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Research Article

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THE EFFECT OF ORGANIZED SCAFFOLDING TECHNIQUE ON NOTE-TAKING ATTITUDES OF PROSPECTIVE TEACHERS

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ABSTRACT

In the learning and teaching process, note-taking helps learners to focus on the topic to be learned. Note-taking enabling learners to use different senses simultaneously is an important variable in the effective learning process. Learners might have difficulty in keeping up with the pace of teachers or in distinguishing important parts of the new learning materials in the situations where they are not ready. Besides, learners' attitudes towards note-taking influence their motivation to note-taking in the process. Organized scaffolding note-taking technique provides easiness and meaningful note-taking for learners. Concordantly, the relationship between note-taking styles and note-taking attitudes of the participants was aimed to detect in this experimental study. The working group of the study consisted of prospective teachers attending the pedagogical formation program at the faculty of education at a state university in Turkey. In the study in which 148 prospective teachers were involved, the control group was left to their own preference to take notes in the experimental process while organized scaffolding technique was applied in the experimental group. Depending on the analysis of the data, it was found out that participants in the experimental group had higher level of note-taking attitude, which meant that note-taking via organized scaffolding technique affected the note-taking attitudes of prospective teachers' in a positive way.

Keywords: Organized scaffolding technique, note-taking attitudes, prospective teachers.

INTRODUCTION

In order to ensure the persistence of objectives in the course process and to review these issues after the lesson, learners have to take notes. Because the review of the notes helps learners keep the topic in mind easily. The review ensures that learners reinforce the learning, reinterpret course subjects, and remember forgotten information. However, if the learners' notes are not qualified, the review process will not be functional (Aslandağ&Çetinkaya, 2019).

Some researchers (Boch and Piolat, 2005; Kiewra, 2005; Kobayashi, 2005; Friedman, 2017) assert that there are two functions of taking notes. The first function of taking notes is encoding and the second function is storage. The process of recording notes is the coding function of taking notes. Even if the review is not performed, recoding the notes provides effective learning, since note-taking activities help learners have a more focused attention, a more detailed processing of specific ideas and a better regulation of the lecture context (Kiewra, 1989: 149). On the other hand, reviewing notes in a written form makes it easy for learners to keep in mind the subject-matter, which is the storage function of taking notes. Learners taking notes are observed to have better understanding than the learners who do not take notes, because taking notes requires learners to listen to the subject-matter by picking the necessary information (Robinson, Katayama, Odom, Hsieh, and Vanderveeni, 2006: 103).

Using organized scaffolding technique while taking notes is an effective process of interpretation that allows the students to reorganize by unifying the knowledge with preliminary knowledge and is expected to affect the note-taking attitudes of prospective teachers in a positive way.

Kiewra (1987) states that learners' perceptions about taking notes are important for the quality and meaningfulness of their notes. In addition to this, the effective organization of the presentation by the teacher has an external effect in the learning and teaching process. In the process of listening and taking notes, it is observed that the learners have difficulty in deciding particularly important information. Because of the learners' poor note-taking skills, it is recommended that instructors should provide the whole or partical notes (Konrad, Joseph & Eveleigh 2009). Taking notes is an important learning strategy. It is an effective process that allows the learner to reorganize information by integrating it with the prior knowledge. In order to prevent this difficulty, teachers are expected to organize teaching to facilitate learning. According to Kiewra, Benton, Kim, Risch and Christensen (1995), the lecturer's presentation of titles and sub-headings related to linear frameworks increases the selective attention of learners and allows them to note important points. These suggestions in the literature indicate that learners need support during note-taking process and that the primary action that fulfills this need is organizing. Therefore, one of the options that can work in note-taking process is the organizational scaffolding technique.

In the educational context, organizational scaffolding technique refers to help learners finish a complex task or achieve a goal they cannot achieve on their own (Hu, 2006). The teaching scaffold has many features: it

supports learners; functions as a frame; expands the ability of students; it allows students to carry out a task that they cannot complete on their own, and is used selectively to assist learners when needed (Hu, 2006: 44).

