding the situations given to them. All participants answered the open-ended questions, but answers with a common theme were summarized.

The 15-item workshop reflection was given to all students after the end of every workshop. There were five workshop reflection scores collected in this study. The mean score per question was obtained by adding the scores of students and dividing it by the number of raters. The weekly workshop reflection mean score was attained by adding the total scores of all students and dividing it by the number of raters. The five weekly mean score was added to get the overall mean score in the workshop reflection.

Statistical Treatment

The data in this study were obtained from the Chemistry Achievement Test, CIP Engagement Instrument, Open-Ended Questions, and Students' Workshop Reflection. The gathered data were grouped, tabled, and carefully organized, and interpreted by the researcher which served as the basis for the drawing of conclusions. Frequency, percentage, and ranking are all reflected in tabular forms. Gathered raw quantitative data were statistically processed and analyzed using MS EXCEL software. Descriptive and inferential statistics were used to treat the data for the basis of interpretation. Kuder-Richardson Formula 20 was used to determine the reliability of the Chemistry Achievement Test. The *t*-test for paired samples was applied to be able to compare the achievement of students in Chemistry, mean scores for each engagement factor, and

overall engagement level of students based on the results of the pre-test and post-test given to them. All test of difference was evaluated at 0.05 level of confidence.

Results

Students' Achievement in Chemistry

The achievement test in the form of pretest and posttest was utilized to determine the performance of the students in Chemistry before and after their exposure to Peer-Led Team Learning (PLTL) strategy. The pretest and posttest of each student are shown in Appendix J. Table 4 shows the summary of the descriptive statistics based on the results of the pretest and posttest given to students.

Table 1.
Descriptive statistics of the pretest and posttest scores of the students in the chemistry achievement test (N = 36)

Test	Highest Score	Lowest Score	Mean	Mean Difference	SD
Posttest	39	18	26.06		6.03
				12.23	
Pretest	24	5	13.83		4.61

Table 1 presents the results of the 40-item Chemistry achievement test administered to the research participants. The highest score obtained on the posttest given is 39 while the lowest is 18. The computed mean or the average of the scores is 26.06 the standard deviation is 6.03. On the other hand, the highest score obtained on the given pretest is 24 and the lowest is 5. The computed mean or the average of the scores is 26.06 the standard deviation is 6.03. The computed mean or average of the scores is 13.83 and the standard deviation is 4.61. The difference between the mean of the pretest and posttest is 12.23, this shows that there is an increase in the scores of the students after the implementation of Peer-Led Team Learning. In addition, the computed standard

deviation of the scores in the posttest has become spread out or scattered compared to the scores of the pretest.

To determine whether the performance of students in the pretest and posttest is statistically significant, paired *t*-test for grouped data was employed. The results of the test are summarized in Table 2:

Table 2. *The paired t-test between the students' pretest and posttest in CAT (N=36)*

Test	Mean	SD	df	*t*-value	*p*-value	Remarks
Posttest	26.06	6.03	35	13.83	0.000	Significant
Pretest	13.83	4.61				

$p<0.05$ significance

As presented in Table 2, the computed *t*-value is 13.83, while the *p*-value is 0.000 which is less than the 0.05 level of significance ($p < 0.05$) set in this study. This indicates that there is a significant difference between the scores of students on the Chemistry achievement test administered to them before and after their exposure to the Peer-Led Team Learning (PLTL) strategy. The result of the achievement test also revealed that the students performed better on the posttest compared to the pretest and this affirms the effectiveness of PLTL as a teaching-learning strategy in science for Grade 9 junior high school students. The outcomes of the study are also supported by the findings of the research conducted by Wells (2014) that investigated the impact of Peer-Led Team Learning (PLTL) on secondary school students' conceptual understanding of biology concepts. Gathered data have identified positive results towards the implementation of PLTL, with students reported gains in conceptual understanding and academic achievement. Moreover, PLTL was generally effective in supporting the academic success of students in science subjects. The results of the study of Snyder and Sloane (2015) also confirmed that PLTL has a positive effect on students because it helped improved performance and engagement in science subjects by the interaction of the participants with the peer leaders and being involved in problem-solving situations and open discussions. The study also conforms with the findings of

Frey, Fink, and Solomon (2018) that showed robust evidence that Peer-Led Team Learning (PLTL) improved the academic success of students in Science and Technology and Mathematics subjects.

Students' Engagement in Learning Chemistry

To determine the engagement mean score of students in chemistry before and after their exposure to PLTL, the Cooperation-Interest-Participation (CIP) engagement instrument was utilized. The engagement of students in each factor in the pretest and postest were individually analyzed and summarized on the succeeding tables.

Table 3. *The mean and standard deviation of the cooperation factor*

Test	Mean Score	Mean Difference	SD
Posttest	14.67	3.23	1.62
Prettest	11.44		1.80

As shown in Table 3, the mean score in the posttest of the cooperation factor is 14.67 with a standard deviation of 1.62, while the mean score in the post-test is 11.44 with a standard deviation of 1.80. It can be noticed that there is an increase in the mean scores of the pretest and posttest (the mean difference is 3.23) in the cooperation factor.

Table 4. *The mean and standard deviation of interest factor*

Test	Mean Score	Mean Difference	SD
Posttest	32.22	3.66	2.90
Prettest	28.56		3.63

As presented in Table 4, the mean score in the posttest of the interest factor is 32.22 with a standard deviation of 2.90, while the mean score in the pretest is 28.56 with a standard deviation of 3.63. It is clearly shown that there is an increase in the mean scores of the pretest and posttest (the mean difference is 3.66) of the interest factor.

Table 5. *The mean and standard deviation of the participation factor*

Test	Mean Score	Mean Difference	SD

Posttest	7.63	1.1	0.79
Prettest	6.53		1.16

As revealed in Table 5, the mean score in the posttest mean score of the participation factor is 7.63 with a standard deviation of 0.79, while the mean score in the pretest is 6.53 with a standard deviation of 1.16. It can be seen that there is an increase in the mean scores of the pretest and posttest (the mean difference is 1.1) of the participation factor.

Table 6. *CIP overall mean and standard deviation*

Test	Mean Score	Mean Difference	SD
Posttest	54.25	7.72	4.09
Prettest	46.53		4.53

As shown in Table 6, the overall mean score in the posttest is 54.25 with a standard deviation of 4.09, while the mean score in the pretest is 46.53 with a standard deviation of 4.53. It can be noticed that there is an increase in the overall mean of the pretest and posttest (mean difference is 7.72) engagement scores of students.

To further examine the results of the pre and post engagement of the student participants, the mean scores of each factor were individually analyzed using paired t-test for grouped data to be able to determine if there is a significant difference between the scores. The results of the test are given in the table below:

Table 7. *The paired t-test between the students' pretest and posttest mean score in the CIP (N=36)*

Engagement Factors	Posttest Mean Score	Pretest Mean Score	df	*t*-value	*p*-value	Remarks
Cooperation	14.67	11.44	35	9.27	0.000	Significant
Interest	32.22	28.56	35	5.27	0.000	Significant
Participation	7.36	6.53	35	3.46	0.000	Significant
Overall	**54.25**	**46.53**	**35**	**8.77**	**0.000**	**Significant**

$p<0.05$ significance

As presented in Table 7, the computed t-value for the cooperation factor of the CIP engagement instrument is 9.27 while the p-value is 0.000, which is lower than the 0.05 ($p<0.05$) level of significance set in this study, this indicates that there is a significant difference in terms of the mean scores of the cooperation factor before and after the exposure of students to PLTL. On the interest factor, the computed t-value is 5.27 while the p-value is 0.000 which is also lower than the 0.05 ($p<0.05$) level of significance, this is a strong indication that there is a significant difference in terms of the interest factor that affected the engagement of students in learning chemistry. Furthermore, the computed t-value for the participation factor is 3.46 while the p-value is 0.000 which is also lower than 0.05 ($p<0.05$), the result likewise indicates that there is a significant difference in the participation factor of engagement students before and after their exposure to PLTL.

The overall results of the CIP engagement instrument revealed that there is a significant difference in the engagement mean scores of students before and after their exposure to PLTL with a t-value of 8.77 and a p-value result of 0.000 that is lower than 0.05 ($p<0.05$) level of significance. It can be inferred from the analysis of the overall pre and post-mean scores of the CIP engagement instrument that the Peer-Led Team learning strategy significantly improved the engagement of students in learning Chemistry.

The results of the study are also parallel with the findings of Hampden-Thompson and Bennett (2011) that understanding the students' engagement in science and the factors that influence learning is essential in addressing the issue of improving the achievement of students towards a subject. Reeve (2012) revealed that teachers should explore the factors that contribute to the learning of students because it is essential to their long-term commitment and their learning goals. Furthermore, according to him that prosocial approaches affect the academic success of students in science. Finn and Campisi (2011) showed that active learning strategies such as PLTL can improve student learning engagement and not adversely affected student performance in science.

Students' Response to the Open-Ended Questions

To further validate the results of the quantitative analysis, five open-ended questions were employed. The researcher developed the open-ended questions and it was validated by the researchers' adviser and panel members. The open-ended questions were utilized to gather the responses of the participants towards learning chemistry under the Peer-Led Team Learning strategy and to generate common ideas regarding the situations given to them. All participants answered the open-ended questions, but answers with a common theme were summarized. In this study, the posttest engagement scores were taken and served as the basis for the grouping of students into high and low ability groups.

Based on the response of both high and low ability students, the peer leaders helped improve their performance in chemistry because they felt more comfortable whenever their classmates speak in front of the class and it helped eased the feeling of intimidation brought about by the too much formality in the classroom established by their teachers. The students also enjoyed sharing ideas and working with each other that triggered cooperation among them. The workshop participants also revealed that the peer leaders during the lessons are approachable and they were able to execute the lessons clearly and vividly because they know the topics assigned to them very well. Furthermore, based on the open-ended questions, they felt no pressure and they were not hesitant and gained the freedom to express their ideas inside the classroom.

According to the high ability group, they experienced no problems during the implementation of Peer-Led Team Learning because the peer leaders were able to maintain order inside the classroom and they focused on finishing the assigned task to them and listening to the peer leaders. On the other hand, based on the answer of the students in the low ability group they experienced problems during the workshop implementation like being bored during discussions because of the peer leaders being mild and tolerant to the noisy students. They also find that the peer leaders not as good as the teacher when it comes to information sharing and giving more details about a topic which resulted in some confusion.

The students believed that Peer-Led Team Learning workshops improved their engagement in learning Chemistry because they interacted, shared ideas, and cooperated with their groupmates and other students in performing and accomplishing the activities assigned to them. Difficult topics that are hard to understand became easier with the

help of their peer leaders and other students. By interacting and sharing ideas the students were also able to correct their misunderstandings and confusions about the chemistry topics.

Both groups of students unanimously revealed that the most interesting Peer-Led Team Learning topics are the atomic models and electron configuration. According to them, those topics are easiest and the most interesting, they also enjoyed learning them because in those topics they made models and representations of the sub-particles of matter that are impossible to be seen in real life. The activities provided to them stirred their curiosity and triggered them to do more research and information regarding those topics.

The students also recommend the use of Peer-Led Team Learning workshops to students of other Grade 9 sections because based on their experience it resulted from a positive impact on their learning engagement and improved their performance in chemistry. The students believed that learning is more exciting and fun when it is done with friends compared to formal learning. PLTL also improved the relationship and cooperation among and between students by openly sharing and soliciting ideas and information with one another.

It can be deduced from the summary of the student's responses to the open-ended questions that the students perceived the teaching strategy positively because the majority of the students reported that the strategy has increased their cooperation, interest, participation and allowed them to be more active in the classroom.

Results of the Students' Workshop Reflection

To ensure the quality of the implementation of the Peer-Led Team Learning and the competence of the peer leaders, and adopted workshop reflection tool was administered to the workshop participants. The workshop reflection is a 15 item, four-point scale, self-assessment tool given after the end of each workshop. The students responded to the instrument by checking one of the four categories ranging from Strongly Agree (4), Agree (3), Strongly Disagree (2), and Disagree (1). The total response scores in every question were shown to the peer leaders and they were asked to reflect on it for improvement. The response is summarized in Table 8.

As presented in Table 8 the overall mean score based on the response of students to the workshop reflection tool conducted for five weeks is 3.42 which indicates that they strongly agree and are satisfied with the performance of the peer leaders and the implementation of PLTL. Data revealed that question number 8 obtained the highest rating with a 3.58 mean response, the workshop participants strongly agreed that the peer leaders were not intimidating and friendly to them during the implementation of the PLTL workshops.

Table 8. *Summary of the students' workshop reflection (N=34)*

Items	Mean Response	Remarks
1. The team leaders are intimidating and unfriendly to the workshop participants. (reversely scored)	3.58	Strongly Agree
2. The workshop materials are well connected and appropriate to the lesson.	3.55	Strongly Agree
3. Interacting and listening to the workshop leaders increase my understanding of chemistry.	3.54	Strongly Agree
4. The venue is well lighted and ventilated and is conducive for learning.	3.54	Strongly Agree
5. The workshop leaders are effective in leading the workshop.	3.53	Strongly Agree
6. The workshop materials are sufficient and appropriate for the topic.	3.51	Strongly Agree
7. I agree with the explanation and information that the leader gives during the sessions.	3.51	Strongly Agree
8. The workshops are improving my understanding and performance in chemistry.	3.48	Strongly Agree
9. The workshop leaders are well prepared.	3.46	Strongly Agree
10. I am satisfied with the learnings I get from every workshop session.	3.46	Strongly Agree
11. I would recommend a Peer-Led Team Learning workshop to other students.	3.45	Strongly Agree
12. Interacting with other group members increases my understanding of chemistry.	3.42	Strongly Agree
13. In the workshops, I am comfortable asking questions about the topic that I do not understand.	3.42	Strongly Agree
14. I help explain problems to other students during the workshop.	3.34	Agree
15. Noise or other students do not distract me during the workshop.	2.55	Agree
Overall mean	**3.42**	**Strongly**

	Agree

Question number 2 got the second-highest mean response score of 3.55 from the students, they strongly agree that the materials prepared by the peer leaders is appropriate and connected to the topics they handled, and it is also supported by the response in question 6 (3.51) that the workshop materials were enough for the needs of students. Questions number 3 and 4 got a mean score rating of 3.54, the students strongly agreed that interacting and listening to the peer leaders helped increase their understanding of the chemistry topics and the venue for the PLTL workshop was conducive for learning. The workshop participants also revealed thru questions number 7 and 8 that they strongly agree with the explanations and information that their leaders provided during the sessions and the workshops help improve their understanding and performance in Chemistry. However, it was revealed by question number 15 which obtained the lowest mean response score that students were distracted by the noise of other students during the workshops. In general, the workshop participants strongly agreed that the PLTL strategy helped improve their understanding and performance in Chemistry because of the non-intimidating and friendly atmosphere they've experienced. The students were also comfortable interacting, asking questions, and sharing information with the workshop leaders and other participants.

Conclusions

Based on the summary of findings the corresponding conclusions were drawn.

1. Peer-led team learning strategy improved the performance of Grade 9 students in chemistry.
2. The exposure of students to peer-led team learning strategy improved their engagement in learning chemistry.
3. Students tend to favor the use of PLTL in learning chemistry. They strongly agreed that the peer leaders help improve their performance and engagement in learning chemistry.
4. Cooperation, interest, and participation are contributors to the learning engagement of students in chemistry.

Recommendations

Based on the summary of findings and conclusions drawn, the following recommendations are hereby recommended:

1. Encourage teachers to use the Peer-Led Team Learning strategy in teaching chemistry since it was found to be effective in improving the students' performance.
2. Conduct similar PLTL research studies using other topics in chemistry to further assess the effectiveness of PLTL in teaching science.
3. Undertake additional studies using the larger sample to verify the results of the study.
4. Replicate this study using other grade level or in another learning area to assess the effectiveness of PLTL
5. Adopt the PLTL activities developed in the study to further validate the results.

References

Ainley, M. & Ainley, J. (2011). Student engagement with science in early adolescence: The contribution of enjoyment to students' continuing interest in learning about science. *Contemporary Educational Psychology.*

Bramaje, G. & Espinosa, A. (2013). Peer-led team learning approach: Effects on students' conceptual understanding and attitude towards chemistry. *International Journal on Teaching and Learning.*

Bryson, C. & Hand, L. (2007). The role of engagement in inspiring teaching and learning. *Innovations in Education and Teaching International.*

Carini, R., Kuh, G., & Klein, S. (2013). Student engagement and student learning: Testing the linkages. *Research in Higher Education,*

Chan, J. (2015). Effect of peer-led team learning (PLTL) on student achievement, attitude and self-concept in college general chemistry in randomized and quasi experimental designs. *Journal Research in Science Teaching.*

Christenson, S., Thurlow, M., Sinclair, M., Lehr, C., & Kaibel, C. (2008). The intervention manual and guide for check & connect *A comprehensive student*

engagement intervention. Minneapolis: Institute on Community Integration, The University of Minnesota.

Cracolice, M. & Deming, J. (2001). Peer-led team learning. *Journal of Science Teacher.*

Department of Education (2013). K to 12 Curriculum Guide in Science. Pasig City: DepEd.

Department of Education (2014). Science Module Grade 9. Pasig City: DepEd.

Department of Education (2016). DepEd Order 42 series 2016. Pasig City: DepEd.

Eberlein, T., Kampmeier, I., Minderhout, V., Moog, R., Platt, T., (2008). Pedagogies of engagement in science. *Biochemistry and Molecular Biology Education.*

Espejo, N. (2018). The difference in academic engagement among college students as a function of the learning environment. *DLSU Research Congress Proceedings.*

Finn, K. & Campisi, J. (2012). Implementing and evaluating a peer-led team learning approach in undergraduate anatomy and physiology. *Journal Research in Science Teaching.*

Fitzgerald A. (2012) Teaching for Student Engagement in Science. In: Science in Primary Schools. SensePublishers, Rotterdam.

Francisco, M., Gonzales, R. & Vargas, M. (2015). Student engagement: associations with teachers and peers as motivators. *International Journal of Educational Investigations.*

Frey, R. et al. (2016). Peer-led team learning in general chemistry: Interactions with identity, academic preparation, and a course-based intervention. *Journal of Chemistry Education.*

Fredricks, J., Blumenfeld, P., & Paris, A. (2004). School Engagement: Potential of the concept, and state of the evidence. *Review of Educational Research.*

Gafney, L. & Varma-Nelson, P. (2008). Peer-led team learning: evaluation, dissemination, and institutionalization of a college-level initiative. *Springer Science & Business Media.*

Garcia-Reid, P. (2005). School engagement among Latino youth in an urban middle school context: Valuing the role of social support. *Education and Urban Society Journal.*

Gosser, D. (2001). Peer-Led Team Learning: A Guidebook. Upper Saddle River, NJ: Prentice-Hall.

Gunuc, S. (2013). Determining the role of technology in student engagement and examining the relationships between student engagement and technology use in class. Unpublished Doctorate Thesis, Anadolu University, Turkey.

Hadzigeorgiou, Y. (2015). Young children's ideas about physical science concepts. *Research in Early Childhood Science Education.*

Hattie, J. (2003). Visible learning for teachers: Maximising impact on learning. London: Routledge.

Heller, R., (2003). Academic achievement in the middle grades: What does research tell us? A review of the literature. Atlanta, GA: Southern Regional Education Board. Retrieved from http://www.sreb.org/programs/hstw/publications/pubs/.

Hernandez, J. (2016). Students' performance and anxiety level in chemistry using peer-assisted learning strategy. Unpublished Master's Thesis, Technological The University of the Philippines Manila.

