

## The Impact of Mnemonic Devices on Attainment and Recall in Basic Knowledge Acquisition in Nursing Education

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| <b>Article history</b>                                                                                                     | <p>The purpose of this study is to investigate the impact of letter/phonetic method on attainment and recall of basic knowledge about healthcare system, health teams and the roles of nurses taught in “Introduction to Nursing” lesson in freshman students studying at nursing department at the faculty of health sciences. Therefore, the present study was carried out with 76 freshman students in two classes with almost the same knowledge level in the Department of Nursing at the Faculty of Health Sciences at Kafkas University in 2012-2013 academic year. Before the instructional period, one of these classes (39) was assigned as the treatment group, while the other (37) was assigned as the control group. Both groups were given a test on Health care system, health teams and the role of nurses. The participants were given the same test after the study as well. Three weeks after the instructional period, the attainment test was given as the recall test. The test scores were analyzed using t-test. The analysis of the t-test scores indicated that there was a significant difference between the attainment scores of the groups. Similarly, when the recall test scores of the groups were compared, it was found there was a significant difference between the groups in favor of the treatment group in terms of recalling what was learnt. The findings of the study indicated that letter/phonetic method implemented in the study was highly effective in boosting learners’ success and recall.</p> |
| <b>Received:</b><br>15.07.2013                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Received in revised form:</b><br>12.11.2013                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Accepted:</b><br>27.11.2013                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Key words:</b>                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Nurses, Health Care System, Health Teams, the Role of Nurses, Mnemonic Devices, Letter/Phonetic Method, Attainment, Recall |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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### Introduction

The purpose of nursing is to develop the health of individuals, families and society throughout human life, to prevent illnesses and to provide patients with better health care and to alleviate the agony of patients. The basic roles of nurses determined by International Union of Nurses are advocacy, developing a safe environment, doing research and contributing to the formation of health policies, managing the patients and the health system and carrying out educational activities (The ICN Definition of Nursing, 2011). Nursing is a scientific field that

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entails expertise. The knowledge that nurses possess play a significant role in providing patients with the health care that they need (Çetin, 2008: 108). A major purpose of nursing is to teach existent knowledge, skills and values; validate, renew, develop and generalize and make them perfect (Altun 2010: 237; cited in Çımar et al., 2013: 2)

The basis of nursing education is to ensure competency in knowledge and skills. Therefore, both theory and practice are equally important in nursing curricula (Gannon et al., 2001:534; cited in Ay, 2007: 58). From a global perspective, nursing education is a training process that includes theoretical and practical instruction and learning experiences. During this educational process, learners are given theoretical knowledge to help them establish and maintain effective communication with healthy/ill individuals within the family/the society and develop and express themselves well, along with turning knowledge into behaviour (Taşocak 2003: 1; Keçeci, 2007:3).

In Turkey, nursing education is basically provided at the undergraduate level. During the four-year educational period, learners are provided with lessons such as introduction to nursing that represents clinical information, nursing for internal diseases, surgical nursing, women's health nursing, public health nursing and psychiatric nursing along with lessons concerning basic medical sciences (anatomy, physiology, pathology, biochemistry, histology, nutrition, etc.) and lessons in social sciences (sociology, psychology, management, professional communication, educational methodology, etc.). Introduction to Nursing among these lessons is one of the most significant lessons that helps learners get acquainted with the nursing profession, change their perspectives about nursing and understand this profession. This lesson includes such subjects as introduction to nursing, health-care system, the roles of health teams and nurses, establishing communication with patients, healthy environments in hospitals, patient admission and discharge, the process of nursing, ethical issues in nursing and others related with basic nursing (Kaya and Akçin, 2002: 6).

Nursing education is an educational system that encompasses cognitive, affective and psychomotor learning domains. The cognitive domain is concerned with the classification of instructional objectives based on thinking, and the affective domain encompasses behaviours that include the human emotions, whereas the psycho-motor domain studies behaviours that emerge as a result of the cooperation between the senses, mind and muscles (Mete, 2009: 115). Since nursing as a significant health education program encompasses a number of concepts, principles and symbols, various significant problems emerge in terms of learners' success and behavioural objectives. The quest for effective strategies in concept instruction is one of the significant problems of health education. In this context, it is significant that mnemonic devices should be included in nursing education.

### ***Mnemonic Devices in Education and the Letter-Phonetic Method***

Mastropieri and Scruggs (1998) defined mnemonic devices as strategies that help code relationships and associations that are not a natural part of the subject to be learned. Mnemonic strategies are an artificial network of relations that pair up semantically unrelated components with similar or different properties. That is, mnemonic devices make the piece of information to be learned more meaningful and facilitate retention. They are supportive methods that make the mind more powerful and facilitate recall (Bourne, Dominowski, Loftus and Healy, 1986). Sweda et al., (2000) noted that mnemonic devices are instructional strategies, intended for the memory that establishes links between old and new information with the help of visual and auditory cues.

Since mnemonic devices facilitate learning activities, they help increase the amount of information learned during the educational period. Arends (1997) stresses that mnemonic strategies help individuals form schemata for the information that they learn. In this process, learners develop problem-solving skills which are efficient in analytical thinking, reasoning as well as retaining information in the memory for a long time (Marschark and Hunt, 1989; Levin et al., 1990). In this regard, Eysenck and Keane (1995) stress that mnemonic devices facilitate deeper thinking in learners that lack such a skill. In conclusion, no matter how mnemonic devices are defined, the purpose of such strategies is to support the process of retaining information in the mind (Zimbardo, Johnson and Weber, 2006).