Bransford, Brown and Cocking (2000: 104), suggest that scaffolding offers a number of advantages to the teaching process. Accordingly, the contribution of the scaffolding is as follows:

- It increases learners' interest in the subject and motivate them.
- It makes it easier and achievable for learners facilitate the topic.
- By providing a set of guidelines, it helps learners reach their goals.
- It lowers learners' anxiety.
- Describe and model expectations about the activity to be taught.

In the studies related to note-taking process, there are efforts to improve students' note-taking skills positively by using various methods such as Cornell, unified note-taking system, split page method, and note-taking strategies. (Chandler, 2017; Pardini, Domizi, Forbes and Pettis, 2005; Petty, Sykes and Dugger, 2017; Quintus, et al., 2012; Robinson, 2018). All these studies emphasize the necessity of using certain strategies in the process of taking notes, similar to linguistic skills such as other reading and writing.

The Purpose of the Study

In this study the effect of organized scaffolding technique on note-taking attitudes of prospective teachers attending the pedagogical formation program at the faculty of education at a state university in Turkey was aimed to be tested.In other words, the relationship between note-taking styles and note-taking attitudes of the participants was aimed to detect in this experimental study.

METHODOLOGY

The study has a quantitative notion which has an experimental process. The effect of the note-taking styles of prospective teachers attending the pedagogical formation program at the faculty of education at a state university in Turkey was investigated to understand the effect of organized scaffolding technique on participants' note-taking attitudes. Participants in the experimental group were asked to take notes on the note forms prepared with the organized scaffolding technique in which the outline of the subject was organized, and the note-taking style of the participants in the control group was left to individual preferences.

Study Groups & Process

Quantitative analysis allows the researchers to make a comparison between variables. The quantitative dimension of the study was formed according to the pattern of control and experimental groups. Within this context, the study was modeled according to control group trial pattern with pretest/posttest. The working

group of the study consisted of 148 prospective teachers, who were selected via convenient sampling attending the pedagogical formation program at the faculty of education at a state university in Turkey.

The note-taking attitude questionnaire was applied to both groups and no significant difference was found between the scores of the groups in favour of any group. Before the experimental process, pre-test was applied to both groups, and then the results were compared with independent-samples t-test.

Table 1. Independent-Samples T-Test Results between the Pre-Test Scores of the Groups

Groups	N	$\bar{x}$	S	Sd	t	p
Experimental	75	68.5067	1.29676	11.23024	1.673	.507
Control	73	65.3425	1.37813	11.77476		

As it can be seen in Table 1, the means of the pre-tests of the groups were analysed respectively as 68.5067 and 65.3425., and there was found no significant difference between the pre-test scores of groups, which addressed the homogeneity of groups ($p < .05$).

In both experimental and control groups, the topics of "Basis of Education, Basic Concept of Education Psychological Basis of Education, Philosophical Basis of Education and " were studied in the course of titled Introduction to Educational Sciences for 6 weeks. In the experimental group the participants took notes on the paper formed with organized scaffolding technique while the participants in the control group took notes depending on their individual differences. The experimental process of the study is given in Table 2.

Table 2. Experimental Process

Group	Pre-Test	Process	Post-Test
E Experimental	PR1 Note-Taking Attitude Questionnaire	X Note-Taking via Organized Scaffolding	PO1 Note-Taking Attitude Questionnaire
C Control	PR2 Note-Taking Attitude Questionnaire	Y Free Style	PO2 Note-Taking Attitude Questionnaire

Data Collection Tools

As a data collection tool a note-taking attitude questionnaire was prepared by the researchers related to the main aim of the study was used, and it was checked by the experts on educational sciences. In this direction, the question variety was sought in terms of measurement and evaluation reliability in note-taking attitude. Questions were graded as 1 to 5 points according to their usefulness. There were 20 questions in note-taking attitude test and opinions of experts were taken for the prepared draft test. While writing the items in the

questionnaire, the questions in the related literature were reviewed and evaluated (Haghverdi, Biria&Karimi, 2010). As a result of the analysis to identify the internal homogeneity of the items in the note-taking attitude questionnaire, the Cronbach Alpha reliability coefficient of the note-taking attitude questionnaire was calculated as .85.