Hooker, S. (2007). The effectiveness of peer-led team learning workshops: An action research approach. *Journal on Education and Human Development.*

Jung, L. (2014). The relationship between student engagement and academic performance: Is it a myth or reality? *The Journal of Educational Research.*

Karim, M. (2013). Factor structure of the student engagement instrument among Malaysian undergraduates. Unpublished Master's Thesis, International Islamic The University of Malaysia.

Kuh, G. (2005). The national survey of student engagement: Conceptual framework and overview of psychometric properties. *The Journal of Higher Education.*

Lara, M. (2014). Peer-led team learning in a problem-solving course: lessons learned. *Journal Research in Science Teaching.*

Lynch, M. (2016). Children's relationships with adults and peers: An examination of elementary and junior high school students. *Journal of School Psychology.*

Matthews, K., Andrews, V. & Adams, P. (2011). Social learning spaces and student engagement. *Higher Education Research & Development.*

Marks, H. (2008). Student engagement in instructional activity: Patterns in the elementary, middle, and high school years. *American Educational Research Journal.*

Osborne, J. and Collins, S. (2001). Pupils' views of the role and value of the science curriculum: A focus group study. *International Journal of Science Education.*

Quitadamo, I., Brahler, C. & Crouch, G. (2009). Peer-led team learning: A

prospective method for increasing critical thinking in undergraduate science courses. *Journal Research in Science Teaching.*

Reeve, J. (2012). Assessing students' engagement: A review of instruments with psychometric qualities. *International Perspectives of Psychology and Education.*

Roth, V., Goldstein, and Marcus, G. (2001). Peer-led team learning: A handbook for team leaders. Prentice-Hall: USA.

Samaroo, S. (2012). Peer-led team learning: A general chemistry approach. *Journal Research in Science Teaching.*

Schmidt, J., Rosenberg, J. & Beymer, P. (2017). A person-in-context approach to student engagement in science: Examining learning Activities and choice. *Journal Research in Science Teaching.*

Selim, G. (2015). The relationships between student engagement and their academic achievement. *International Journal on New Trends in Education and Their Implications.*

Smith, J. et al (2014). Replicating peer-led team learning in cyberspace: Research opportunities and challenges. *Journal Research in Science Teaching.*

Snyder, J. & Sloane, J. (2016). Peer-led team learning helps minority students succeed. *International Journal on Teaching and Learning.*

Stevenson, C. (2015). The Social psychology of citizenship, participation and social exclusion: Introduction to the special thematic section. *Journal of Social and Political Psychology*.

Stivaktakis, S. (2008). Encouraging involvement with school science. *Research in Early Childhood Science Education*

Tenney, K & Houck, B. (2004). Learning about leadership: Team learning effects on peer leaders. *Journal of. College Science Teaching.*

Tenney, K & Houck, B. (2009). Peer-le team learning in introductory biology and chemistry course: A parallel approach. *The Journal of Mathematics and Science: Collaborative Explorations.*

Thompson, G. & Bennett, J. (2011). Science teaching and learning activities and students' engagement in science. *International Journal of Science Education.*

Tien, L. & Roth, V. (2012). Implementation of a peer-led team learning instructional approach in an undergraduate organic chemistry course. *Journal Research in Science Teaching.*

Tien, L. et al (2002). A course to prepare peer leaders to implement a student-assisted

learning method. *Journal of Chemical Education.*

Wang, M., & Holcombe, R. (2010). Adolescents' perceptions of the school environment,
engagement, and academic achievement in middle school. *American Educational Research Journal.*

Wells, T. (2012). Peer-led team learning as an instructional strategy for secondary school science. *Journal Research in Science Teaching.*

Winterton, C. (2018). Peer-Led Team Learning: The effect of peer leader and student interactions on student learning gains and course achievement in introductory biology. *International Journal on Teaching and Learning.*

Wood, R. (2019). Students' motivation to engage with science learning activities through the lens of self-determination theory: Results from a single-case school-based study. *Eurasia Journal of Mathematics, Science, and Technology Education*.

Virtanen, C. et al., (2016). Assessment of student engagement among junior high school students and associations with self-esteem, burnout, and academic achievement. *Journal for Educational Research.*

Zepke, N., Leach, L. & Butler, P. (2010). Student engagement: What is it and what influences it? *Teaching and Learning Initiative*s. retrieved from http://www.tlri.org.nz/sites/default/files/ projects

IJQE

International Journal of Quality in Education

Online, https://dergipark.org.tr/tr/pub/ijqe

Volume: 5, Issue 2, 2021

e-ISSN:2636-8412

IMPLEMENTATION OF OUTCOME-BASED EDUCATION (OBE) IN AFGHAN UNIVERSITIES: LECTURERS' VOICES

Sayeed Asif Akramy (Takhar University, Afghanistan**)**
sayeedasif.akramy@tu.edu.af

https://orcid.org/0000-0002-7770-4474

Abstract

Outcome-Based Education (OBE) as a new teaching approach that concentrates on student-centered learning has recently come into Afghanistan's educational context. This qualitative study aimed to explore the attitudes of ten Afghan instructors towards the implementation of OBE in Afghanistan universities. For collecting the data, a semi-structured interview and observation were designed. After collecting the data, the data were categorized, coded, and then thematically analyzed. Therefore, four major themes were drawn: (a) beliefs regarding the essence of Outcome-Based Education (OBE), b) different interpretations on OBE, c) developing the classes' outcomes based on Bloom's Taxonomy, and d) shifting teaching practices from teacher-centered to student-centered learning approach. The results revealed that instructors' attitudes towards the implementation of OBE in their classrooms are both positive and negative. The findings also revealed that implementing the principles of OBE in classes helps them better design and develop their teaching materials well and set the learning outcomes based on the needs and expectations of students. The instructors reported that OBE is applicable in all different types of classes in which teachers and students get involved in learning and teaching processes purposefully. Creating an interactive classroom, choosing authentic materials, setting clear learning outcomes, understanding the full concept of OBE, and applying its principles and premises through pair work and group-work activities were core issues to help teachers in having a shift from a teacher-centered approach to student-centered learning.

Keywords: *Afghan University; implementation; Outcome-Based Education; OBE; SCL*

Introduction

Outcome-Based Education (OBE) is a teaching approach that focuses more on student-centered methods and helps teachers to leave the traditional teaching approaches and follow the modern ones which provide students with 21st-century skills. To date, thousands of students have been graduated, but they are not ready for the job market because of having no access to the soft skills (i.e., problem-solving, communications, critical thinking, confidence, and leadership) to get benefit in the workplace. Moreover, the Ministry of Higher Education (MoHE), as a policymaker for Afghan universities across the country, decided to make some positive changes not only in the curriculum of universities but also to the teaching methodologies of instructors in all universities (MoHE, 2016; HEDP, 2017). The reason for this is that the universities, instead of graduating talented and skillful students, graduate students that are not compatible with the job market. Further, they cannot pass job interviews because of their low confidence and anxiety appeared during speaking to the interviewers for getting jobs (Akramy, 2020).

The Ministry of Higher Education of Afghanistan emphasized in its strategic plan (2016-2020) on empowering all the university instructors with the latest pedagogical and instructional skills that could be modern enough to fill the gaps that teachers of Afghan universities feel in their teaching (HEDP, 2016). To have better career opportunities for students, universities may have to focus on providing professionals with remarkable capabilities to the market and can fulfill the requirements while getting a job in the environment. The current teaching methods in Afghanistan universities do not meet today's demands in the job market and being criticized by the community, teachers, teacher-educators, and policymakers. Moreover, the majority of teachers are currently following the outdated and traditional teaching approaches which are mostly teacher-centered in the classrooms. These methods, indeed, isolate students from opportunities, chances for continuing their higher education, and the skills which are much welcomed in the world of the work environment (HEDP, 2016; Sadat, et al., 2015; World Bank, 2015; Hashemi & SI NA, 2020).

In addition, the OBE module is a helpful teaching approach that influences learning a particular content from the aspect of practicality (Alimyar, 2020). That is, when the students learn something, they have to put it into practice by applying and following a

couple of activities inside and outside the classroom. When OBE is once applied by teachers, the teachers will probably find it useful and informative because in such an approach both teachers and students are completely getting involved in the learning process (HEDP, 2016; Sadat, et al., 2015). This qualitative study is going to be about the implementation of OBE in Afghanistan universities. Besides, every research paper is conducted to look for a solution for a problem raised in a community and suggests that teachers, educators, and policymakers need to seek helpful and effective ways to adapt and revise their teaching approaches. I hope this paper is useful and helpful, particularly teachers from different faculties who are struggling with their methods of teaching in their home institution and I hope to provide a very clear concept of OBE and help you apply this student-centered approach in your teaching context and address the issue more specifically and successfully in Afghanistan educational context.

In Afghanistan educational context, only one research, (Alimyar, 2020), has been carried out to explore the effectiveness of Outcome-Based Education (OBE) training workshops on Afghan EFL instructors' knowledge, skills, and attitudes towards implementing OBE in their language classrooms. Furthermore, this study only explored the attitudes of EFL instructors. The attitudes of instructors from other disciplines were not included whether they have favorable preferences to Outcome-Based Education (OBE) in their teaching contexts. Therefore, this qualitative paper seeks the effects of OBE on teachers' teaching methods. It also attempts to explore the attitudes of teachers from different disciplines towards the implementation of Outcome-Based Education in their classrooms. I know the topic of OBE is crucial for all educational sectors, particularly in Afghanistan schools and universities. A large number of teachers across Afghanistan have more problems while teaching their students because they follow methods that are no longer helpful for both teachers and students. It would also provide teachers the chance of realizing the perceptions and values of the OBE approach in their classrooms and renew their teaching techniques until the needs and expectations of their students are met.

This qualitative study seeks to investigate to what extent Afghan instructors from other disciplines (i.e., Theology, Education, Engineering, Economics, Law and Political Sciences, Agriculture, and Literature) other than EFL faculties are accepting or adopting the envisioned education approach (outcome-based) or what perceptions they may show

towards modern teaching and learning approach to be applied in their teaching classrooms. It specifically: (1) describes the demographics of university instructors in terms of age, gender, highest educational attainment, academic rank, and teaching experience; (2) determines the attitudes and perceptions of Afghanistan universities instructors in terms of knowledge, beliefs, feelings, thoughts, and their level of acceptance towards OBE; and (3) find out the relationship between instructors' demographics and their attitudes and perceptions towards Outcome-Based Education (OBE) in the classrooms considering their fields.

Literature review

Outcome-based education (OBE)

Outcome-Based Education (OBE) is an educational process that attempts to reach certain specified outcomes as the result of getting students involved in the learning process. That is, students are given more independence to decide about their lessons themselves. Furthermore, the students are part of the learning and may have to be given more importance to set the outcomes based on their expectations (Willis and Kissane, 1995; Spady, 1993; Stone, 2005). Similarly, Malan (2000) highlighted that OBE emphasizes setting clear outcomes for the separated session in specific classes in a specific discipline by which students' performance is empirically measured. OBE also promotes educational revitalization and addresses the questions of what do instructors want their students to learn? Why do they want students to learn? How do they help students learn a related issue in their classes (Kennedy, 2009; Killen, 2000; Mokhaba, 2015)?

Outcome-Based Education (OBE) goes back to the 1980s and is known as a way of reforming the educational sectors. It has also been promoted widely and internationally as outcome-Based Education (OBE) in countries, such as the United States, Australia, and South Africa to facilitate renewal in traditional teaching methods (Malan, 2000; Kennedy, 2009). To be responsive to the challenges of the 21st century, higher education had been transformed from the preserve of the few to more broadly based education systems, with a profound change in quality assurance mechanisms. Stone (2005)further pointed out that until recently there had been much tendency of assessing quality primarily in terms of inputs and processes, but now the focus has been changed from inputs to outputs (i.e., goals and outcomes). That is, OBE has always emphasized what the

learners get and learn matters rather than the outcomes teacher expects and desires to achieve at the end of a program (Lui & Shum, 2010; Stone, 2005).

In addition, Outcome-Based Education (OBE) has been considered as an important approach that requires instructors and learners to concentrate on their attention on the desired results, i.e. outcomes of learning, and the instructive and learning process that will instruct to reach the already set outcomes of their classrooms (van der Horst & McDonald, 1997; Olivier, 2002; Orfan, 2021). In OBE, learning is successfully transferred to learners through the outcomes which are set for a particular session. Furthermore, OBE reflects the notion that the best possible way to get where the learners want to be, is to first determine what they want to achieve (Olivier, 2002). The probable implication is that when instructors plan and get preparation for their learning activities in OBE, they may have to first think about the outcomes of their classes and then step into further to help their learners achieve the desired and expected outcomes (Spady, 1993; van der Horst & MacDonald, 1997; Orfan, 2021).

A Shift from Traditional Teaching Approach to Outcome-Based Education

The traditional teaching approach is often known as teacher-centered, lectures, curriculum-centered by which students are not autonomous enough to make decisions about their learning process (Wilkins, 1976). That is to say, it could be a formal education process that transmits information from the teacher to the student. Furthermore, it provides the learner with knowledge or skills, or both, but they are not coupled to a particular context – so that the learning takes place in a vacuum and may not be regarded as outcomes-based learning. It is probably considered as input which is part of the learning process, but it does not meet the needs and expectations of students (Freire & Ramos, 2009; Sadat, et al., 2015).

In Afghanistan, the higher education system, Outcome-Based Education (OBE) has been seen as an important and helpful teaching approach to enter all Afghanistan universities instead of the traditional teaching practices which are no longer helping learners have access to the twenty-first-century skills (i.e., communication, presentation, problem-solving, and decision making) until they can be given jobs in national and international sectors (HEDP, 2016; HEDP, 2015; Sadat, et al., 2015). Furthermore, the Afghanistan Ministry of Higher Education has worked on OBE and trained hundreds of

university instructors to apply the OBE principles and premises in their teaching classroom to better enable their learners to be much skillful not only in terms of input but also output and outcomes that are designed and set for a particular session or the course. In OBE, the instructors are following the learner-centered methods and they act as a facilitator to facilitate the learning path for the learners. More specifically, in OBE the learners' ability building and skills development are important not the content (HEDP, 2016; Sadat, et al., 2015; World Bank, 2015; World Bank, 2016; World Bank, 2017).

Implementation of OBE in Developing Countries

Afghanistan and other developing countries, such as Botswana, Tanzania, Uganda, and Zambia have also implemented OBE in their teaching classrooms. Botswana adaption of OBE has been the result of the concerns and complaints by university instructors that there was much concentration on the content and traditional teaching practices for mastering the content which was no longer enough and helpful to students, particularly for their real-life and work after graduation in the 21st century (Adedoyin, 2010). Furthermore, leaving the traditional-based education resulted in a policy shift to challenge the ways that educational settings could measure the learning outcomes and skills gotten by learners through Outcome-Based Education (OBE). At present, the Botswana 2017 version for education is that Outcome-Based Education (OBE) can provide a balance between the class inputs and learning outcomes to meet the needs and expectations of the community (Adedoyin, 2013). To implement OBE, the Botswana government aimed at providing extra infrastructure, upgrading teachers' qualifications through holding capacity development workshops, enriching relevant curriculum materials to be used in the schools and universities (Avalos 2015).

There have been found two evident problems concerning the implementation of OBE in developing countries. First, the majority of teachers are not trained well and are not familiar with the premises and principles of OBE to implement in their classrooms. As Avalos (1998) pointed out, teacher education in the developing countries requires renewal in order to bring positive reforms in the education systems or if OBE is a choice to adapt and employed in the formation of the education system as a helpful education approach (UNESCO, 2017; Avalos, 2013; UNESCO, 2015). Second, small classes containing a large number of students with noise and much crowd is another obstacle for

both stakeholders and teachers to apply the modern teaching approaches in their classrooms because these types of classes provide less chance for the teachers to individually meet their students and aid them to be active in the learning process (Jansen, 1998; UNESCO, 1998). Similarly, such problems are felt in Afghanistan educational centers which can be probably impossible to implement OBE in crowded classrooms.

In Afghan universities, the traditional education system is followed in all private and public universities, but over time it has not had any advantages for both learners and teachers. The teachers are always in front of their classes giving lectures without applying a variety of activities that have the aspects of practicality. Since 2016, the Afghanistan Ministry of Higher Education has worked hard to send hundreds of university instructors to get training and workshops on Outcome-Based Education (OBE) in Malaysia and come back to their country to empower other lecturers with the knowledge and skills they have learned from Malaysia under master trainers of OBE. OBE has been very successful around the world because the students while taking education under the shadow of OBE, could reach many remarkable achievements, such as communication, active learners, critical thinking, entrepreneurial skills, and many other soft abilities. After graduation, they had been able to get jobs and created jobs for others (HEDP, 2016; HEDP, 2017; HEDP, 2018; World Bank, 2015; Sadat et al., 2015; UNESCO; 2017; Alimyar, 2020).

MATERIALS AND METHODS

Research Design

Two different research techniques have been followed in this qualitative paper during the data collection process. The participants in this study have been limited and the results that emerged from this qualitative study have not been based on numbers, but on Afghan university instructors' beliefs about their understanding of Outcome-Based Education (OBE). Qualitative research describes people's individual and collective social behaviors, thoughts, attitudes, and perceptions (McMillan & Schumacher, 2001). When collecting data, the researcher attempted to determine Afghan university instructors' attitudes and perceptions about OBE and its implementation in classrooms. During observations, it could easily be inferred how they taught and assessed their learners in their teaching classroom. Researchers interpret phenomena in terms of the meanings people

bring to them (McMillan and Schumacher, 2001). After the research finished collecting data, the data analysis was based on what the participants think and believe about OBE.

Instrument

The research questions with fourteen items were designed to conduct a semi-structured interview with participants. The questions of the interview were divided into three parts. The first part is about teachers' profile and their teaching background. The second part is related to exploring the attitudes of teachers on the implementation of OBE in their classes while the last part is asking teachers to have their recommendations to the present research study, higher education, and teaching.

Table1. Summary of the Criteria used during observing the teacher and students' participation

No	What should be known?	Questions asked?	What was to be achieved?
1	Number of students in the class	How many learners are there in a classroom?	To determine the students 'ratio, the impact that has on OBE implementation in the class
2	Classroom seating arrangement	How do students take seats or are seated?	To determine whether their seating arrangement is proper and help to have friendly and conducive learning participation.
3	Teaching strategies followed by the teacher	Which teaching strategies are applied in the classroom?	To determine whether the teacher follows different teaching strategies and acts as a facilitator in the classroom
4	Assessment strategies followed by the teacher	Which assessment strategies do teachers follow while assessing students' understanding?	To determine how teacher assesses students' performance and whether they follow multiple strategies while assessing students' work
5	Learners participation	What is the level of learners'participation in the classroom?	To determine whether teachers still dominate in the teaching-learning situation
6	Incorporation of OBE premises and principles in the lesson	Do the teachers incorporate OBE premises and principles in classroom activities?	To determine whether the teachers accommodate the OBE premises and principles in classroom practices

The interview questions were taken from a couple of research studies conducted by (Siebörger, 2004; Spady, 1994; Acharya, 2003; Spady, 1993; Northern Province Department of Education Policy Document, 2000; Lorenzen, 2002). The table below is prepared to help the researcher observe the teachers' classes:

Furthermore, an observation was also designed to be conducted by the researcher to determine whether the Afghan University instructors' views corresponded with their practices and how OBE influenced their classroom assessment practices. To take an observation properly, a summary of the criteria used during the observation of teachers' teaching practices and students' participation in the learning process.

The researcher has chosen the semi-structured design as there may be some follow-up questions and probes in order to find out more about participants' views regarding the Outcome-Based Education approach along with its application and how they incorporated the premises and principles in their classes.