Analysis of Data

In the process of analysing the collected data, "SPSS 16.0 for Windows" was used. In order to determine whether a data set was modelled for normal distribution, Skewness and Kurtosis normality values were used (-.347, .678). As the skewness and kurtosis values were close to zero, the data set was accepted as normally distributed. Three parametric statistical procedures, which ran on the data collected through the experiment, were used in data analysis:

1. Independent-samples t-test was used to find out if there is a difference between the pre-tests' mean scores of the groups,
2. Paired-samples t-test was used to find out if there is a difference between the pre-test and post-test scores of the experimental group the control between,
3. Independent-samples t-test was used to find out if there is a difference between the post-tests' mean scores of the groups.

RESULTS & FINDINGS

After finishing the presentation section of the study, the note-taking attitude questionnaire were applied to participants in order to examine the effect of organized scaffolding technique. Then pre-test and post-test scores of each group were examined by means of paired samples t-test analysis. Paired samples t-test results showing the difference between the pre-test and post-test scores of the experimental group are given in Table 3.

Table 3. Paired Samples T Test Results between the Pre-Test and Post-Test Scores of the Experimental Group

Tests	N	$\bar{x}$	S	Sd	t	p
Pre-test	75	68.5067	1.29676	8.94453	-8.643	.000
Post-test	75	77.4267	1.03283			

In the analysis of the related data, there was found a significant difference between the pre-test and post-test scores of the experimental group ($p< 0.05$), which meant that organized scaffolding technique was effective on participants' note-taking attitudes. For the experimental group, the mean of the pre-test is 68.5067 and that of post-test is 77.4267.

Another analysis was made in order to identify the difference between the pre-test and post-test scores of the control group with paired samples t-test. The results are shown in Table 4.

Table 4. Paired Samples T Test Results between the Pre-Test and Post-Test Scores of the Control Group

Tests	N	$\bar{x}$	S	Sd	t	p
Pre-test	73	65.3425	1.37813	10.59644	2.774	.007
Post-test	73	68.7808	1.24022			

In the analysis of the related data, there was found a significant difference between the pre-test and post-test scores of the control group ($p< 0.05$), which meant that note-taking, no matter which style the participants used, had a positive effect on their note-taking attitudes. For the control group, the mean of the pre-test is 65.3425 and that of post-test is 68.7808.

Consequently, the scores of note-taking attitudes questionnaire applied to both groups were analyzed with independent-samples t-test. The related data can be seen in Table 5.

Table 5. Independent-Samples T-Test Results between the Post-Test Scores of the Groups

Groups	N	$\bar{x}$	S	Sd	t	p
Experimental	75	77.4267	1.03283	8.94453	5.362	.000
Control	73	68.7808	1.24022	10.59644		

Table 5. indicated that a significant difference was found between the post-test scores of the groups in favour of experimental group ($p< 0.05$), which meant that organized scaffolding technique was effective on participants' note-taking attitudes more than the individual free choices of the participants in the control group. For the experimental group, the mean of the post-test scores is 77.4267 and that of control group is 68.7808.

CONCLUSION, DISCUSSION AND PROPOSALS

It appears that it is possible to say that participants learn better when the information is presented via in note-taking forms prepared by organized scaffolding technique. Note-taking forms prepared by organized scaffolding technique have value in providing meaningful comprehension of the objectives of the course (Aslandağ&Çetinkaya, 2019). In this study, it can be concluded that note-taking by organized scaffolding technique has a positive effect on learners' note-taking attitudes.

To start with the analysis of related data, there was found a significant difference between the pre-test and post-test scores of the experimental and control groups. However, when the post-test scores were compared, the mean scores of experimental group were found higher than that of control group. As such, it is clear that organized scaffolding technique affects learners' note-taking attitudes more than the free style of participants in the control group. Note-taking via organized scaffolding technique has a lot of advantages on learners. Similarly, Aslandağ and Çetinkaya (2019), in their study examining the relationship between the note-taking styles and the academic achievement of learners, found out the students of the experimental group, which were provided to take notes by using the organized scaffolding technique, they stated that they could master the whole of the subject (72%) by using the distributed note forms that they could relate the information they had earlier with the information on the notepaper (72%). Since some important points related to the contents are given in the note-taking forms prepared according to organized scaffolding technique, students can adapt to the speed of lecturing of the instructor (100%) and take more organized notes (86%). Furthermore, students stated that they can focus better on the class (86%) and they can recall figures and images better in the notes they took afterward (72%).