In addition to employing the semi-structured interview for data collection, observation is an aid to determine whether participants incorporated OBE premises and principles in their teaching. The researcher was a participant observation to have the chance of identifying unanticipated outcomes from participants. The Observation itself is helpful and it is a natural, unstructured, and flexible setting to determine how the participants of this study taught and assessed their learners in the classroom. Tuckman (1994) asserted that what should be observed is the event or phenomenon in action. He further reported that in qualitative studies this mostly means unobtrusively sitting in a particular classroom and watching participants deliver the knowledge about a specific topic to students successfully. Moreover, the researcher used this kind of research technique until it confirms or disapproves the researcher's interpretations of participants' opinions and beliefs about the topic.

In a qualitative study, if the researcher combines the semi-structured interview with observation, he or she will have the chance of understanding the meanings people hold for their daily activities. It is observations that allow the researcher to whether determine participants' classroom practices relate to the premises and principles of Outcome-Based Education (Tuckman, 1994).

Sampling Techniques

A purposeful sampling technique was employed to collect data from ten Afghan instructors in the faculties of Theology, Law and Political sciences, Education (i.e., Math, and Geography), Literature, Economics, and Agriculture. The study aimed at collecting data from those participants who have taken workshops on OBE before because they are well equipped with the knowledge and skills in order to practice OBE in their classes. Morrison (2000) stated that selecting the participants of the study purposefully involves the nearest individuals to serve as respondents. This kind of sampling was the most appropriate technique in this qualitative paper because it gives the researcher the chance of getting connected with the participants in the study very well. The purposeful sampling technique was also helpful to the researcher to investigate adequately because the participants of the study are deemed to be knowledgeable and informative about OBE implementation. Moreover, this study has been conducted to gather data from ten Afghan instructors at Takhar University in different faculties. The table below briefly demonstrates the demographic information of the participants from Takhar University.

Table 2. Participants' Demographic Information

Participants	Gender	Academic Rank	Faculty	Teaching Experience	Age
R1	Male	Assistant Professor	Economics	3 years	36
R2	Male	Instructor	Geography (Education)	2 years	28
R3	Male	Instructor	Math (Education)	1 year	29
R4	Male	Assistant Professor	Islamic Studies	4 years	34
R5	Male	Assistant Professor	Islamic Studies	5 years	36
R6	Male	Assistant Professor	Law & Political Sciences	3 years	34
R7	Male	Instructor	Agriculture	2 years	30
R8	Male	Associate Professor	Language & Literature	10 years	38
R9	Male	Assistant Professor	Language & Literature	5 years	35
R10	Male	Assistant Professor	Engineering	6 years	35

Procedure

The researcher arranged several questions in the semi-structured interview to ask the participants when they participated in the interview. Furthermore, the researcher provided a consent form and gave to participants whether they are willing to participate in the study. Fortunately, all the participants (ten) who were the target for this study expressed their willingness and confirmed to have their ideas and attitudes towards Outcome-Based Education (OBE). When the researcher talked about the time and days of the interview, the participants decided to appoint a specific time and days themselves for the interview. On the day of the interview, the researcher explained the research study and its purpose to the participants and then started conducting the interview. The interviews were conducted in Dari, which is the lingua franca of the country (Orfan, 2020a) since English is a foreign language in Afghanistan and most people cannot understand English (Orfan, 2020b). During the interview, the researcher also asked the participants some follow-up questions when the answers of some questions were incomplete because he was trying to motivate and encourage the participants to deeply think about the topic and express what they have in mind about OBE to share with the researcher. It took 15 – 20 mins the respondents to answer all the questions of the interview.

Data Analysis

The data were gathered through semi-structured interviews and observation. After the interview, the researcher collected the data from participants and then coded and thematically analyzed it. Following this, the researcher observed two participants among those who took part in the interview in their classrooms. The observation was held to see whether the instructors' views on OBE match with what they are doing in their classes because OBE focuses more on the outcomes of students and it emphasizes that at end of a session students may have to achieve what outcomes they already set for a particular session. Furthermore, the observation was taken to make sure that the researcher collected data the same as the interview.

Ten Afghan instructors from a range of disciplines were selected as participants for this qualitative study at Takhar University. Their teaching experiences ranged from 1 year to 10 years and the majority of them had Master's degrees from the related fields. They taught classes from freshman to senior and the number of students in their classes was over 70. Among these ten instructors who participated in the interview, only two of

them were observed in their classes. The observation lasted for six days and the researcher allocated three days for each instructor in order to observe them. He was responsible to observe the instructors in their classes whether they practice the premises and principles of OBE in their classes or they are just familiar with the theory of OBE. The time of observation was for a whole session (50 minutes) each day to observe the instructors with their students.

Findings and Discussion

This qualitative study has been conducted to explore the attitudes of Afghan University instructors towards the implementation of Outcome-Based Education in the Afghan teaching context. After the semi-structured interview was conducted by the researcher, he categorized the data, then coded it, and finally thematically analyzed it. Four major themes emerged from the data: (a) beliefs regarding the essence of Outcome-Based Education (OBE), b) different interpretations on OBE, c) developing learning outcomes based on Bloom's Taxonomy, and d) Shifting teaching practices from teacher-centered method to the student-centered learning approach.

Results

Interview

For theme one "beliefs regarding the essence of Outcome-Based Education (OBE)", three respondents reported that OBE as a helpful approach provides more learning opportunities. OBE is only for learners to help them have access to some remarkable achievements and does not give time to instructors to play a major role in the teaching-learning processes. OBE is always emphasizing that students may have to think about their high expectations and the only way to reach those expectations is to participate in many classroom activities which concentrate on their learning and understanding. Following are two direct quotes of the participants from the faculties of Engineering and Islamic Studies "Theology":

"I think the effective implementation of OBE requires instructors to concentrate on learning outcomes of the learners because Outcome-Based Education is a teaching and learning strategy that gives to every single learner the goals or objectives of their education." (R1)

"OBE focuses on learners to have high desires for learning and participate in classroom activities which are set and prepared by the instructors. OBE encourages both instructors and learners to work on their teaching and learning process. That is to say, it makes us knowledgeable and skillful because it gives us the chance of seeking new information about a particular issue through searching on the Internet. Overall, it is a great way of teaching and learning and it helps both learners and teachers to reach the expected goals." (R5)

With regards to the theme (b) "different interpretations on OBE," the majority of respondents reported that the only approach to change the passive learners into active ones is OBE and it helps them to actively participate in the learning process. OBE also helps the instructors to think about their learners and provide them useful and authentic materials besides the textbook. The below are some of the participants' excerpts from interviews:

"OBE encourages all the instructors to apply formative assessment in their teaching classrooms in order to have fruitful and considerable achievement and also do let OBE get implemented in their classrooms until the students' needs expectations are met." (R2)

"Through OBE, there is a wide range of activities in which the students participate actively and communicatively to reflect on their learning." (R4)

"OBE provides a friendly learning environment where the opinions and views of every learner are respected and heard. It also causes that instructors, instead of giving more lectures, think about the output of students. It is outcomes that OBE gives more importance and value the participation of learners in a high level." (R6)

A few participants reported some negative interpretations of OBE regardless of the positive ones. They further highlighted that OBE is not applicable in some classrooms, particularly in Math and Law and Political sciences classrooms. Based on their opinions, it is time-consuming to apply the principles and premises of OBE in classrooms because the classes are not equipped enough with chairs, tables for project activities, technological devices, and stationery for keeping their activities forward. Following are three interview scripts of the participants:

"Although OBE is a good teaching approach in which the student-centered method is much emphasized, it takes a lot of time to know its importance and bring it to the class.

Most of the teachers even don't know what OBE is and what are its principles and characteristics? We, first, have to be trained well and then the needs of every class should be met to better implement OBE in classrooms." (R4)

"Most of the classes that we are teaching are full of students. That means, hundreds of students are taking education in each class and we can't even move the chairs to group students or change their positions to a different one. OBE is very hard to be implemented by the instructors. Moreover, the students are not ready to welcome OBE in their classes as well." (R7)

The third theme is concerning "setting learning outcomes considering Bloom's Taxonomy". Regarding this theme, the participants reported that in OBE the instructors are expected to design and set their outcomes based on the needs of students. It means what the students learn and get from class is more important than the teachers' expectations and desires. Furthermore, setting clear outcomes for the classroom or any particular activities guide both the teachers and learners to stick to learning and teaching. Following are the three participants' excerpts from the interview:

"Before joining the workshop of OBE, I was setting my own classes' outcomes for my students in a way that not helpful and measurable. At the end of the session, we could not understand whether the students have achieved the outcomes or not. Now I see a lot of positive changes not only in my teaching but also the learning outcomes of students are set very clear and define what is supposed to be taught." (R8)

"In the past, most of the teachers and I were focusing on the students' input. After taking OBE's workshop, we are happy to have fruitful classes every day. We not only concentrate on the input of students but also we design and prepare our teaching materials and activities based on three important aspects which are "cognitive, affective, and psychomotor domains) in order to have a helpful session for the learners. If we prepare our classroom activities and consider the three important elements, our activities will be communicative and having the aspects of practicality to get students involved." (R5)

"OBE approach helps me a lot, particularly in the faculty of engineering. If we want to set the learning outcomes, we consider the needs of students first and then provide and develop the outcomes based on Bloom's Taxonomy in order to be measurable. While setting outcomes, we use the verbs which are based on the formula of "SMART" until we can achieve them at the end of the session." (R9)

In the last theme "Shifting teacher-centered learning to student-centered learning approach", all the participants confirmed and showed their favorable preferences to working hard in order to implement OBE in their classes. They further highlighted that after the OBE training, we feel that teaching is a sort of responsibility and they have to be responsive to the problems of students. While teaching, they need to apply the OBE principles considering the student-centered learning methods, course and materials design, and communicative and helpful activities which characterize the needs of learners, and the learners after each session may have access to remarkable achievements. The following are outlined two direct quotes of the respondents from the interview:

"Before taking OBE training, I was responsible for everything in terms of giving lectures, materials design, the seating arrangement of classroom and too many others to name here. I learned more things about OBE and happy to gradually leave the teacher-centered approach and follow a student-centered learning approach by which students are much motivated and keen to participate in classroom activities actively. I learned that students may have to be given more independence to make a decision about their learning and to be active learners." (R3)

"Leaving the traditional teaching approaches is hard and taking much time to apply OBE in our classrooms. However we do not have enough facilities in our classes, we can have OBE principles conducted in classrooms. Both teachers and students are not much active and skillful in the traditional teaching practices. OBE helps both teachers and students to work hard in the learning and teaching processes and let the lessons go smoothly and properly." (R10)

Observation

Based on table 1, it can be concluded that giving lectures by the teacher dominated teaching methods and the content was delivered in two observed classrooms (Islamic studies and Engineering faculties) was in a very authoritarian manner. Facilitation of learning with the students occurred in only one class which was the Engineering faculty and teachers from both classes were not fully prepared for the session which culminated in little learning for students. Although some principles of Outcome-Based Education (OBE) were felt and the teacher was trying to implement OBE, sort of reluctance to use the teaching materials failed to follow a particular approach for the stage of any activi-

ties prepared for students. On a positive point, teachers from both classes were very active while putting the students into groups of five to six students and they followed the student-centered approach to comfortably select the students for the groups. The way to select the students into groups by teachers was the jigsaw method which is now very common among teachers of educational centers. Moreover, the teachers were both very friendly while cooperating with their students and responded to every question raised among students in the classrooms.

The observation also described that the activities performed by the students during the lesson in both classes were fruitful and relevant to the topic. Students were able to answer the questions being asked by the teacher. They appeared clever to complete activities and learn although they had little chance for answering the teachers' questions. The majority of students were also afraid of their teachers that they might be authoritative. The sessions for lessons delivered by both teachers were not much attractive because some students were not given more chances of participating in classroom activities and expressed their feelings towards a particular issue. Teachers were calling upon only those students who already learned their names and they did not know the names of some other students. It is also worth mentioning that the teachers were very active, prepared, and trying to make the lesson as attractive as they could convince the students. The students were also engaged in the lesson and probably enjoyed it much.

To sum up, it was inferred from the observation that teachers of both classes were trying to apply the OBE approach in which the student-centered learning is highly emphasized in the classroom and some of the OBE principles were implemented by the teachers (i.e., the learning outcomes were designed based on Blooms Taxonomy). For instance, the classroom activities had three important aspects which are cognitive, affective, and psychomotor domains to make students act helpfully and purposefully. Students in each activity wanted to have active participation and overall enjoyed an interactive session in the class.

Conclusion

This qualitative study explored the attitudes of Afghanistan university instructors towards implementation of Outcome-Based Education (OBE) from the faculties of Engineering, Literature, Education (i.e., Math and Geography), Economics, Theology, and

Law and Political Sciences in their classrooms. The effects of OBE on instructors' teaching methods, and applying the principles and premises of OBE through observation were investigated in this paper. Moreover, the instructors' recommendations and suggestions regarding the implementation of OBE in Afghanistan universities and its impact on teachers' and students' teaching and learning processes were described in this paper as well.

Implications

In the light of the findings, some recommendations related to teaching, higher education, capacity development of teachers, and research were proposed. While teaching students, the teachers may have to apply the principles of OBE in their classrooms purposefully in order to achieve learning outcomes being set for a particular session. Before holding teaching pieces of training and workshops for teachers and getting them ready for implementing OBE in classes, the policymakers and stakeholders have to make changes in the current curriculum of Afghanistan universities until the teachers have enough impendence to decide choosing materials of teaching to students which are helpful and informative. The students can acquire the knowledge and skills through the materials chosen and developed by their teachers. The teachers may have to, as well as, monitor students by helping them when they need more instructions. Helping students with giving clear instruction and feedback causes that students will reach remarkable achievements in their learning process. Moreover, the teachers before implementing any new methods or teaching approaches, may have to get familiar with the principles of that particular method until they face no challenges in their teaching. As this study explored, the two teachers who were observed by the researcher were not much familiar with the principles and characteristics of OBE because OBE focuses on student-centered learning, but almost all the activities by these two teachers were conducted in the classrooms were in a way in which the teacher-centered method dominated not the student-centered learning approach. For implementing OBE and student-centered learning (SCL) properly, the teachers should be observed once or twice per year by the Ministry of Higher Education (MoHE) in order to cover their teaching gaps through holding capacity development workshops and pieces of training.

Limitations and Future Studies

Presently, this study was conducted qualitatively and hired a limited number of participants (ten university instructors in semi-structured interview and two instructors for observation). The scope of this study only included the attitudes of instructors on the implementation of OBE from one university. The attitudes and perceptions of teachers from other universities across Afghanistan were not investigated. Therefore, the future study will be wider and include a large number of participants using a variety of research instruments from different contexts. The research study will include the attitudes of teachers from both universities and schools in terms of their prior knowledge on the Outcome-Based Education approach and the effects of their current teaching methods by which they continue their classes as well.

References

Acharya, C. (2003). Outcome-based Education: A new paradigm for learning. *Center for Development of Teaching and Learning.* Retrieved from www.cdtl.nus.sg/Link/nov2003/obe.htm

Adedoyin, O. (2013). Concepts and practices of Outcomes-Based Education for the effective education system in Botswana. *European Journal of Social Science, 13*(2), 161-170.

Adedoyin, O. (2010). Outcomes-Based Education for the effective education system in the teaching context. *International Journal of Language Studies, 12*(1), 271-280.

Akramy, S. A. (2020). Speaking anxiety in an Afghan EFL setting: A case study of an Afghan University. *Language in India*, *20*(12), 161-182.

Alimyar, Z. (2020). Outcome-based education training workshops: A study to explore their effectiveness on Afghan EFL instructors' teaching methods. *International Journal of Education and Culture*, *9*(2), pp. 18-30.

Avalos, B. (2013). Outcome-based education: Implementation of OBE at universities. *Language in India7*, 457-471.

Avalos, B. (2015). School-based education: A case study of Chilean schools. *International Journal of cultural studies12* (2).

Avalos, B. (1998). School-based teacher development: The experience of teacher professional groups in secondary schools in Chile. *Teacher and Teacher Education 14*, 257-271.

Butler, M. (2003). Outcome-based/ Outcome-focused Education. Retrieved from hpp//:www.cdtl.nus.edu.sg/link/nov2003/obe.htm.

Freire, P., & Ramos, M. (2009). Chapter 2 from "Pedagogy of the Oppressed". *Race/Ethnicity: Multidisciplinary Global Contexts*, 2 (2), pp. 163-174.

Hashemi, A., & SI NA, K. (2020). The effects of using blended learning in teaching and learning English: A review of the literature. *The Eurasia Proceedings of Educational & Social Sciences (EPESS), 18*, 173-179.

HEDP. (2018). *First Conference on Promotion and Institutionalization of Outcome-Based Education & Student-Centered Learning (OBE-SCL) in Higher Education, Final Report.* Retrieved July 20, 2019, from http://www.hedp.af/report-center/.

HEDP. (2017). *First Conference on Promotion and Institutionalization of Outcome-Based Education & Student-Centered Learning (OBE-SCL) in Higher Education, Final Report.* Retrieved July 20, 2018, from http://www.hedp.af/report-center/.

HEDP. (2016). *First Conference on Promotion and Institutionalization of Outcome-Based Education & Student-Centered Learning (OBE-SCL) in Higher Education, Final Report.* Retrieved July 20, 2017, from http://www.hedp.af/report-center/.

HEDP. (2015). *First Conference on Promotion and Institutionalization of Outcome-Based Education & Student-Centered Learning (OBE-SCL) in Higher Education, Final Report.*

Jafarzadeh, R. (2010). *Investing the Effectiveness of STS on Concept-Based Planning and Training.* Tehran: Ayeezh Publishing.

Jansen, J. (1998). Improving outcomes-based education into South Africa: Policy borrowing in a post-communist world. In D. Philip, & K. Ochs (Eds.), *Educational policy borrowing: Historical perspectives. Oxford: Symposium Books.*

Kennedy, K. (2009). *Outcomes-based learning, concepts, issues and action.* Retrieved from http://www.ied.edu.hk/obl/files/OBLConcepts%20Issues%20and%20Action-Kennedy.doc

Killen, R. (2000). *Outcomes-based education: Principles and possibilities*. (Unpublished manuscript). The University of Newcastle, Faculty of Education. Retrieved from http://drjj.uitm.edu.my/DRJJ/CONFERENCE/UPSI/OBEKillen.pdf.

Lorenzen, M. (2002). *Using outcomes-based education in planning and teaching new information technologies.* Retrieved from http://www.libraryinstruction.com/obe.html

Lui, G., & Shum, C. (2010). Outcome-based education and student learning in managerial accounting in Hong Kong. *Journal of Case Studies in Accreditation and Assessment, (2).*

Malan, S. P. T. (2000). The 'new paradigm' of outcomes-based education in perspective. *Journal of Family Ecology and Consumer Sciences. 28*, 22-28.

McMillan, J. H., & Schumacher, S. (2001). Research in Education. (Fifth Edition). Cape Town, Maskew Miller Longman.

Mokhaba, M. B. (2005). Outcome-based education in South Africa since 1994: Policy objectives and implementation complexities, Ph.D. thesis, University of Pretoria, South Africa.

Morrison, K. R. B. (2000). *Planning and Accomplishing School-Centered Evaluation.* Dereham, UK: Peter Francis.

Naicker, S. M. (1999). Curriculum 2005. A space for all, an introduction to inclusive education. Cape Town, Renaissance.

Northern Province Department of Education Policy Document. (2000). Provincial assessment policy, GET BAND.

Olivier, C. (2002). *Let's educate, train and learn outcomes-based* (Further Education and Training, Life Orientation, Participant manual). University of Witwatersrand, Johannesburg, South Africa.