The results of the studies in the literature strongly reveal the relationship between the quality of the notes and the learning performance. Studies emphasize the necessity of using certain strategies in the process of taking notes. Learners are not able to develop note-taking skills as they do not receive training for taking notes directly during the learning process and cannot develop strategies related to the process. According to the generative model of learning, learners produce perceptions that are compatible with background information (Witrock, 1989). If learners cope with the struggles in the note-taking process, they can be supposed to have positive attitudes towards note-taking activities. In other words, organized scaffolding technique helps learners take notes in a meaningful and effective way, which enhances their positive viewpoints about note-taking. Similarly, Haghverdi, Biria and Karimi (2010) found a strong relationship between note-taking strategies, achievement and note-taking attitudes.

In the light of the findings of both experimental and qualitative research, following suggestions have been given for tackling the problem and further studies:

- Organized scaffolding technique can be used separately or combined with other note-taking techniques depending on the subject-matter in teaching and learning process. Instructors should also make use of some other techniques in order to avoid of boredom while note-taking in the course process.

- For the application of organized scaffolding technique while note-taking, instructors should be careful for the preparation of the note-taking forms. Interesting pictures can be useful for learning and recalling the learned information.

- As note-taking via organized scaffolding technique has a positive effect on participants' note-taking attitudes, it is supposed to enhance their achievement. Sometimes, it can be really useful to hand out note-taking forms in order to take learners' attention and help them organize the necessary information.

- Different note-taking strategies can be embedded into the instructional programs of some courses at faculties of education.

ÖRGÜTLEYİCİ YAPI İSKELESİ TEKNİĞİNİN ÖĞRETMEN ADAYLARININ NOT ALMA TUTUMLARINA ETKİSİ

TÜRKÇE ÖZ

Öğrenme ve öğretme sürecinde not alma, öğrencilerin öğrenilecek konuya odaklanmalarına yardımcı olur. Öğrencilerin farklı duyuları eşzamanlı olarak kullanmalarını sağlamak, etkin öğrenme sürecinde önemli bir değişkendir. Öğrenciler hazır olmadıkları durumlarda öğretmenlerin hızına ayak uydurmada veya yeni öğrenme materyallerinin önemli bölümlerini ayırt etmede zorluk çekebilirler. Ayrıca, öğrencilerin not almaya yönelik tutumları, süreçte not alma konusundaki motivasyonlarını da etkiler. Örgütleyici yapı iskelesi not alma tekniği, öğrenciler için kolaylık ve anlamlı not tutmayı sağlar. Buna paralel olarak, katılımcıların not alma stilleri ile not alma tutumları arasındaki ilişkinin bu deneysel çalışmada tespit edilmesi amaçlanmıştır. Araştırmanın çalışma grubu, Türkiye'deki bir devlet üniversitesindeki eğitim fakültesindeki pedagojik formasyon programına katılan öğretmen adaylarından oluşmaktadır. 148 öğretmen adayının katıldığı çalışmada, kontrol grubundaki katılımcılar deneysel süreçte kendi not alma tercihlerine bırakılmış, deney grubundaki katılımcılarla ise örgütleyici yapı iskelesi tekniği kullanılmıştır. Verilerin analizine bağlı olarak, deney grubundaki katılımcıların daha yüksek not alma tutumu anketi düzeyine sahip oldukları, bu da örgütleyici yapı iskelesi tekniği ile not almanın öğretmen adaylarının not tutma tutumlarını olumlu etkilediği anlamına gelebilmektedir.

Anahtar Kelimeler: Örgütleyici yapı iskelesi tekniği, not alma tutumu, öğretmen adayları.

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