Orfan, S. N. (2021). Outcome-based education and student-centered learning. Tehran, Peshtiban Press.

Orfan, S. N. (2020a). Afghan undergraduate students' attitudes towards learning English. *Cogent Arts & Humanities, 7(1) 1723831*. https://doi.org/10.1080/23311983.2020.1723831.

Orfan, S. N. (2020b). Afghan EFL students' difficulties and strategies in learning and understanding English idioms. *Cogent Arts & Humanities, 7(1)*, 1796228. https://10.1080/23311983.2020.1796228.

Sadat, S. Masood, Satkowski Christina, Sexton Renard, Sarabi Shamim, Feinzig Sandy, Kabuli Shahim, Maxwell-Jones Charlotte, & Warren Zachary (2015). Afghanistan in 2015: A survey of the Afghan People. The Asia Foundation.

Siebörger, R. (2004). *Transforming Assessment: A guide for South African Teachers*. Cape Town, Juta.

Stone, M. V. (2005). Opening remarks in the "Symposium on Outcome-based Approach to Teaching, Learning and Assessment in Higher Education: International Perspectives". University Grants Committee of Hong Kong. Retrieved from http://www.ugc.edu.hk/eng/ugc/publication/speech/2005/sp171205.htm

Spady, W. (1993). Outcome-based education. *Australian Curriculum Studies Association.*

Spady, W. G. (1994). *Outcome-Based Education: Critical Issues and Answers*. Arlington, VA: American Association of School Administration.

Tuckman, B. W. (1994). Conducting Educational Research. (Fourth Edition). Harcourt brace College Publishers.

UNESCO. (2017). Education: Basic premises of teaching methods in schools. Sudan: AB.

UNESCO. (2015). *Education and knowledge: principles of SCL and OBE in school-based education.* Eclat-UNESCO.

UNESCO. (2010). Teaching and learning: students' perceptions towards teaching and learning methods. Bangladesh: UNESCO.

UNESCO. (1998). *Education and knowledge: Basic pillars of changing production and patterns with social equity.* Santiago: Eclac-UNESCO.

Van der Horst, H., & McDonald, R. (2003). Outcome-based education. *ATeachers' Manual*, Pretoria, Kagiso Publishers.

World Bank. (2019). *International development association, project appraisal document, of a proposed grant.* HEDP, Kabul.

World Bank. (2017). *International development association, project appraisal document, of a proposed grant.* HEDP.

World Bank. (2016). *International development association, project appraisal document, of a proposed grant.* HEDP, Kabul, Retrieved from www.artf.af/uploads/HEDP

World Bank. (2015). *International development association, project appraisal document, of a proposed grant.* HEDP, Kabul, Retrieved from www.artf.af/images/uploads/HEDP

Wills, S., & Kissane, B. (1997). Achieving outcome-based education: Premises, principles and implications for curriculum and assessment. *Studies in Education Evaluation, 23*(1), 5-30.

Wilkins, D. (1976). *National syllabuses.* Oxford: Oxford University Press.

IJQE

International Journal of Quality in Education

Online, https://dergipark.org.tr/tr/pub/ijqe

Volume: 5, Issue 2, 2021

e-ISSN:2636-8412

COMMUNITY KNOWLEDGE AND ATTITUDE ABOUT COMMUNITY BASED EDUCATION (CBE) PRACTICES OF UNIVERSITY STUDENTS

Demamu Tagele Haligamo (Arba Minch University in Ethiopia)

demamutagele756@gmail.com

https://orcid.org/0000-0002-3592-1024

Abstract

Community-based education is a set of instructional activities that uses the community extensively as a learning environment. Many institutions are not involving the community in Community-based education program evaluation and the community feels that the program is being imposed upon them, rather than being available to them. So, this research extracted out knowledge and attitude of community towards University students' community practices. Community based cross sectional study was conducted on 394 households. Systematic sampling technique with structured questioner was applied and finally data was collected and analyzed. From 394 individuals interviewed 52.3% had good knowledge and 58.1% had good attitude on community based education practices. Educated respondents, respondents whose occupation was student and government employee, and respondents who were household head and spouse were more likely to have good knowledge. Similarly, students and government employee were also more likely to have good attitude. Three out of five respondents have good attitude and slightly greater than half had good knowledge on community based education practices. To increase the popularity of the program as a strategy, awareness creation for community members, formulating discussion periods with focal persons as a means of regularly evaluating students' activities and encouraging the community members to participate in the practice at large should be needed.

***Key Words**: Community, Knowledge, Attitude, Community based education*

Introduction

In the 1960's and 1970's there was a popular demand that education should give service to a society. To answer this, a new strategy of education referred as Community-Based

Education was introduced to the world in the late 1970's (Mekonnen A., 2000). Quite some institutions for health professions adopted the community-based education (CBE) approach even before a definition, goals and strategies were explicitly formulated and before the establishment of Community-Oriented Educational Institutions for Health Sciences (Richards R. and Fulip T., 1987). The worldwide awareness of the importance of primary health care and equity in service delivery reached an advanced stage in 1978, following the Alma Ata declaration in primary health care and the worldwide acceptance of the "Health for all by the year 2000" objectives (WHO, 1978). In the late 1970s, Ethiopia also adopted the global movement of 'Health for All' and the Primary Health Care (PHC) approach for the health sector (Woldemariam T. and Assefa M., 1990). The report from background of higher institutions in Ethiopia as a clue indicated that CBE practices were introduced to many universities after 1975. In 1975 Addis Ababa University (the only university in the country at the time) published its educational manifesto by outlining the following objectives: to instill in the student the value of work, to enable the student to identify himself with the people, to develop the capacity of research, to prepare students for self-reliance and self-learning, and finally to prepare the student to work as a member of a team (Addis Ababa University, 1975). A report from Mr. Derese D. focal person at CBE office of Hawassa University College of Medicine and Health Science indicated that, Hawassa University is a University in Ethiopia that has its own curriculum for CBE conducted mainly through medicine and health science undergraduate students. It is clear that the community can play a major role in giving feedback to the university with regards to the usefulness and operation of community-based programs. The students tend to worry that they cannot meet community expectations or do not deserve the generous hospitality. This sometimes leads to disappointment among students which may seriously affect their interest, enthusiasm and the excitement they experience during the first posting, and consequently may influence the attainment of course objectives (H.G. Schmidt, 1992). Ndiaye and colleagues pointed out that programs where the community worked side by side with the health workers but were not involved in their design were not as effective as when there was sharing of power and responsibility that occurs in a true partnership (Ndiaye SM., et al., 2003). The development and maintenance of community-based interventions requires the management of numerous challenges. So, conducting community assessments and coordi-

nating the implementation of interventions in diverse communities requires cultural sensitivity, the coordination of activities with key stakeholders, the appropriate investment and acquisition of resources, and systems to evaluate productivity and quality (Lyyn M., 2001) and (Sung N., et al., 2003). There is no clear scientific evidence regarding the knowledge and attitudes of the community on CBE practices since there is no research conducted on this topic before. But a study conducted by Gezira University in Sudan regarding impact of CBE on community members indicates that, if there is no evaluation for the program by the community, it was considered as an activity imposed on them rather than being available to them (H.G. Schmidt, 1992). So, the CBE program needs evaluation from the community members. Having this in mind, the community has to know about the meaning, purpose and applicability of the program. When the program moves without analyzing what it was currently and what it should be for the future, there may be some negative outcomes like narrowing the acceptance of the program, carelessness of community members regarding the program or the program may be closed if it does not come with good outputs for the community. This study was conducted to reflect the actuality of the community towards CBE practices that can helps Universities to ameliorate their current CBE system. The overall objective of the study is to assess the knowledge and attitude of community towards University students CBE practices at Aleta Wondo town, Sidama zone, southern Ethiopia in May, 2017.

Methods and Materials

The study was conducted in Aleta Wondo town, the administrative center of Aleta Wondo Woreda, which was established in 1909 E.C. It is located 333 Km South of Addis Ababa capital of Ethiopia and 64 Km from Hawassa capital of SNNPR. The town has a population of 52,604 among these 27,731 are male and 24,873 are females. There are around 10,521 households found in the Aleta Wondo town. The study was carried out among community members at Aleta Wondo town in May 2017. Community based cross sectional study was employed. Sample size was calculated using single population proportion. Including the non-response rate, the total sample size was founded to be 423. From 423 total sample size 394 households were participated in this study with a response rate of 93.1%. Systematic sampling technique was applied. Data was collected using pretested English version questionnaire through face to face interview. The data

was cross-checked and then finally checked by my advisor at the end of data collection. Data was entered and analyzed using Statistical Package for Social Sciences (SPSS) version 21. Descriptive statistics was used to describe the study variables. Ethical clearance was obtained from ethical committee of Hawassa University College of Medicine and Health Science in April 18, 2017. The result of the study was disseminated to Hawassa University, school of public and environmental health and to the university CBE office.

Research Instrument

The tool/ questionnaire used for this study were developed based on questionnaire development methods (Günap & Kabadayı, 2017; Kabadayı, 2019). Hawassa University Community based education coordinator Mr. Derese Daka and My advisor Dr. Bekam Kebede played a main role in providing information and helped me in developing a tool used for this study. Some part of the question were taken from research done by Gizra University (H.G. Schmidt, 1992). The tool was also checked by the department of environmental health at Hawassa University before and after community survey.

Findings

a. Characteristics of respondents

About 394 households were participated in this study. The mean age for the study subjects was 30.58 in which majority 215(54.6%) of them were within age of 30 years and above. Among the respondents majority 207(52.5%) were males and 302(76.6%) were literate. The marital status of respondents indicates that 256(65%) were married and 116(29.4) were single. The largest number of the respondents 166(42.1%) were household head followed by spouse 128(32.5%). Two hundred eighty (71.1%) of the respondents were followers of protestant Christianity followed by orthodox which accounts 57(14.5%).

Regarding their ethnic group, 269(68.3%) of them were from Sidama followed by Oromo which accounts 56(14.2%) of the study participants. The family size status of the respondents shows that most of the respondents have family size ranges from five up to

eight 231(58.6%). The socio-demographic characteristics were described in short in table 1. as follows.

Out of total respondents 56(14.2%) were government employee and among this 18(32.1%) were health professional. Occupation of most respondents 88(22.3%) were housewife's followed by the same value for students. Out of total subjects around 216(54.8%) have income above 2500 Ethiopian birr. This can be described the figure 2, 3 and 4. below.

Table 1: Socio-demographic characteristics of respondents in Aleta Wondo town, SNNPR, Ethiopia, 2017 (N= 394)

Characteristics	Frequency	Percentage (%)
Age		
15-19	56	14.2
20-29	123	31.2
30-39	163	41.4
40-59	52	13.2
Sex		
Male	207	52.5
Female	187	47.5
Marital status		
Married	256	65.0
Single	116	29.4
Divorced	6	1.5
Widowed	16	4.1
Ethnicity		
Sidama	269	68.3
Oromo	56	14.2
Amhara	45	11.4
Others	24	6.1
Family size		
1-4	75	19
5-8	231	58.6
9-12	75	19
13-16	13	3.3
Relationship		
Head	166	42.1
Spouse	128	32.5
Son/daughter	85	21.6
Relative/non relative	15	3.8
Educational status		
No education	92	23.4
Primary	134	34.0
Secondary and Preparatory	75	19.0
More than Secondary and Preparatory	93	23.6
Religion		
Protestant	280	71.1
Orthodox	57	14.5
Catholic	14	3.6
Muslim	41	10.4
Others	2	0.5

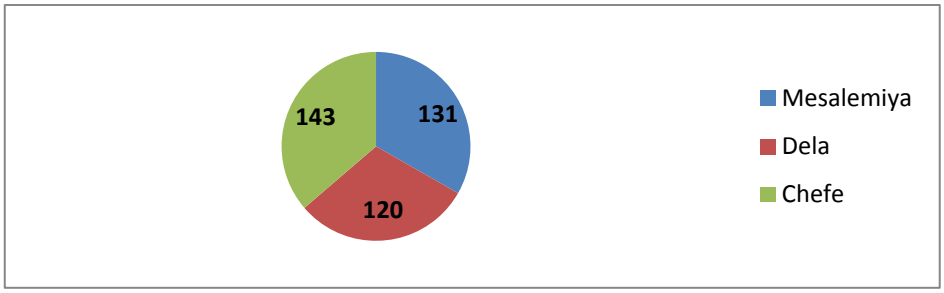


Figure 1: Number of respondents from three Kebeles that are participated in this study (N= 394)

Figure 2**.** shows that from a total of 394 respondents, 143, 131 and 120 were from Chefe Kebele, Mesalemiya Kebele and Dela Kebele respectively.

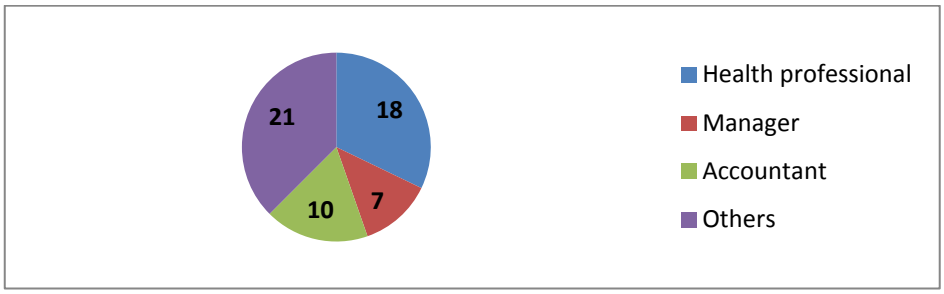


Figure 3: Number of government employee that were participated in this study

Figure 2. shows that among government employees participated in the survey majority of them (21) others, followed by health professionals.

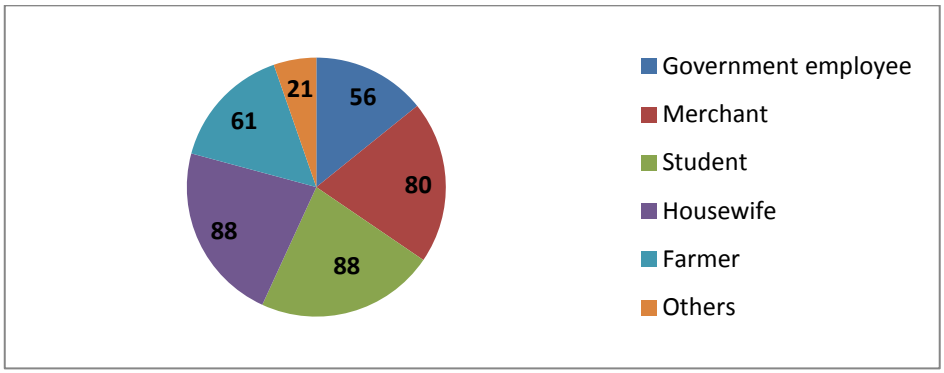


Figure 4: Number of respondents from different Occupation (N= 394)

Figure 3. shows that occupation with majority of respondents is students and housewife (88/394), followed by merchant (80/394).

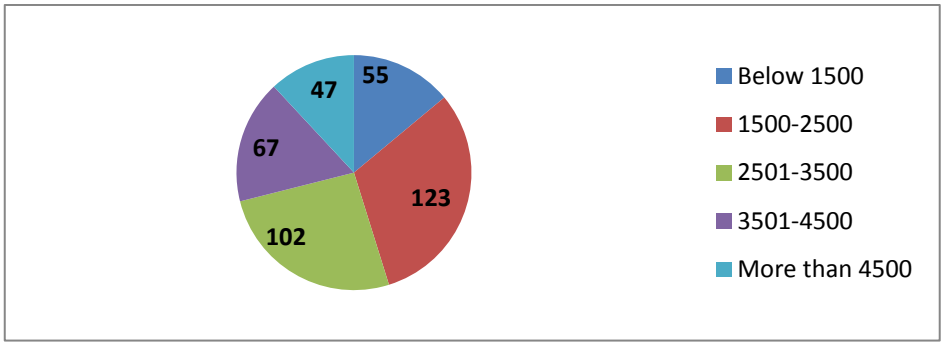


Figure 5: Number of respondents with different income level in Ethiopian Birr (ETB) (N= 394)

Figure 4. shows that majority of respondents have income number between 1500-2500 ETB (123/394), followed by those having income number between 2501-3500 (102/394).

b. Knowledge of respondents on cbe practices

Analysis of the questions on knowledge revealed that majority (76.4%) of the respondents knew that community problems are solved through CBE practices. Out of total respondents around 95.9% were knew that CBE practices can contribute to the development of a country. Also 97.2% of respondents heard about CBE practices before the survey. On the other hand 44.9% of the respondents have observed problems in their community solved by university students on CBE practices. About 90.6 % of respondents were found University students working in their community on CBE practices. All are present in Table 2. as follows.

Table 2: Knowledge of respondents on CBE practices in Aleta Wondo town in Sidama Zone, SNNPR OF Ethiopia, May 2017

Knowledge on CBE activities	**Number of subjects with correct or desired answer**	**Percentage (%)**
Have you heard about CBE that university students are practically working on, before this day in your community?	385	97.7
Have you contacted with any university student who is working on CBE in your community before this day?	357	90.6
If yes, Is there anything you did with them?	245	62.2
Do you know how university students are conducting CBE?	234	59.4
Do you know university and college students can solve problems of a community through CBE practice?	375	95.2

Do you know what problems are solved by university and college students through CBE practice?	301	76.4
Do you know how they can solve the problems?	326	82.7
Is there any problem you know that was solved by university and college students in your community?	177	44.9
Do you know anyone who told you about CBE practice of University students in your community?	51	12.9
Do you know CBE practices have many positive social, economic and health impact for a community?	382	97
Do you know CBE practices can contribute to the development of a country?	378	95.9

c. Attitude of respondents on CBE practices

For the individual questions, it was noted that there was a good response to the statement we need CBE practices in our community where 90.9% of the respondents agreed on. On the other hand 61.4% of the respondents were not satisfied by CBE practices in their community.

Table 3: Attitude of community towards CBE practice, Aleta Wondo town in Sidama Zone, SNNPR of Ethiopia May, 2017

Statement	Strongly disagree, disagree and neutral	Agree and Strongly agree
University students CBE practice is necessary for a community.	14(3.6%)	380(96.4%)
We need university students CBE practice in our community.	36(9.1%)	358(90.9%)
I believe that University students work on CBE can solve problems in a community.	28(7.1%)	366(92.9%)
I believe that material, manpower and information support for the students on CBE practice plays a great role in solving problem problems.	85(21.6%)	309(78.4%)
I acquire knowledge and skill from the students CBE practice.	53(13.5%)	341(86.5%)
I can develop a confidence through participating in CBE practice that can help me to solve problems by myself in our community.	53(13.5%)	341(86.5%)
CBE practices have a health benefit for a community.	5(1.3%)	389(98.7%)
University Students are confident at CBE practices in a community.	161(40.9%)	233(59.1%)
I am satisfied by CBE practices that university and college students are giving.	242(61.4%)	152(38.6%)
CBE is a systematic activity that can increase the capacity of the community to solve problems by themselves.	71(18%)	323(82%)
I believe that I can get more benefit from CBE practices when I participated actively than that of students.	139(35.3%)	255(64.7%)
For the CBE practice to be acceptable and beloved by the community, students should be active in the practice.	8(2%)	386(98%)
I believe that CBE practices are always beneficial for a community.	28(7.1%)	366(92.9%)
I believe that I can involve in the world of invention and be creative through actively participating in CBE practices.	148(37.6%)	246(62.4%)
I believe that CBE practices can contribute to the development of a country.	26(6.6%)	368(93.4%)

About 82 % of the community knews as CBE practices increases the capacity of the community to solve problems by themselves. Also 92.9% of respondents knew as students CBE practices in the community solve community problems. Around 98.7% of the respondents knew as CBE practices have health benfit for communities. All are described in table 3. as follows.

d. Factors associated with knowledge of respondents

Using binary regression, compared to respondents who were none educated those educated respondents were 44.440 times more likely to have good knowledge on CBE practices [COR 44.440 (15.861, 124.513)]. In the same way compared to respondents whose monthly income was less than 1500, those with income greater and equal to 1500 were 4.125 times more likely to have good knowledge on CBE practices [COR 4.125 (2.215, 7.683)]. In addition, when compared to respondents whose occupation was other, those student and government employee were 4.411 times more likely to have good knowledge on CBE practices [COR 4.411 (2.808, 6.929)]. On the other hand, compared to Chefe Kebele, those respondents from Dela Kebele were 0.368 times less likely to have good knowledge on CBE practices [COR 0.368 (0.223, 0.607)]. During multiple logistic regressions, when compared to respondents who were none educated those educated respondents were 28.965 times more likely to have good knowledge on CBE practices [AOR 28.965 (9.721, 86.309)]. In the same way compared to respondents whose monthly income was less than 1500, those with income greater and equal to 1500 were 3.330 times more likely to have good knowledge on CBE practices [AOR 3.330 (1.567, 7.078)]. In addition, when compared to respondents whose occupation was other, those student and government employee were 12.943 times more likely to have good knowledge on CBE practices [AOR 12.943 (3.885, 43.124)]. As well compared to respondents who were other, those household head and spouse were 7.154 times more likely to have good knowledge on CBE practices [AOR 7.154 (2.105, 24.310)]. On the other hand, compared to Chefe Kebele, those respondents from Dela Kebele were less likely to have good knowledge on CBE practices [AOR 0.239 (0.115, 0.496)]. Similarly, compared to Chefe Kebele, those respondents from Mesalemiya Kebele were less likely to have good knowledge on CBE practices [AOR 0.519 (0.271, 0.991)].

e. Factors associated with attitude of respondents

Using binary regression, compared to respondents who were other, those students and government employee were 2.132 times more likely to have good attitude on CBE practices [COR 2.132 (1.383, 3.286)]. Similarly compared to Chefe Kebele, those respondents from Dela Kebele were 1.731 times more likely to have good attitude on CBE practices [COR 1.731 (1.045, 2.866)]. During multiple logistic regressions, when compared to respondents who were other, those students and government employee were 2.400 times more likely to have good attitude on CBE practices [AOR 2.400 (1.230, 4.685)]. Also compared to Chefe Kebele, those respondents from Dela Kebele were more likely to have good attitude on CBE practices [AOR 1.872 (1.087, 3.223)].

Discussion

Based on the result education was one of the main contributing factors that affect the knowledge of the community members towards CBE practices. When compared to none educated, those educated respondents have good knowledge. The main reason behind this was the encouragements of school students on the program mostly during the time when university students working on CBE practices were searching to find and solve problems of the school environment and the second reason was that the educated persons working in different offices knew about the program and want to involve in the program in their community with university students. The second factor affecting knowledge but not attitude was the monthly income of households. Those community members with low income level were most of the time forced to isolate themselves from the program due to two main reasons. One, they fear when someone can enter their home to ask them something and present with unexpected false response that was “no household member here we are from the neighbor”. The second reason is that, they want to involve in something that came with payment in their community. So they were not simply got an opportunity to involve. The two reasons were not the same to all households with low income level. But majority of them were following these conduct. The third factor was occupation that was identified as having an effect on both the knowledge and attitude of the community towards CBE practices. This is due to the fact that students and government employee are most of the time exposed to CBE practices

given by university and college students. So students and government employee have both good knowledge and attitude on CBE practices. The fourth factor affecting the knowledge of respondents was relationship of the respondents in their family. Since in most houses, mothers and fathers can invite someone coming from outside, so the spouse and household head were identified as having good knowledge on CBE than others like son, daughter, relatives and other non-relatives based on our finding. The last factor identified as having effect on the attitude of the community was Kebele of the respondents. This was due to the reason that students conducting CBE are mostly selecting a Kebele purposively for community diagnosis to identify problem and for intervention on the problems they have prioritized. So due to this reason there is knowledge and attitude variation in respondents from different kebeles on CBE practices. My finding was indicated that respondents from Dela Kebele have good knowledge when compared to respondents from Chefe Kebele. A research of Gezira University in Sudan conducted on 60 community leaders about the impact of community based programs (CBP) on community for the purpose of identifying their knowledge and attitude on objectives of Gezira University CBP (community based programs) showed that 90% of the participants were answered that Gezira students were dedicated and hard workers in a community on community based programs (H.G. Schmidt, 1992). But based on our result 59.1% of respondents were said that University Students are confident and hard workers at CBE practices in a community which was lower than result of study done by Gezira University. Also the result from the research of Gezira University indicated that 33% of participants answered as community based programs raise the community awareness on prevention and cure of common diseases (H.G. Schmidt, 1992). On the other hand the find of my study indicates that 82% of respondents answered CBE practices as it is a systematic activity that can increase the capacity of the community to solve problems by themselves, which is much higher than the Gezira result. Research of Gezira University as well indicated that 87% of respondents answered CBP practices can increase community understanding on Gezira objectives and strategies (H.G. Schmidt, 1992). Similarly without too much difference 97% of respondents in my study answered that CBE practices have positive social, economic and health impacts in a community that were some among many objectives of University CBE programs. CBE programs are all aimed at producing changes in the community. However, the question, then, of course is

to what extent these changes contribute to the well-being of these communities. Based on my finding 98.7% of the respondents were agreed that CBE practices have a health benefit for a given community. Also out of the total respondents 95.2% were knew that CBE can solve community problems. So the community members can know as the program is better in many things. On the other side my finding showed that 61.4% of the respondents were not satisfied by CBE practices that university students are giving. In relation to the utilization status of the program 55.1% of the respondents have not observed any problem solved by students from universities in their community. This is factor that may force the community to be in a contrary direction to the program. So, universities have to work a lot since community members expect especial things daily. Community support and mobilization have been reported as the key enabling factors for the success of CBIs (community based interventions) for HIV prevention since they require a culturally sensitive approach (Carlson M., et al., 2012) and (Chhabra R., et al., 2010). In relation to this report, my study also indicated that 78.4% of respondents were believed as material, manpower and information support were needed for students on CBE practices which plays a great role in solving community problems. Majority of the community knew as a support is needed for students working in the community in solving problems.

Conclusion and recommendations

According to this study three out of five respondents were found to have good attitude on CBE practices and slightly greater than half of the study participant had good knowledge. Their knowledge and attitude on certain aspects of students' CBE practices were still poor. Binary regression and multiple logistic regressions were used to determine whether a variable is a factor or not based on knowledge and attitude of respondents. Educational status, occupation, relationship of the respondent in their family and monthly income were affecting significantly the knowledge of community towards CBE practices. Occupation and Kebeles of the respondents were affecting significantly the attitude of community towards CBE practices.Compared to respondents who were non-educated those educated respondents were more likely to have good knowledge on CBE practices. When compared to other occupations, students and government employee

have good knowledge and attitude on CBE practices. In the same way compared to respondents whose monthly income was less than 1501 Ethiopian birr, those with income greater and equal to 1500 Ethiopian birr were more likely to have good knowledge on CBE practices. As conclusion, around half of the respondents have knowledge but most were described that there was no person who told or explained about CBE practices in their community. Three out of five respondents were found to have good attitude but some of the respondents have poor attitude. Therefore factors identified in this study like educational status, occupation, relationship of the respondent in their family and monthly incomes were resulted in having poor knowledge among the respondents on CBE practices. Also occupation and variations among services provided at each Kebele were resulted in having poor attitude among the respondents on CBE practices.

Recommendations: Awareness creation should be needed for community about the program before students start the program at a given site that makes the program available to the community rather than being imposed on them; the universities should have to do more on students to increase their skill, knowledge and confidence since the study shows more than half of the community members are not satisfied by the activities done before; having or formulating formal discussion periods with focal persons in sectors in different sites to regularly evaluate the students' activities in a community at different sites should be needed to know whether they are important or not among the community members; the universities should have to evaluate students individually and in a group with many evaluation methods like community members feedback, community leaders' evaluation feedback and by the university to get effectual works within a community; and encouraging the community members to participate in the practices at large should be needed to share knowledge and skill or to transmit information easily on every CBE practices to expand the program at community level.

Acknowledgment

I am thanksgiving for divine favor in everything. I would also like to recognize Hawassa University College of Medicine and Health Sciences, department of environmental health, for giving me an opportunity to conduct this research. My appreciation also goes to my advisor Beekam Kebede for his support through advice and provision of important information's during the development research activity. Then, I want to

commend Professor Derese D., head of CBE office since he provided important information's on this research. Last, but not least I want to compliment community members who were willing to participate on this study and all sectors that provided adequate information like administration office and health extension.

References

Addis Ababa University. (1975). Educational philosophy of the University.

Carlson M, Brennan RT, Earls F. Enhancing adolescent self-efficacy and collective efficacy through public engagement around HIV/AIDS competence: a multilevel, cluster randomized-controlled trial. Soc Sci Med. 2012 Sep;75(6):1078-87. doi: 10.1016/j.socscimed.2012.04.035. Epub 2012 May 24. PMID: 22703885.

Chhabra R, Springer C, Leu CS, Ghosh S, Sharma SK, Rapkin B. Adaptation of an alcohol and HIV school-based prevention program for teens. AIDS Behav. 2010 Aug;14 Suppl 1(Suppl 1):S177-84. doi: 10.1007/s10461-010-9739-3. PMID: 20589528; PMCID: PMC2927210.

Günap, A., & Kabadayı, A. (2017). Anne-baba tutumlarının okulöncesi eğitim çağındaki çocukların özgüven duygusunun gelişimine etkisi. *Journal of Human Sciences*, *14*(3), 2762-2776. Doi:10.14687/jhs.v14i3.4713

H.G. Schmidt. (1992). The impact of a community based program on the community. Publication in Medical education, 1-141.

Lyyn M. (2001). Community participation in health: Perpetual allure, persistent challenge. Health policy planning, 3(16), 221-230.

Kabadayı, A**.** (2019). Contributions of the Fairy Tales to the Children on the Basis of the Teachers Views. American Journal of Education and Learning, 4(2): 222-233.

Mekonnen A. (2000). Community based education: Concept and practice. Ethiopian Journal of Development(14), 227-237.

Ndiaye SM, Quick L, Sanda O, Niandou S. The value of community participation in disease surveillance: a case study from Niger. Health Promot Int. 2003 Jun;18(2):89-98. doi: 10.1093/heapro/18.2.89. PMID: 12746380.

Richards R. and Fulip T. (1987). Innovative schools for health personnel. WHO offset publication.

Sung NS, Crowley WF Jr, Genel M, Salber P, Sandy L, Sherwood LM, Johnson SB, Catanese V, Tilson H, Getz K, Larson EL, Scheinberg D, Reece EA, Slavkin H, Dobs A, Grebb J, Martinez RA, Korn A, Rimoin D. Central challenges facing the national clinical research enterprise. JAMA. 2003 Mar 12;289(10):1278-87. doi: 10.1001/jama.289.10.1278. PMID: 12633190.

WHO. (1978, September). Deceleration of Alma-Ata. Report of the international conference on primary health care. 6-12.

Woldemariam T. and Assefa M. (1990). Historical Perspective of Jimma Institute of Health Science. 2, 11-19.

IJQE

International Journal of Quality in Education

Online, https://dergipark.org.tr/tr/pub/ijqe

Volume: 5, Issue 2, 2021

e-ISSN:2636-8412

SCRATCH IN TEACHING PROGRAMMING: EFFECT ON PROBLEM SOLVING SKILL AND ATTITUDE

Rukiye Berna Bala (Ministry of National Education, Turkey)
r.berna.bala@gmail.com
0000-0003-4458-8320

Prof. Dr. Füsun Gülderen Alacapınar (Necmettin Erbakan University, Turkey)
fusunmireli@yahoo.com
0000-0001-7515-385

Abstract

The study seeks to identify the effect of the Scratch program used in the teaching programming language to 6th-grade students on student performance, problem-solving skills, and their attitude towards the course on information technologies and to compile student opinions on its implementation. 22 students took part in the study. The study used pre and post-test single-group experimental design. It took 8 weeks. The first five weeks were allocated activities related to behavior in information and concept building. The last three weeks were for behavior related to practice. Students were asked to develop a project that covers objectives mentioned and of interest to them. Achievement test, problem-solving scale, scale on student attitude towards information technologies course were data collection tools used and an interview form was used to take the opinions of students. At the end of the study, it was observed that the post-test achievement scores of students were higher. It was found that the Scratch program had no statistically significant effect on students' problem-solving skills while there is an increase in post-test scores related to attitude towards the course. It can be said that student opinions on the use of Scratch in a teaching programming language are in general positive.

Keywords: *Attitude; Programming; Problem-solving skill; Scratch*

Introduction

Each citizen needs education in computer science to grasp and effectively use the relevant technology and to produce what is intended. This education should not intend to accord individuals such professional titles as "computer scientist" or "software expert". The idea is to provide opportunities to people, including younger age groups in the first place, to use a computer to develop new ideas and to produce. To this end, there are now many countries adding computer science as a course to their curricula (Sayın, 2017).

In recent years there is mention of programming skills as a distinguishing and desired competence in many areas (Kalelioğlu & Gülbahar, 2014; Yükseltürk & Altıok, 2015). There are now various types of software developed and activities carried out to introduce programming particularly to younger age groups and build relevant skills. Programming is a difficult and long process of education.

The teaching program in the course Information Technologies was updated in 2012 and the name of the course was changed to 'Information Technologies and Software". Also, a unit on programming was added (MoNE, 2012). The teaching program was updated once more in 2018 with the addition of the unit "Problem Solving and Programming". This unit envisages information and skill-building in the following: algorithm design (searching, sequencing, vb.); verbal and visual expression, assigning variables for problem-solving, sequential logic, decision structure, use of circuit and function structure, selection of appropriate programming approach in problem solving and skills in practice (MoNE, 2018).

Examining related studies we find that when they take courses in programming students may have higher motivation for their schools and courses and their problem solving and analytic thinking skills may improve (Akpınar & Altun, 2014). In a study investigating the effect of using a robot in coding education on secondary school students' problem-solving skills Özer (2019) statistically significant difference was found in scores of experimental group students in problem-solving inventory. Another study states that programming skills, independent of the programming language used, may

build skills in problem-solving and analytical thinking in different fields such as logical thinking and algorithm setting (Ersoy, Madran & Gülbahar, 2011). Çam (2019) says robot-supported programming education creates a significant difference in motivation levels of students in the experimental group.

One issue to consider is the ages at which this education is to be given. Utting, Cooper, Kölling, Maloney, and Resnick (2010), for example, present different age groups for different software and suggest the age interval 8-16 for Scratch. They also add that the level of cognitive development of children will be influential in selecting software to be used in programming education.

There are many factors affecting achievement in programming language courses. Examples include motivation, attitude towards programming, complex nature of programming language, and teaching method and design. In programming education, if the student is not motivated enough he or she may get frustrated as the course is in progress and this may lead to lesser and lesser studying. Students who think there has to be a lot of computer work in developing a program may find this boring (Ersoy et. al., 2011).

One situation troubling new beginners in programming is misspelling made while writing codes. In this process which closely resembles learning a new language misspelled words and missed signs trouble students quite a bit. It is essential to grasp basic concepts in programming education. Otherwise, programs developed to turn into performances in rote fashion. Here, the first step must be teaching the logic of the algorithm as the basis, and then the learning basic concepts must follow. The course must proceed with tools to facilitate the process and make it more fun.

Taking a look at relevant studies we see that various types of software are used for beginners to make the education process more fun and to ease the learning of basic concepts. (Coşar, 2013; Genç & Karakuş, 2011; Yükseltürk & Altıok, 2016). Scratch, Microsoft Small Basic, Alice, and MIT AppInventor can be mentioned as programs making the process more interactive and easier. In a study examining the opinions of candidate teachers in information technologies who received programming education through Scratch, Yükseltürk and Altıok (2016) found that the perception of candidate teachers related to the Scratch program was positive.

Education in Programming

Taking a look at studies on programming education around the world it can be observed that countries recently attach importance to this education. It can be said that this education is often included in secondary education curricula with recent insertion into primary school curricula as well. According to the European Schoolnet study report, there are European Union countries adding programming as a course to their school curricula. Further, some countries introduce programming to their students through extracurricular activities (Şimşek, 2018).

Recently various activities are organized throughout the world to introduce programming education to children at younger ages. Studies conducted so far suggest that there is consensus on the possibility of building such 21st-century skills as problem-solving, creativity, algorithmic thinking, and information processing in individuals through the teaching of programming and computer sciences (Çatlak, Tekdal & Baz, 2015).

The site code.org site as a voluntary initiative is active with the motto "Anybody can learn". Activities on the site under the title "Coding Hour" aim to introduce coding to students. There is language support in activities that can be accessed online and activities make use of various films, animations, and characters that children and youth find interesting.

The EU CodeWeek organization is carried out by the European Schoolnet whose members include the Ministry of National Education (MoNE). The activity taking place in October covers schools in Europe who want to participate. The EU CodeWeek explains the objective of its activities as a grassroots movement that encourages creativity, problem-solving, and cooperation through programming and other technological activities. The objective here is to make programming more visible and demonstrate to youth, adults, and the elderly how ideas can be translated into life by coding. The organization also seeks to uncover these skills and bring motivated persons together for learning (https://codeweek.eu/about/).

We observe different countries adding courses in computer and coding to curricula of their primary and secondary education schools. England, for example, changed the name of the course which used to be Information and Communication Technologies to "Computing" in 2013. This computing course is built upon three pillars as computer

science, information technologies, and digital literacy. England is the first G20 country that made computer science courses compulsory in primary education (Sayın, 2017).

In Turkey, programming education is delivered at the secondary education level, under information technologies in vocational high schools and various engineering departments of universities. There are also special courses for those who want to advance in this area. Mostly in laboratories, courses are delivered through the demonstration technique. The assessment is done by written exams, practice tests, or graduation projects. At the primary education level, the objective of programming education is not professional software development but to help students learn by applying their algorithmic thinking skills in concrete ways. There are many instruments like Scratch, Alice, and Kodu that are designed to change students' attitudes to programming in a positive way (Avcı & Ersoy, 2018: 74).

Programming Tools for Children

Given the specific words and rules and abstract concepts of programming languages children may face difficulties at early stages. There are many block-based programming tools developed to make the process easier for beginners.

Instead of the syntax used in block-based programs, there are blocks expressed by visuals that work with a drag-and-drop basis. These are for avoiding misspellings and memorizing rules that are valid for text-based languages. The puzzle-like design of blocks allows only for bringing correct pieces together. Studies show block-based instruments contribute to students' learning of programming. In a study examining the effect of programming education with a scratch on the motivation and achievement of students, Erol (2015) finds a significant difference in programming achievement scores in favor of participants in the experimental group. Students working with Scratch say activities are easy and fun and functional in building programming logic and enhancing motivation. There are various programs developed for children in programming education.

Scratch Programme

The Scratch program announced with the slogan "Imagine Code Share" was developed in the media laboratories of MIT (Massachusetts Institute of Technology). The program is now used with more than 40 languages in some 150 countries. With Scratch,

students develop programs by dragging and dropping code blocks instead of writing codes. With this program that can be used not only by children but all who have just started coding you can develop your stories, plays, or animations and share them with others on the site. Scratch is a visual programming environment (firstly for the age group 8-16) that helps its users learn programming while working on their projects like animated stories and games (Maloney et. al., 2010). It is a black-based programming tool that is free and usable by people of all ages.

Developing projects by bringing code blocks together with the Scratch program is much easier than in text-based programming languages (Genç & Karakuş, 2011). Minimizing possible spelling mistakes in writing the program, the Scratch program is an appropriate program for children in this respect. Alp (2019) finds that the Scratch program improves secondary education students' attitude to computer and problem-solving skills. This program also offers opportunities to children for developing projects in different fields. The Scratch facilitates teachers' work to teach programming concepts at all levels and to develop products that also provide them opportunities to motivate their students (Yükseltürk & Altıok, 2016).

It is stated that while programming and sharing interactive projects Scratch users can think about and learn ways of creative, systematic, and collaborative thinking which are considered essential skills of the 21st century (Resnick et. al., 2009). The reason for using the Scratch program in this study is that it has its Turkish language support, availability of many source documents, beings without any fee, and that the method of drag-and-drop is more suitable to the level of new beginners in programming.

Problem Solving Skill and Information Technologies and Software Course

The following are some points stressed under the heading "specific objectives" in the updated teaching program of the course Information Technologies and Software (MoNE, 2018):

- Ensure students' building of an overall understanding and technical background in computer science,
- Ensure students' acquisition and development of problem-solving and information processing skills,
- Ensure that students can follow and evaluate reasoning processes.

With these, students are expected to seek and question information, use information technologies by complying with relevant ethic rules, solve problems they face in the process, and enter into effective communication. It is targeted, with courses in Information Technologies or Computer Sciences to be delivered in primary and secondary schools and high schools to train students as individuals capable of keeping track of innovations, understanding, and questioning the world they live in. In this context, different institutions set various standards to determine competencies that students are expected to have. The International Society for Technology in Education (ISTE) set some standards for students, teachers, teachers, and managers information technologies on the use of education technologies. The standards set for students are as follows (ISTE, 2016): Empowered Learner, Digital Citizen, Knowledge Constructor, Innovative Designer, Computational Thinker, Creative Communicator, and Global Collaborator. Under the heading "Computational Thinker" students are expected to develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

In Turkey, students are offered Computer Science courses in high schools and Information Technologies and Software courses in secondary schools. It is desired that students can use information and communication technologies effectively, efficiently, and in line with ethical rules. As stated in the renewed teaching program of the course the objective is to train students who are capable of using technology effectively, suggesting solutions to problems, and developing their software to produce information. In secondary schools, the course comprises five units (MoNE, 2018): Information Technologies, Ethics and Safety, Communication Research and Cooperation, Product development, Problem Solving, and Programming.

The present study investigates the use of Scratch software in secondary education to make programming education more effective at that level and to teach programming. Another objective is to build awareness in students related to this field. In younger age groups students may be oriented to this field by finding out about their interest or skills in programming. Paths can be opened for students who want to advance further in the field. It can be said the programmers well trained in information and communication technologies will contribute to the national economy.

Problem Sentence

Does the scratch program used in the teaching programming language to secondary school 6th-grade students have any significant effect on student scores in achievement, problem-solving skills, and their attitude towards the course? What are the opinions of students on teaching programming through scratch?

Hypotheses

1) There is a significant difference between pre and post-test scores of the group to which the scratch program was applied.
2) There is a significant difference between pre and post-test scores of the group to which the scratch program was applied concerning the problem-solving skills scale.
3) There is a significant difference between pre and post-test scores of the group to which the scratch program was applied concerning attitude towards the course.
4)

Sub-problem

What are the opinions of students about teaching programming with Scratch?

Research Design

The study investigates the effect of the Scratch program used in courses on students' scores in achievement, problem-solving skills, and attitude towards the Information Technologies course by using the methods of pre and post-test, experimental group design, and qualitative survey. The "descriptive approach" was adopted. Students' opinions on programming education through Scratch were also solicited. Tests were applied to the student after the completion of experimental work.

Study Group

An appropriate working group was used in the study instead of determining any universe and sample. The working group of the study consists of 6th-grade students who were taking an Information Technologies course in a state school in Seydişehir District of Konya Province. 22 students took part in the study.

Measurement Tools

Achievement Test: The test used in determining the achievement level of students was prepared by the researcher. The achievement test contained questions of different types which were formulated upon the review of textbooks, relevant sites, and various academic studies. 30 such questions were formulated. Opinions of three experts were

taken to check the relevance of these questions. The reliability of the study was found as 79% by using Miles-Huberman's (1994) coder reliability percentage. The reliability coefficient in the study was calculated as 0.814.

Problem Solving Scale: The Problem Solving Scale used in the study was borrowed from the following source: Kardaş et. al. (2014), "Adapting Problem Solving Inventory to Primary Education Students: Outcomes of Confirmatory Factor Analysis." The study mentioned the adaptation to 5^{th}-grade students of PSS as a psychometric tool for measuring the problem-solving skills of adults as translated into Turkish by Şahin, Sahin, and Heppner (1993). The Cronbach Alfa reliability of the scale was calculated and the coefficient was found as 0.608.

Scale for Attitude towards Information Technologies Course: The "Scale for Attitude towards Information Technologies Course" was used at the beginning and end of the study to see whether there is any significant change in student attitude to the course. This scale used in the study is the attitude scale developed by Işık (2010) in a doctoral dissertation. The Cronbach Alfa reliability of the scale was calculated and the coefficient was found as 0.945.

In the qualitative part of the study opinions of students in the working group on implementation were taken. Descriptive analysis was applied to these opinions followed by explanations and comments. Descriptive analysis is the simplest form of analysis used in analyzing qualitative data. In this method, the researcher must gather questions under some headings and categories in reporting instead of just writing them down as they are (Sönmez & Alacapınar, 2014). The semi-structured questionnaire consists of open-ended questions formulated by the researcher.

The study lasted for eight weeks in total with two class sessions in a week each taking 40 minutes. Class session plans were developed and implemented in line with targeted behaviors set for the study. During the first five weeks work concentrated on behavior related to information and comprehension levels. Students were informed about basic concepts in programming, linear logic, cycle logic, and decision. Relevant case studies were demonstrated to students. Students were then asked to launch their model practices. Students were guided during their practices. Activities carried out were as follows:

- Direction Keys

- Aquarium
- Hunter Shark
- Ball Game

The last three weeks were devoted to behavior at the practice level. Students were asked to develop a project that is of interest to them and covers the targets mentioned. Semi-structured interview forms were used at the end to solicit students' opinions. Then post-tests were applied to the working group in achievement, problem-solving scale, and attitude scale.

Data Analyses

In the achievement test applied, 1 and 0 were scores assigned to correct and incorrect answers, respectively. In the test the 1. question has eight and the 2. question has seven sub-items. The maximum score that can be obtained is 43. In order to determine whether there is a significant difference between pre and post-test scores of students in achievement, problem-solving scale and attitude towards Information Technologies course paired samples t-test was applied. To assess the opinions of students, descriptive analysis was applied to data obtained by using a semi-structured interview form.

Findings

1. Findings Related to the First Hypothesis: Findings related to whether there is a significant difference between students' pre and post-test scores in achievement are examined and shown in Table 1.

Table 1. Achievement Test Pre And Post-Test Related Samples t-Test Results

	N	$\bar{X}$	SS	*T*	P
Pre-test	22	11.14	4.357	-9,893	0,00*
Post-test	22	23.82	7.248		

*$p<0.05$

Paired samples t-test was applied to see if there is a significant difference between pre and post-test scores of students in achievement. The difference between pre-test scores ($\bar{X}_{öntest}$ = 11.14) and post-test scores ($\bar{X}_{sontest}$= 23.82) was calculated as -9.893 at 21 degrees of freedom [$t_{(22)}$ = -9.893, p= 0.00 < 0.05]. Looking at the P-value we see a significant difference at a level of 0.05. This indicates there is a significant difference between pre and post-test scores of students.

2. Findings Related to the Second Hypothesis: Outcomes of the sample t-test applied to see whether there is a significant difference between students' pre and post-test scores in problem-solving skills test are given in Table 2.

Table 2. Problem Solving Scale Pre and Post-Test Related Samples t-Test Results

	N	$\bar{X}$	SS	*T*	P
Pre-test	22	54.5	6.54	-.840	0.410*
Post-test	22	55.9	6.60		

*p<0.05

Examining the averages of pre and post-test scores of the working group in the problem-solving scale in Table 2 we see that the average of post-test scores ($\bar{X}$= 55.9, SS=6.60) is higher than the average of pre-test scores ($\bar{X}$= 54.5, SS=6.54). According to paired samples t-test, the *t* value in scores obtained from problem solving scale was calculated as - .840 at 21 degrees of freedom ($t_{(22)}$ = -,840, p= 0,410 <0,05). Looking at the P-value we don't see any significant difference at the level of 0.05 which suggests that the scratch program used in programming education has no statistically significant effect on the problem-solving skills of students.

3. Findings Related to the Third Hypothesis: To determine the effect of the Scratch program used in programming education on the attitude of students towards the Information Technologies course, an attitude scale was distributed before and after implementation. The outcomes of paired samples t-test applied to see whether there is a significant difference between average scores are given in Table 3.

Table 3. Attitude Scale to Information Technologies Course Pre and Post-Test Related Samples t-Test Results

	N	$\bar{X}$	SS	*T*	P
Pre-test	22	70.0	3.28	-5.002	0.000*
Post-test	22	89.5	18.5		

*p<0.05

Examining averages of pre and post-test scores of the working group in attitude towards Information Technologies course scale in Table 3 we see that the average of post-test scores ($\bar{X}$= 89.5, SS=18.5) is higher than the average of pre-test scores ($\bar{X}$= 70, SS=3.28). Also, according to paired samples t-test, the *t* value in scores obtained from the attitude towards the course scale was calculated as 5.002 ($t_{(22)}$ = -5.002, p= 0,00 <0.05) at 21 degrees of freedom. Looking at the p-value we see a significant difference at the level of 0.05 which suggests that the Scratch program used in programming education contributes positively to student attitude towards Information Technologies course.

4. Findings Related to the Sub-problem

It can be said that students have a positive opinion about the Scratch program. They say they had fun and a nice time while using the program. Some comments made by students are "We can create fine games", "I liked it, it must be in all classes", "It contributed to my problem solving, I participated more in my class."

4.1 Opinions of Students on Cases They Found Interesting in their Work with Scratch Programme in Problem Solving and Programming Unit

Students say they found their work with the Scratch program interesting. One student says, "I can change the scene and characters as I wish, I can do anything I want…" Comments by some other students include: "What catches my interest is that we can do animation and cartoon films", "It does what I tell it to do"… Two students were different from others and they found nothing interesting for them in the program.

4.2 Opinions of Students on Cases They Disliked in their Work with Scratch Programme in Problem Solving and Programming Unit

Students say they had no dislike or trouble point in their work with the Scratch program. One student says "There was nothing posing difficulty" and another "There was nothing that I disliked". Still, some students say it is annoying to have difficulty in finding the mistake they have done. One student says, "There were times I got confused" and another: "It was a problem when what I did turned out to be incorrect and I could not find where the mistake was."

4.3 Opinions of Students on Benefits of Problem Solving and Programming Unit

In general, students say they liked the course more, learned new things, and could use the computer more effectively. One student said, "I realized I could use the computer in a more useful way." Another said the following about the work done: "I learned how to make games to help in problem-solving." A student: "It was useful for the course, now we can use computers more effectively." Other comments by students are as follows: "We can earn some money by developing our software"; "It added to our knowledge and helped us in having fun at the same time"; "I learned how to use the computer"; "We've learned programming; "It made the course more enjoyable."

Discussion

Outcomes of the study show that work conducted had positive effects on students' academic achievement. These outcomes are in line with the findings of the study by Özoran, Çağıltay, and Topallı (2012) in the same field. They found that after the use of Scratch programming environment in the course "Introduction to Programming" the number of failing students reduced compared to the previous year. Korkmaz (2016) investigated the effects of Scratch-based game activities on students' attitudes towards learning computer programming, perception of self-efficacy, and academic achievement. It is stated that the achievement of the group that taught C++ courses with Scratch is higher than the group taught by using conventional methods. Dinçer (2018) examined the effect of programming education with Scratch and Kodu Game Lab on the academic performance of secondary education 6th-grade students, their attitude, and their perception of self-efficacy. Dinçer concluded that the achievement of students learning to program with Scratch is significantly higher than others learning it by Kodu Game Lab. Studies conducted so far suggest that applied teaching significantly affects student achievement since they learn the program by doing it in practice. Also, examining the qualitative findings of the study we see that students mentioned their enjoyment of the course. This enjoyment is one of the factors affecting students' performance in a course. Students say they can earn money with what they have learned. Students may be much more willing to learn when they feel what they are learning will have some use in their lives. This can be taken as another factor affecting performance.

Another point examined in the study was the effect on problem-solving skills. Here, no significant difference could be found between pre and post-test scores of students. This outcome is in line with the findings of Genç and Tınmaz (2010) and Kalelioğlu and Gülbahar ın (2014) in their studies. Korkmaz (2018) too found game activities performed with Scratch had no significant contribution to problem-solving skills. However, there are also some other studies reaching just the opposite conclusions. Nam, Kim, and Lee (2010) arranged a process to facilitate teaching in programming with Scratch that was in line with the scaffold approach and examined its effect on students' problem-solving skills. They found significant improvement in problem-solving skills in both groups. Çetin (2012) concludes that programming education enhances problem-solving skills in children. However, students could not use skills they have gained in practice in some new situations. This may be due to limited time and the weight accorded to achievements in practice during class sessions. Another reason can be not solving some practical problems fully.

The study examined the effect of Scratch on student attitude towards the course. Here there was a significant difference between pre and post-test scores of students on the attitude scale. Coşar (2013) found positive effects on student attitude towards the computer. Ouahbi et. al. (2015) investigated the effect of the Scratch program they use in teaching the basics of programming on student motivation for programming. They found there is a significant increase in the achievement and motivation of students in the group using the Scratch program relative to students in the other group. Qualitative findings of the study also support this as seen in relevant comments made by students. Students supported the affective domain by stating their enjoyment of the course, the usefulness of what they learned, and possibilities of earning money with these skills.

In conclusion, there is improvement in the academic achievement of students receiving programming education with scratch while there is no significant effect on problem-solving skills. Also, there is a positive change in their attitude towards the course Information Technologies.

In the light of the findings of the study, the following suggestions can be made: In programming education, different programming tools can be used to detect their impact on students' achievement, problem-solving skills, and attitude towards the course. The effectiveness of the Scratch program in programming education can also be tested with

different age groups. Another investigation may be whether the Scratch program has its effect in imparting different skills in thinking (in information processing). It is considered that work repeated as a result of extending the working period could make a statistically significant difference in building program solving skills.

References

Akpınar, Y., & Altun, A. (2014). Bilgi toplumu okullarında programlama eğitimi gereksinimi [The Need for Programming Education in Information Society Schools]. *İlköğretim Online* [Elementary Education Online], *13* (1), 3. Retrieved from http://ilkogretim-online.org.tr

Alp, Y. (2019). *Blok tabanlı programlama öğretiminin ortaokul öğrencilerinin problem çözme becerisine ve bilgisayara yönelik tutumuna etkisi* [The effects of block-based programming on the problem solving ability and attitude towards computer for secondary school students] (Master's thesis, Inönü University, Malatya, Turkey). Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/

Avcı, Ü., & Ersoy, H. (2018). Bilgisayar programlama derslerinde öğrenme motivasyonu ölçeğinin Türkçe uyarlaması: geçerlilik ve güvenilirlik çalışması. [The Adaptation of Learning Motivation in Computer Programming Courses Scale into Turkish: The Study of Validity and Reliability]. *Yükseköğretim ve Bilim Dergisi* [Journal of Higher Education & Science], *8* (1), 73-81. doi: 10.5961/jhes.2018.249

Coşar, M. (2013). *Problem temelli öğrenme ortamında bilgisayar programlama çalışmalarının akademik başarı, eleştirel düşünme eğilimi ve bilgisayara yönelik tutuma etkileri* [*Effects of computer programming studies on academic success, critical thinking skills and programming-based attitudes in problem-based learning environment*] (Doctoral dissertation, Gazi University, Ankara, Turkey). Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/

Çam, E. (2019). *Robotik destekli programlama eğitiminin problem çözme becerisi, akademik başarı ve motivasyona etkisi* [*The influence of robotic assisted programming education on problem solving skills, academic success and motivation*] (Doctoral dissertation, Sakarya University, Sakarya, Turkey). Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/

Çatlak, Ş., Tekdal, M., & Baz, F. Ç. (2015). Scratch yazılımı ile programlama öğretiminin durumu: bir doküman inceleme çalışması. [The Status of Teaching Programming with Scratch: A Document Review Work]. *Journal of Instructional Technologies & Teacher Education, 4*(3), 13-25.

Çetin, E. (2012). *Bilgisayar programlama eğitiminin çocukların problem çözme becerileri üzerine etkisi* [The effect of computer programming education on children's problem-solving skills] (Master's thesis, Gazi University, Ankara, Turkey). Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/

Dinçer, A. (2018). *6.sınıf öğrencilerine Scratch ve Kodu game lab programlama dillerinin öğretiminde öğrencilerin tutum, öz yeterlilik ve akademik başarılarının karşılaştırılması* [The comparison of 6th grade students' in terms of attitudes, self-efficacy and academic achievement on teaching of scratch and kodu game lab 'programming languages] (Master's thesis, Dokuz Eylül University, İzmir, Turkey). Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/

Erol, O. (2015). *Scratch ile programlama öğretiminin bilişim teknolojileri öğretmen adaylarının motivasyon ve başarılarına etkisi.* [*The effects of teaching programming with Scratch on pre-service information technology teachers' motivation and achievements*] (Doctoral dissertation, Anadolu University, Eskişehir, Turkey). Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/

Ersoy, H., Madran, R. O., & Gülbahar, Y. (2011, February*). Programlama dilleri öğretimine bir model önerisi: robot programlama.* [A Model Proposed for Teaching Programming Languages: Robotic Programming] Akademik Bilişim, 11. Malatya, Turkey.

Genç, Z., & Tınmaz, H. (2010). *Programlama dilleri dersi içerisinde öğrencilerin problem çözme becerileri ve bilgisayar tutumları değerlendirmesi: Bir Fırat Üniversitesi örneği*. [Evaluation of Students' Problem Solving Skills and Attitude Toward Computers in a Programming Course: A Case Study From Fırat University] In International Education Technology Conference, *IETC*. İstanbul, Turkey.

Genç, Z., & Karakuş, S. (2011).*Tasarımla öğrenme: eğitsel bilgisayar oyunları tasarımında Scratch kullanımı*. In 5th International Computer & Instructional Technologies Symposium (ICITS), Elazığ, Turkey.

ISTE (International Society for Technology in Education) Standards For Students, 2016 (http://www.iste.org/standards/for-students#startstandards).

Işık, A. D. (2010). *Bilişim teknolojileri dersi için oluşturmacı yaklaşım doğrultusunda hazırlanan öğrenme paketinin etkileri* [*The effects of learning package prepared according to the constructivist approach on information technologies course*] (Doctoral dissertation, Dokuz Eylül University, İzmir, Turkey). Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/

Kalelioğlu, F., & Gülbahar, Y. (2014). The effects of teaching programming via Scratch on problem-solving skills: a discussion from learners' perspective. Informatics in Education. *Informatics in* Education, *13* (1), 33–50. Retrieved from https://www.mii.lt/informatics_in_education/pdf/infe232.pdf

Kardaş, N., Anagün, Ş. S., & Yalçınoğlu, P. (2014). Problem çözme envanterini ilköğretim öğrencilerine uyarlama çalışması: doğrulayıcı faktör analizi sonuçları [Adaptation of problem solving inventory for the elemantary school students: confirmatory factor analysis]. *Elektronik Sosyal Bilimler Dergisi* [Electronic Journal of Social Sciences] *13* (51), 182-194. Retrieved from http://dergipark.gov.tr/download/article-file/70583

Korkmaz, Ö. (2016). The effects of Scratch-based game activities on students' attitudes, self-efficacy, and academic achievement. *International Journal of Modern Education & Computer Science, 8* (1), 16-23. DOI: 10.5815/ijmecs.2016.01.03

Korkmaz, Ö. (2018). The effect of Scratch- and Lego Mindstorms Ev3-Based programming activities on academic achievement, problem-solving skills, and logical-mathematical thinking skills of students. *MOJES: Malaysian Online Journal of Educational Sciences, 4* (3), 73-88. Retrieved from https://mojes.um.edu.my/article/view/12658

Maloney, J., Resnick, M., Rusk, N., Silverman, B., & Eastmond, E. (2010). The Scratch programming language and environment. *ACM Transactions on Computing Education, 10* (4), 16. http://doi.acm.org/10.1145/1868358.1868363.

Miles, M. B., & Huberman, A. M. (1984). Qualitative Data Analysis: An expanded sourcebook. Sage.

Ministry of National Education. (2012). *Ortaokul ve imam hatip ortaokulu bilişim teknolojileri ve yazılım dersi öğretim programı* [Secondary school and imam hatip

secondary school information technologies and software course teaching program]. Ankara, Turkey: Talim Terbiye Kurulu Başkanlığı.

Ministry of National Education. Milli Eğitim Bakanlığı. (2018). *Bilişim teknolojileri ve yazılım dersi öğretim programı.* [Information technologies and software course teaching program]. Ankara, Turkey: Talim Terbiye Kurulu Başkanlığı.

Nam, D., Kim, Y., & Lee, T. (2010). The effects of scaffolding-based courseware for the Scratch programming learning on student problem-solving skill. *Proceedings of the 18th International Conference on Computers in Education,* 723-727, Putrajaya, Malaysia.

Ouahbi, I., Kaddari, F., Darhmaoui, H., Elachqar, A., & Lahmine, S. (2015). Learning basic programming concepts by creating games with a Scratch programming environment. *Procedia-Social and Behavioral Sciences*, 191, 1479-1482. DOI: 10.1016/j.sbspro.2015.04.224

Ozoran, D., Cagiltay, N., & Topalli, D. (2012). *Using Scratch in the introduction to programming course for engineering students.* In 2nd International Engineering Education Conference, 125-132.

Özer, F. (2019). *Kodlama eğitiminde robot kullanımının ortaokul öğrencilerinin erişi, motivasyon ve problem çözme becerilerine etkisi* [Effect of using robotics in teaching coding on achievement, motivation and problem solving skills of middle school students] (Master's thesis, Hacettepe University, Ankara, Turkey). Retrieved from https://tez.yok.gov.tr/UlusalTezMerkezi/

Resnick, M., Maloney, J., Monroy-Hernández, A., Rusk, N., Eastmond, E., Brennan, K., & Kafai, Y. (2009). Scratch: programming for all. *Communications of the ACM, 52* (11), 60-67. doi:10.1145/1592761.1592779

Sayın, Z. (2017). Bilgisayar bilimi eğitimi kapsamı [Computer science education scope]. Y. Gülbahar (Ed.), B*ilgi işlemsel düşünmeden programlamaya* [From computational thinking to programming] (pp. 13-141). Ankara, Turkey: Pegem Akademi.

Sönmez, V., & Alacapınar, F. G. (2014). *Örneklendirilmiş bilimsel araştırma yöntemleri* [Sampled scientific research methods] (3. Baskı) Ankara, Turkey: Anı Yayıncılık.

Şahin, Ç. (2004). Problem çözme becerisinin temel felsefesi. *Kazım Karabekir Eğitim Fakültesi Dergisi*, 10.

Şimşek, İ. (2018). Dünyada programlama öğretimi [Programming teaching in the world]. In Y. Gülbahar ve H. Karal (Ed.), *Kuramdan uygulamaya programlama öğretimi [Teaching programming from theory to practice]* (pp. 38-65). Ankara, Turkey: Pegem Akademi.

Utting, I., Cooper, S., Kölling, M., Maloney, J., & Resnick, M. (2010). Alice, Greenfoot, and Scratch--a discussion. *ACM Transactions on Computing Education, 10* (4), 17. https://doi.org/10.1145/1868358.1868364

Yükseltürk, E,. & Altıok, S. (2015). Bilişim teknolojileri öğretmen adaylarının bilgisayar programlama öğretimine yönelik görüşleri [Pre-Service Information Technologies Teachers' Views on Computer Programming Teaching]. *Amasya Üniversitesi Eğitim Fakültesi Dergisi* [Amasya Education Journal], *4* (1), 50-65.

Yükseltürk, E., & Altıok, S. (2016). Bilişim teknolojileri öğretmen adaylarının programlama öğretiminde Scratch aracının kullanımına ilişkin algıları [Pre-Service Information Technology Teachers` Perceptions about Using Scratch Tool in Teaching Programming]. *Mersin Üniversitesi Eğitim Fakültesi Dergisi* [Mersin University Journal of the Faculty of Education], *12* (1), 39-52.

IJQE

International Journal of Quality in Education
Online, https://dergipark.org.tr/tr/pub/ijqe
Volume: 5, Issue 2, 2021

e-ISSN:2636-8412

PET THERAPY: THEAPPROACH TO SUPPORT MENTAL HEALTH OF PEOPLE IN THEIR LIFE-LONG DURING COVID-19 PERIOD

Prof. Dr. Nurten Sargın (Necmettin Erbakan University, Turkey)
nurtensargin@hotmail.com
https://orcid.org/0000-0003-1899-8908

Vedat Bakır (Kütahya Dumlupinar University, Turkey),
vedat.bakir@dpu.edu.tr
https://orcid.org/0000-0001-5458-5110

Volkan Kutluca (Necmettin Erbakan University, Turkey)
volkankutlucaa@gmail.com
https://orcid.org/0000-0001-6411-0549

Abstract
It is widely known that human beings share life with other living things other than their generation. It can be seen that to survive, human beings take advantage of other living things such as plants and animals. For centuries, human beings have not only benefited from animals for food but also met their social and psychological needs. The interaction of humans and animals has led that animals are considered from different angles. After the 18th century, studies about the physiological, social, and psychological effects of animals on human beings were conducted. According to some research findings, animals have healing effects on humans physiologically, socially, and psychologically. People have faced different problems of different ages and have tried to find various solutions to these problems. Nowadays, the whole world and Turkey face a pandemic called COVID-19. As a natural disaster, this pandemic deeply affects life in terms of societal, cultural, social, psychological, and especially economic. Studies about precautions and interventions towards traumatic experiences should be conducted. Unless these studies are conducted, it may cause Post-Traumatic Stress Disorders. Post-traumatic stress disorders emerge as an expensive condition that requires psychological treatment and is costly to people and the country. Nowadays, alternative therapy approaches are benefited from recovering mental problems. It can be seen that pet therapy has been used in the field of mental health in recent years. It is considered that pet therapy can be used as an alternative therapy method during and also after the COVID-19 process, considering the benefits such as reduction of the symptoms of sleep problems, depression, anxiety, psychosomatic and Post Traumatic Stress Disorders. In this study, pet therapy is investigated as an approach to support mental health during the COVID-19 process and it is aimed to present pet therapy as an alternative therapy method to reduce the effects of COVID-19. For this purpose, a review article is conducted by examining related

studies. In line with the literature information obtained, the approach to animals and the historical development of pet therapy have been tried to be discussed. Thereafter, pet therapy research findings are included according to developmental periods such as old age, adulthood, childhood, and adolescence. After the information about COVID-19, explanations and suggestions about pet therapy are given.

Keywords: Covid-19, Mental Health, Approach, Pet Therapy, Life-long

Introduction

Having looked at the world, it is seen that humans do not live alone on this planet, there are other living things, and human beings share life not only with humans but also with other living things such as animals and plants. It is known that while maintaining their lives, human beings benefit not only from their kind, but also from animals, and they domesticate some of them. It can be seen that animals have a different role, in human life and accompany people in many ways like friendship, assistance, guarding, feeding, treatment and therapy.

In this study, pet therapy is tried to be investigated as an approach to support mental health during the COVID-19 process, and pet therapy is tried to be revealed as an alternative therapy method to reduce the effects of COVID-19. In line with the literature information obtained, the approach towards animals in the historical process and the historical development of pet therapy are tried to be discussed. Thereafter, pet therapy research findings are included according to developmental periods such as old age, adulthood, childhood and adolescence. After the information about COVID-19, explanations and suggestions about pet therapy are given. In the study, the document review method, one of the qualitative research methods was used.

The History of Animals and Pet Therapy Approach

In the historical process, it can be seen that there are different approaches towards human beings during their interaction with animals. In ancient times, the underlying cause of getting injured, having an illness, or any problem was regarded as disturbing the spirits of animals and it was expected spirits of animals to help them to get better and to solve these problems. In the mythologies of polytheistic religions and the writings they consider as sacred, animals were respected like God (Singer, 2005; Serpell, 2010) and

in the Middle Ages, people with such animistic thoughts were labeled as witches or infidels by the Church (Sussman, 1985). With the emergence of monotheistic religions, animals lost their significance and took their place in life as living creatures for benefitting people and under their control (Singer, 2005; Serpell, 2010). In the Age of Enlightenment, pets have started to be used as an effective treatment method for children and individuals with psychological problems. (Sussman, 1985). Based on this information, it can be said that animals were respected in ancient times; in the Middle Ages, negative remarks towards animals emerged, and with the Age of Enlightenment, animals that regained value played a role in healing people's mental and physiological health.

Nowadays, a significant amount of information related to the healing power of animals on human bodies has begun to take place in scientific studies. It is seen that one of the scientific areas in which curative effects are seen is mental health. Animals have started to be used as a therapeutic technique in mental health services. This approach is named Animal Assisted Therapy, Pet Therapy (Demirağ ve Hintistan, 2019; Levinson, 1972) in the literature. Animal Assisted Therapy is defined as an adjuvant therapy that arouses physiological and psychological mechanisms and initiates changes that affect health positively in metabolism by taking advantage of human and animal interaction (Cevizci, Erginöz, & Baltaş, 2009). According to another definition, pet or animal-assisted therapy is a scientifically proven non-pharmacological treatment method that is practiced by specially trained professionals, paraprofessionals, or volunteers who are using animals that meet the criteria. It is used for making the treatment easier for individuals with chronic diseases requiring lifelong treatment, providing rehabilitation, increasing the life quality of sick and healthy individuals, giving opportunities for motivational and therapeutic benefits by making individuals' training enjoyable (Jofré 2005; Laun 2003; as cited in Demirağ & Hintistan, 2019). Animal-assisted therapy aims to provide long-term group or individual therapy to individuals, along with exposure therapy, cognitive behavioral therapy, empowerment therapy, and other psychotherapies. Animal Assisted Therapy is an intervention that aims to reduce isolation, brighten moods and emotions, address grief and loss, and improve self-esteem and socialization while reducing general anxiety (Hamama et al., 2011).

Considering the historical process of studies of pet therapy, it can be seen that the first studies started to emerge of scientific medicine. In the eighteenth century, rabbits,

chickens, and other farm animals have been used to boost the well-being of individuals who had emotional problems in England (Beck & Katcher, 1996). Accordingly, towards the end of the eighteenth century, by using domesticated animals within the context of therapy, animal-assisted interventions were implemented for people with disabilities in mental hospitals (Serpell, 2006). Within this scope, the supportive influence of animals was used for patients treated at York Retreat Hospital established in 1792, England. A rehabilitation center for epilepsy patients was established and was benefitted from the therapeutic effect of animals in 1867, Germany. In 1901, people with orthopedic disorders were supported to ride horses in England and were provided support both physically and socially. In 1942, a therapy program with pets was implemented for the first time at Pawling Army Air Force Convalescent Hospital in the USA. At the same time, it has been explained that small pets were used for their consolation and relaxing effects on individuals with chronic diseases (Macaulay, 2006; Morrison, 2007).

Boris Levinson is considered the founder of "Animal-assisted therapy/pet therapy" and his studies provide significant pieces of information to the literature about this subject. In his book "Pets and Human Development", Levinson mentioned that the reason for challenging life experiences that people are exposed to is the inability of individuals to face their inner self and to accord their culture with nature. According to him, the individual experiences self-alienation because she/he refuses to face the past with the true self. The solution to this alienation requires establishing positive relationships with dogs, cats, and other pets and establishing a bond that is a healer. Moreover, he stated that people need animals to strengthen their inner self and in this sense, it is stated that animals are an inseparable part of human psychology (Levinson, 1972).

When the studies about pet therapy are analyzed, it can be seen that there are studies on every group of age. In this study, age groups are considered in terms of elders, adults, children, and adolescents and they are included in the following studies.

Results of the Research Conducted with Elderly Individuals

It has been observed that pet therapy/animal-assisted therapy has positive impacts on walking, mobility, and cognitive dimension in the elderly (Nordgren & Engström, 2012). It is found out that animal-assisted therapies increase social functioning in the elderly and that it has a moderate effect on depression, anxiety, and behavioral disorders

(Virués-Ortega et al., 2012). According to another study conducted with elderly individuals, the animal-assisted intervention has a positive impact on the elderly in terms of physiological, psychosocial, cognitive, and behavioral (Chang et al., 2020). In another study conducted with elderly individuals staying in nursing homes, it was concluded that the dog-assisted therapy program increased the quality of life of the elders (Briones et al., 2021). In the study of Demirağ and Hintistan (2019), lots of pets were used for pet therapy such as cats, dogs, birds, and fish and it was concluded that they have positive effects on the health of elderly individuals. However, it is emphasized that the positive or negative effects on schizophrenia-related diseases are not yet known, and it has been found out that the therapy model is beneficial for the cardiovascular systems of elderly individuals by lowering blood pressure and reducing the risk of developing complications.

Results of the Research Conducted with Adults

In an experimental study examining and comparing the effectiveness of Cognitive Behavioral Therapy and animal-assisted intervention in adults, decrease in stress and psychosomatic disorders in both groups were seen; however, it was found that participants in the groups receiving animal support showed an effective and permanent reduction in these disorders (González-Ramírez et al., 2013). Koukorikos et al. (2019) put forward an idea that animal support therapy in adults reduces mental problems, provides individuals with various skills and is effective in increasing the quality of life, and stated that animals with soft structures such as dogs, horses, dolphins and birds should be used in therapy. Nepps et al. (2014) inferred that the animal-assisted therapy program showed significant reductions in depression, anxiety, pain and heart rate levels in adult patients compared to those in the group participating in the classical stress management program. Jasperson (2010) noted that the animal-assisted program had a promising and optimistic effect when she piloted sentenced female prisoners with a pilot program of eight animal-assisted sessions. She also observed that the sentenced women felt connected to the animals used in the program and participated in group discussions and activities more actively. Wesley et al. (2009) found that thanks to animal-assisted therapy, adults develop positive attitudes in terms of the therapeutic process, resistance, and relationship between the client and the counselor. According to Mims & Waddell

(2016), animal-assisted therapy resulted in an 82% reduction in PTSD symptoms of traumatized adults, and their level of anxiety and usage of sleeping pills were reduced by half. In a study, it was concluded that individuals having pets had lower depression levels, but their level of anxiety did not differ (Şan, 2020). According to the research findings of Nimer and Lundahl (2007), the animal-assisted intervention has a moderate effect on autism spectrum disorder, medical difficulties, behavioral problems, and well-being. Thanks to animal-assisted interventions, it has been found that depressive symptoms of traumatized individuals are decreased and these interventions helped them to manage the crises. Also, studies have shown that the intervention program made a more lasting impact on these individuals (Hunt & Chizkov, 2014). According to the research conducted by Cevizci, Ergünöz & Baltaş (2009), it was found that animal-assisted psychotherapy has positive results in maintaining the well-being of individuals that have chronic diseases or mental problems in terms of physical, social, and spiritual. Animal-assisted psychotherapy has been found to increase the quality of life of individuals with chronic illnesses or mental disorders. It is also stated that this therapy model is widely used as a solution for many mental problems such as pervasive developmental disorders, cancer, Alzheimer's disease, dementia, loneliness, anxiety, and depression (Çakıcı and Kök, 2020). It is found that animal-assisted therapies help people that are physically and mentally disabled in their perception, speech, and communication (Köseman & Şeker, 2015). In the study of Öztürk (2020), it was concluded that having a pet has a positive effect on communicating and interacting with other people and that these people have a high level of forgiveness. It was found that pets, which people see them as an object to reflect their love, help reduce the feeling of loneliness and also pets have a positive effect on emotional stability. In the study, it was also found that animal-assisted therapy boosts the well-being of individuals (Suna, 2019). According to the study conducted by Yalçıntürk, Dikeç & Ata (2019), animal-assisted therapy develops social skills of individuals and their interactions with the environment and also it reduces stress and decreases depressive symptoms. Moreover, it has been found that animal-assisted therapy is effective in emotion regulation and self-control.

Results of the Research Conducted with Children and Adolescents

In a study conducted with abused children, it was observed that the presence of animals provided a calming and less threatening environment for abused children to cope with traumatic events, changing the self-perception of children, improving skills of empathy, and reflecting better adult-child interactions (Parish-Plass, 2008). In a study on the importance of animal-assisted intervention, it is stated that the use of this method in addition to other intervention methods has a supportive role (Marino, 2012). Four alternative options were presented to parents by Rabbitt et al. (2014) regarding the elimination of children's behavioral disorders. As a result of the research, it was seen that the parents ranked psychotherapy, animal-assisted therapy, waiting without any intervention, and finally medication as effective treatment methods. It was stated that parents prefer animal-assisted therapy after psychotherapy in eliminating their children's behavioral disorders (Rabbitt et al., 2014). In a study conducted by Bachi and Parish-Plass (2017), it was concluded that animal-assisted therapy is highly effective on children and adolescents experiencing depression and anxiety. In a study conducted by Akkuş et al. (2018), it was stated that animal-assisted practices provide sensory and physical development in individuals with an autism spectrum disorder. In an experimental study conducted by Folse et al. (1994), it was determined that animal-assisted psychotherapy was effective on depression in university students in cases of depression. Nevertheless, it was stated that animal-assisted therapy, which is applied very limitedly in Turkey, has positive effects on children's psychological, emotional, social, and physical health (Muslu & Conk, 2011).

Covid-19 Period

Since the end of 2019, there has been a pandemic called COVID-19 all over the world. This epidemic disease is included in natural disasters (Bach, Gupta, Nair & Birkmann, 2013) and people experience traumatic experiences due to the COVID-19. Mankind has been caught unprepared for this epidemic as in other epidemics. It is seen that people of all ages react differently to this epidemic due to the experienced trauma (Sargın & Kutluca, 2020). Traumatic experiences emerge as a situation that must be dealt with to protect mental health. If the effects of trauma are not tried to be fixed and effective psychological help is not provided, it can cause severe mental disorders in people. The effects of this pandemic come to light in the economic, social and societal areas of life.

There are also economic crises and obstacles in social and societal life. In this situation, people who must stay at home, not be able to go out, be under quarantine and continue their daily routines due to the rapid spread of the epidemic around the world are in a state of surprise and shock (Kirman, 2020). Individual and group online therapies (Weinberg, 2020), acceptance and commitment therapy (Crasta, Daks & Rogge, 2020), cognitive-behavioral therapy, interpersonal psychotherapy (Swartz, 2020) and similar psychological intervention methods are being tried by experts to reduce psychological effects of this epidemic, which deeply affects the world, changes the way of life of people and remains uncertain. In addition to all these methods, researchers think that pet therapy/animal-assisted therapy will be an alternative solution. It is stated in the above research results that this therapy method has positive effects on symptoms such as insomnia, anxiety, and depression, which are the results of trauma. It is also stated that pet therapy improves the locomotor system by regulating blood pressure (Keser and Demiralay, 2019), increase the quality of life (Koukourikos et al., 2019), and improves communication and empathy skills (Parish-Plass, 2008). In addition, it is seen that this therapy reduces the feelings of loneliness (Cryer, Henderson-Wilson & Lawson, 2021), depression, anxiety, and stress symptoms (Feng, Lin, Zhang, Jiang & Zhang, 2021), and psychiatric drug use in individuals under social isolation (Jung, Jung, Jongyotha, De, Brennan & Naumovski, 2021).

In this difficult and uncertain period, pet therapy is recommended in addition to many therapies to reduce the effects of COVID 19 traumatic days due to the benefits stated in various research results in order to help people spiritually.

Points to Consider in Pet Therapy

Training in the pet therapy method is considered a necessity. In this therapy method, unlike other therapy methods, it is necessary to take responsibility for a pet and ensure the safety of the pet and the clients. Hines and Fredrickson (1998) strongly argue that experts who will perform animal-assisted practices should receive training on therapy techniques to be used in this sense. Having said that, practitioners must also follow the most effective safety measures. In addition, if adequate training is not received on how to implement animal-assisted therapy, pets are involved inappropriately in this process, which can have some ethical and negative consequences (Hines & Fredrickson, 1998).

Apart from these, it is considered very useful for those who use this therapy method to follow the literature related to the field and to have comprehensive knowledge of the literature. When selecting pets for therapy, professionals should make sensible choices that they believe will best serve the purpose. In this sense, assuming that not every pet will be suitable for therapy, examinations should be made to determine the pet that will be most suitable for the need. Necessary precautions should be taken for various diseases that may be contagious, especially in human-animal interaction (Wishon, 1989), and pet ~~animal~~ care should be done carefully. For this reason, support should be sought from veterinarians and health professionals to ensure the safety of pets and clients (Hines & Fredrickson, 1998). Brodie, Biley, and Shewring (2002) recommend the preparation of an informed consent form for everyone involved in the process for careful selection of therapy pets, rigorous health care, client health and allergy status in animal-assisted practices.

Animal-assisted therapy can be performed individually or in groups, depending on the characteristics and needs of the individuals and the skills of the practitioner. Accordingly, cats, dogs, dolphins, birds and other mild-tempered animals can be used passively or actively. In this context, play and life activities are considered important in terms of individuals using all their senses through exercise or animation activities. In group practices, pets can interact with one or more individuals who need socialization. In this sense, pets, which are seen as focal sources, encourage socialization among participants and in the participant-practitioner relationship (Barba, 1995). Group sessions will be useful as a first step to reduce stress and make more comprehensive programs. Numerous studies have been conducted on the psychological and physiological benefits of pets for many years. Human-animal interaction studies prove that animal-assisted interventions reduce blood pressure, reduce drug use, and provide psychological benefits in anxiety and stress disorders (Kruger & Serpell, 2010; Sussman, 1985). Additionally, it is stated that the human-animal bond reduces depression and loneliness, as well as increases self-confidence, self-esteem, empathy, psychological well-being, and sense of purpose (O'Haire, 2012). The psychological and physiological effects of animal-assisted interventions spring from an animal's unconditional love, constant presence, and non-judgmental nature that includes trust, warmth, and acceptance.

Some characteristics of the pets to be used for therapy are stated as follows (Fine, 2015);

- Pets that are calm, docile and enjoy being with people,
- Being prepared in advance for situations, as pets will be exposed to unusual sights, sounds, and smells during the therapy process,
- The therapy pets to be obedient and obey the given instructions, in other words, are trained,
- Ability to control itself after games or exciting situations,
- Being able to sit quietly for a long time,
- Ability to navigate in crowded environments,

There are some points practitioners should also consider (Fine, 2015);

These are:

- Distracting therapy pets from stressful situations,
- Giving pets regular breaks, taking walks and playing games,
- Always have clean water and favorite toys for therapy pets,
- Having a care session for pets every day,
- Having a favorite bed or similar area in the therapy environment for the pet,

Fine (2005) suggests that there are several basic principles to be considered in animal-assisted therapy practices;

1. The practitioner should take into account the contribution that pets can make to therapy.

2. The practitioner needs to conceptualize as much as possible the contributions and opportunities that therapy pets will provide. In this sense, a plan should be prepared in advance.

3. The practitioner should be able to anticipate how the counseling theory they use will change in a process involving pets. Furthermore, consideration should be given to the

client's wishes and the appropriateness of the use of pets, consistency with the counselor's response plan, and capacity to achieve the goals established.

Conclusion

All in all, pet therapy practice can be applied to both healthy and sick individuals regardless of their developmental stage of the individuals, furthermore, there is much information about that animal-assisted therapy is a physically and psychologically supportive method and the time spent with pets increases the exercise rate, regulates blood pressure, reduces the level of addiction, and provides effective communication skills and provides psychological benefits in anxiety and stress disorders (Keser & Demiralay, 2019; Kruger & Serpell, 2010).

However, there are findings that animal-assisted therapy is beneficial and effective in the studies reviewed in the study, however, it seems that this approach has a constant struggle to define itself and gain credibility. For this reason, while the effort to establish a standard terminology and practice continues, a consensus has not been established yet. Moreover, there is a consensus on the need to establish a specific plan and target for animal-assisted therapy (Serpell, 2010). Animal-assisted interventions are influenced by many different perspectives and disciplines such as genetics, biology, developmental psychology, and behaviorism. In this sense, many approaches accept that pets gain unique qualities that facilitate therapy, and that the relationship with the pet brings positive cognitive and behavioral changes.

It is recommended to apply pet therapy, which has shown positive effects for all age groups in difficult times such as COVID-19 and the rehabilitation of traumatic experiences caused by it. However, it can be seen that pet therapy is not a subject that has been studied much in Turkey, no experts are working in the field of mental health-related to this field, and there is not enough literature study. It is recommended to disseminate pet therapy research and pet therapy practice in Turkey.

References:

Akkuş, A., Köse, E., Erdoğan, M., Taşpınar, B., & Taşpınar, F. (2018). Otizm sprektrum bozukluğunda evcil hayvan desteği. *İzmir Demokracy University Health Sciences Journal*, 34–42.

Bachi, K., & Parish-Plass, N. (2017). Animal-assisted psychotherapy: A unique relational therapy for children and adolescents. *Clinical Child Psychology and Psychiatry*, *22*(1), 3–8. https://doi.org/10.1177/1359104516672549

Barba, B. E. (1995). The positive influence of animals: Animal assisted therapy in acute care. *Clinical Nurse Specialist*, *9*(4), 91-95.

Beck, A., & Katcher, A. (1996). *Between pets and people*. West Lafayette, IN: Purdue University Press.

Bekaroğlu, E. ve Yılmaz, T. (2020). COVID-19 ve psikolojik etkileri: Klinik psikoloji perspektifinden bir derleme. *Nesne, 8*(18), 573-584. DOI: 10.7816/nesne-08-18-14

Bendau, A., Petzold, M. B., Pyrkosch, L., Maricic, L. M., Betzler, F., Rogoll, J., ... & Plag, J. (2021). Associations between COVID-19 related media consumption and symptoms of anxiety, depression and COVID-19 related fear in the general population in Germany. *European Archives of Psychiatry and Clinical Neuroscience*, *271*(2), 283-291.

Bozkurt, Y., Zeybek, Z., & Aşkın, R. (2020). Covid-19 pandemisi: Psikolojik etkileri ve terapötik müdahaleler. *İstanbul Ticaret Üniversitesi Sosyal Bilimler Dergisi*, *19*(37), 304-318.

Briones, M. Á., Pardo-García, I., & Escribano-Sotos, F. (2021). Effectiveness of a dog-assisted therapy program to enhance the quality of life in ınstitutionalized dementia patients. *Clinical Nursing Research*, *30*(1), 89–97. https://doi.org/10.1177/1054773819867250

Brodie, S. J., Biley, F. C., & Shewring, M. (2002). An exploration of the potential risks associated with using pet therapy in healthcare settings. *Journal of Clinical Nursing, 11*(4), 444-456.

Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research, 112934*, https://doi.org/10.1016/j.psychres.2020.112934

Cevizci, S., Erginöz, E., & Baltaş, Z. (2009). Ruh sağlığının iyileştirilmesinde destek bir tedavi yaklaşımı : Hayvan destekli tedavi. *Nobel Med, 5*(1), 4-9.

Chang, S. J., Lee, J., An, H., Hong, W. H., & Lee, J. Y. (2020). Animal-assisted therapy as an ıntervention for older adults: A systematic review and meta-analysis to guide evidence-based practice. *Worldviews on Evidence-Based Nursing*, *18*(1), 60-67 https://doi.org/10.1111/wvn.12484

Crasta, D., Daks, J. S., & Rogge, R. D. (2020). Modeling suicide risk among parents during the COVID-19 pandemic: Psychological inflexibility exacerbates the impact of COVID-19 stressors on interpersonal risk factors for suicide. *Journal of Contextual Behavioral Science*, *18*, 117-127. https://doi.org/10.1016/j.jcbs.2020.09.003

Çakıcı, A., & Kök, M. (2020). Hayvan destekli tedavi. *Psikiyatride Güncel Yaklaşımlar - Current Approaches in Psychiatry*, *12*(1), 117–130. https://doi.org/10.18863/pgy.526378

Cryer, S., Henderson-Wilson, C., & Lawson, J. (2021). Pawsitive connections: The role of pet support programs and pets on the elderly. *Complementary Therapies in Clinical Practice*, *42*, 101298. https://doi.org/10.1016/j.ctcp.2020.101298

Demirağ, H., & Hintistan, S. (2019). Yaşlı sağlığında pet terapi (hayvan destekli tedavi) uygulamalarının literatür eşliğinde incelenmesi. *Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi*, *22*(3), 217–224.

Feng, Y., Lin, Y., Zhang, N., Jiang, X., & Zhang, L. (2021). Effects of animal-assisted therapy on hospitalized children and teenagers: A systematic review and meta-analysis. *Journal of Pediatric Nursing*, *60*, 11-23. https://doi.org/10.1016/j.pedn.2021.01.020

Folse, E. B., Minder, C. C., Aycock, M. J., & Santana, R. T. (1994). Animal-assisted therapy and depression in adult college students. *Anthrozoös*, *7*(3), 188–194. https://doi.org/10.2752/089279394787001880

Fine, A. H. (2005). Incorporating animal-assisted therapy into psychotherapy: Guidelines and suggestions for therapists. In *Handbook on animal-assisted therapy* (pp. 169-191). Academic Press.

Fine, A. H. (2015). *Incorporating animal-assisted ınterventions into psychotherapy.* Handbook on Animal-Assisted Therapy, *141–155*. doi:10.1016/b978-0-12-801292-5.00011-0

González-Ramírez, M. T., Ortiz-Jiménez, X. A., & Landero-Hernández, R. (2013). Cognitive-behavioral therapy and animal-assisted therapy: Stress management

for adults. *Alternative and Complementary Therapies*, *19*(5), 270–275. https://doi.org/10.1089/act.2013.19505

Hamama, L., Hamama-Raz, Dagan, K., Greenfeld, H., Rubinstein, C., & Ben-Ezra, M. (2011). A preliminary study of group intervention along with basic canine training among traumatized teenagers: A 3-month longitudinal study. *Children and Youth Services Review*, *33*, 1975–1980. doi:10.1016/j.childyouth.2011.05.021

Hines, L., & Fredrickson, M. (1998). *Perspectives in animal-assisted therapy and activities*. In C. Wilson, & D. Turner (Eds.), Companion animals in human health (23–40). Thousand Oaks, CA: Sage.

Hunt, M. G., & Chizkov, R. R. (2014). Are therapy dogs like Xanax? Does animal-assisted therapy impact processes relevant to cognitive-behavioral psychotherapy? *Anthrozoos*, *27*(3), 457–469. https://doi.org/10.2752/175303714X14023922797959

Jasperson, R. A. (2010). Animal-assisted therapy with female inmates with mental illness: A case example from a pilot program. *Journal of Offender Rehabilitation*, *49*(6), 417–433. https://doi.org/10.1080/10509674.2010.499056

Jung, C., Jung, C., Jongyotha, K., De, I., Brennan, M., & Naumovski, J. (2021). Using a virtual pet to replace pet therapy visits in our nursing facility during the COVID-19 pandemic. *Journal of the American Medical Directors Association*, *22*(3), B18.

Keser, İ., & Demiralay, Ş. (2019). Ruh sağlığını koruma ve iyileştirmede hayvan destekli uygulamaların kullanımı. *Mediterranean Journal of Humanities*, *9*(2), 219-224. https://doi.org/10.13114/mjh.2019.486

Kirman, F. (2020). Sosyal medyada salgın psikolojisi: algı, etki ve başa çıkma. *Dünya İnsan Bilimleri Dergisi*, *2020*(2), 11-44.

Koukourikos, K., Georgopoulou, A., Kourkouta, L., & Tsaloglidou, A. (2019). Benefits of animal-assisted therapy in mental health. *International Journal of Caring Sciences*, *12*(3), 1898-1905.

Köseman, A., & Şeker, İ. (2015). Hippoterapi ve terapide kullanılan atların özellikleri. *Erciyes Üniversitesi Veteriner Fakültesi Dergisi*, *12*(3), 195–201.

Kruger, K., & Serpell, J. (2010). *Animal-assisted interventions in mental health: Definitions and theoretical foundations.* In A. H. Fine (Ed.), Handbook of animal-assisted therapy: Theoretical foundations and guidelines for practice (3rd ed., pp. 33–48). Boston, MA: Elsevier.

Levinson, B. (1972). *Pets and human development*. Springfield, IL: Charles C. Thomas.

Macauley BL (2006) Animal-assisted therapy for persons with aphasia: A pilot study. *Journal of Rehabilitation Research and Development, 43*(3),357-365.

Marino, L. (2012). Construct validity of animal-assisted therapy and activities: How important is the animal in aat? *Anthrozoös*, *25*(sup1),139-151. https://doi.org/10.2752/175303712x133534303772194

Mims, D., & Waddell, R. (2016). Animal-assisted therapy and trauma survivors. *Journal of Evidence-Informed Social Work, 13*(5), 452–457. https://doi.org/10.1080/23761407.2016.1166841

Morrison ML .(2007). Health benefits of animal-assisted interventions. *Complement Health Pract Rev, 12*(1), 51-62.

Muslu, G. K., & Conk, Z. (2011). Hayvan destekli uygulamalar ve çocuklarda kullanımı. *Dokuz Eylül Üniversitesi Hemşirelik Yüksekokulu Elektronik Dergisi*, *4*(2), 93–88.

Nepps, P., Stewart, C. N., & Bruckno, S. R. (2014). Animal-assisted activity: Effects of a complementary ıntervention program on psychological and physiological variables. *Journal of Evidence-Based Complementary and Alternative Medicine*, *19*(3), 211-215. https://doi.org/10.1177/2156587214533570

Nimer, J., & Lundahl, B. (2007). Animal-assisted therapy: A meta-analysis. *Anthrozoos*, *20*(3), 225-238. https://doi.org/10.2752/089279307X224773

Nordgren, L., & Engström, G. (2012). Effects of animal-assisted therapy on behavioral and/or psychological symptoms in dementia: A case report. *American Journal of Alzheimer's Disease and other Dementias*, *27*(8), 625–632. https://doi.org/10.1177/1533317512464117

O'Haire, M. (2012). Animal-assisted intervention for autism spectrum disorder: A systematic literature review. *Journal of Autism Development Disorder, 43*, 1606-1622. doi:10.1007/s10803-012-1707-5

Öztürk, P. (2020). *Evcil hayvan sahiplerinin affedicilik düzeyi ve genel sağlık durumlarının değerlendirilmesi*. (Yayınlanmamış Yüksek Lisans Tezi). Zonguldak Bülent Ecevit Üniversitesi. Sağlık Bilimleri Enstitüsü, Zonguldak.

Parish-Plass, N. (2008). Animal-assisted therapy with children suffering from insecure attachment due to abuse and neglect: A method to lower the risk of intergenerational transmission of abuse? *Clinical Child Psychology and Psychiatry, 13*(1), 7-30. doi: 10.1177/1359104507086338

Rabbitt, S. M., Kazdin, A. E., & Hong, J. (2014). Acceptability of animal-assisted therapy: Attitudes toward AAT, psychotherapy, and medication for the treatment of child disruptive behavioral problems. *Anthrozoos*, *27*(3), 335–350. https://doi.org/10.2752/175303714X13903827487881

Sargın, N. & Kutluca, V. (2020). Covid-19 Salgını sürecinde yetişkinlerin tepkileri. *Bilge Uluslararası Sosyal Araştırmalar Dergisi, 4* (2): 64-70. https://doi.org/10.47257/busad.838408

Suna, A. H. (2019). Türkiye'de yaşayan evcil hayvan sahiplerinin bütüncül psikoterapi perspektifinden analizi. *Türkiye Bütüncül Psikoterapi Dergisi*, *2*(3), 131-153. https://dergipark.org.tr/tr/pub/bpd/issue/42091/506451

Serpell, J. (2006). *Animal assisted interventions in historical perspective*. In A. H. Fine (Ed.), Handbook on animal assisted therapy: Theoretical foundations and guidelines for practice (pp. 3–20). San Diego, CA: Academic Press.

Serpell, J. A. (2010). Animal-assisted ınterventions in historical perspective. In H. F. Aubrey (Ed.), *Handbook on animal-assisted therapy* (2. edition, 17-32). Academic Press. https://doi.org/10.1016/B978-0-12-381453-1.10002-9

Sussman, M.A. (1985). *Pets and the family*. New York, NY: Haworth Press.

Swartz, HA (2020). The role of psychotherapy during the Covid-19 pandemic. *American Journal of Psychotherapy, 73*(2), 41-42. https://doi.org/10.1176/appi.psychoterapy.20200015

Şan, A. (2020). *Evcil hayvan sahiplerinde depresyon ve anksiyete düzeylerinin incelenmesi*. (Yayınlanmamış Yüksek Lisans Tezi). Uludağ Üniversitesi. Sağlık Bilimleri Enstitüsü, Bursa.

Virués-Ortega, J., Pastor-Barriuso, R., Castellote, J. M., Población, A., & de Pedro-Cuesta, J. (2012). Effect of animal-assisted therapy on the psychological and functional status of elderly populations and patients with psychiatric disorders: A meta-analysis. *Health Psychology Review, 6*(2), 197-221. https://doi.org/10.1080/17437199.2010.534965

Weinberg, H. (2020). Online group psychotherapy: Challenges and possibilities during COVID-19 -A practice review. *Group Dynamics: Theory, Research, and Practice*, *24*(3), 201. https://doi.org/10.1037/gdn0000140

Wesley, M. C., Minatrea, N. B., & Watson, J. C. (2009). Animal-assisted therapy in the treatment of substance dependence. *Anthrozoos, 22*(2), 137-148. https://doi.org/10.2752/175303709X434167

Wishon, P. M. (1989). Disease and injury from companion animals. *Early Child Development and Care*, *46*(1), 31-38.

Yalçıntürk, A. A., Dikeç, G., & Ata, E. E. (2019). Alkol ve madde kullanım bozukluğu olan bireylere yönelik rehabilitasyon çalışmaları: Sistematik derleme. *Bağımlılık Dergisi*, *20*(4), 241-252.