The use of mnemonic devices in nursing education is a relatively new practice (Schumacher, 2005). Various studies focusing on the effectiveness of mnemonic devices suggest that they are effective in increasing learner's success and boosting retention (Schunk, 2004; Schumacher, 2005; Heather and Gibson, 2009). While the letter-phonetic method helps learners acquire the objectives of the unit focusing on the health-care system, health teams and the roles of nurses, it might also lead confusion in the mind of the learners or result in forgetting. Furthermore, this method facilitates systematic recall of the newly learned information.

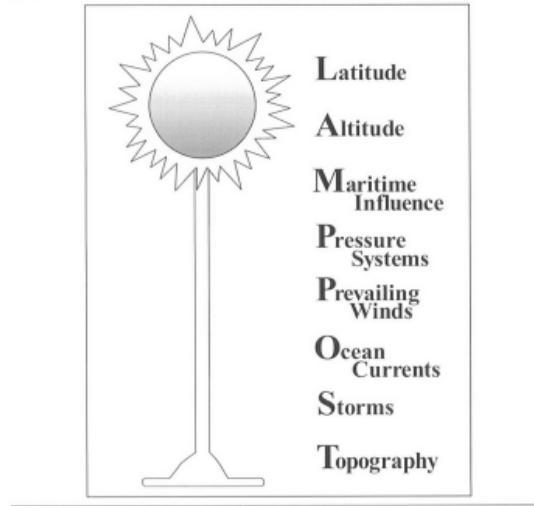
The letter-phonetic method involves creating a meaningful word or a sentence by using the initial letters of the items to be learned. This facilitates retention and recall. The letter phonetic method is composed of 2 techniques; namely, the acronym and acrostic technique. In the former, the initial letters of the words to be learned are combined and a new word is created (Kleinheksel and Summy, 2003; Köksal, 2013). On the other hand, in the latter, the initial letters of the words to be learned are taken and meaningful sentences are created using words beginning with these letters (Mastropieri and Scruggs, 1998; Schunk; 2004; Kondu, 2011)

The acronym technique used in this study is particularly effective in remembering information in a certain order. Schumacher (2005) coded what nurses have to do in health security controls by using an acronym that he developed: "CATS PRRR?" In this acronym, each letter stands for the steps that have to be followed (See Table 1).

**Table 1: The Acronym of "Cats PRRR"**

| TABLE<br>DO YOUR CATS PRRR? MNEMONIC DEVICE            |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Before You Hang or Push That Medication, Ask Yourself: |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| C                                                      | COMPATIBILITIES                 | Is the drug that I am going to hang or push compatible with the fluid currently infusing?                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| A                                                      | ALLERGIES                       | Does the patient have drug allergies? Remember to Always Ask Patient About Allergies!                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| T                                                      | TUBING                          | Do I need to change the tubing? Is it the correct tubing for the drug I am going to administer? Apply sticker to new tubing? Is the tubing kinked?                                                                                                                                                                                                                                                                                                                                                                                                                |
| S                                                      | SITE                            | Is this site safe for drug administration? Does it appear infiltrated? Does it look inflamed?                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| P                                                      | PUMP: The 4 P's of pump safety! | <ul style="list-style-type: none"> <li>• Programmed precisely? Is the tubing in the correct chamber and is each chamber programmed correctly?</li> <li>• Personality? Is the pump on the correct "personality" for this drug I am going to give? Is this a "high-alert" drug? If so, MUST have an RN peer double check the set-up!</li> <li>• Pumping? Is the pumping mechanism working correctly with the number of drops flowing? Are the alarms working?</li> <li>• Plugged in? Is the pump plugged in? Keep the pump plugged in whenever possible.</li> </ul> |
| R                                                      | RIGHT RATE                      | Do I have the right rate programmed into the pump for this drug? If an IV push drug, do I know the right rate/time to push the drug over?                                                                                                                                                                                                                                                                                                                                                                                                                         |
| R                                                      | RELEASE.....                    | CLAMP ON PIGGYBACKS!!<br>Regret not that you left before the drips dropped!                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| R                                                      | RETURN & REASSESS               | <ul style="list-style-type: none"> <li>• How did the patient tolerate the drug?</li> <li>• Is the drug helping? How do you know?</li> <li>• Remember to chart your findings!</li> </ul>                                                                                                                                                                                                                                                                                                                                                                           |

Similarly, Fahrer and Harris (2004) used the acronym technique to teach climatic changes in geography lesson. They inserted what they want to teach in the acronym LAMPPOST (Köksal, 2013). In this acronym, the letters stand for the following: L: Latitude, A: Altitude, M: Maritime influence, P: Pressure systems P: Prevailing winds, O: Ocean Currents, S: Storm and T: Topography. Figure 1 demonstrates the Lamppost variables created by the researchers. As a result of the research study the researchers stated that this method contributed to learning and retention to a significant extent.



**Figure 1: LAMPPOST Acronym**

Köksal (2013) notes that a new acronym was created in the course titled "instructional principles and methods" in the form of the Turkish word "KEBAB," meaning cooked meat, to code reinforcement principles suggested by Skinner. This word is an acronym for the principles of programmed learning. The letters and what they stand for are given below: K: Küçükadımlarilkesi (The principle of small steps), E: Etkinkatılım (Effective participation), B: Başarıilkesi (Principle of success), A: Anındadönütilkesi (The Principle of instant feedback), B: Bireyselhız (The principle of individual pace). It is essential that the learners should know the relationship between the acronym "KEBAB" and Skinner's reinforcement principles. If they do not learn reinforcement principles well, they will not remember what each of the letters stands for in the acronym. If the principle of "efficient participation" is not fully learned, the learner will not be able to make meaning out of the letter "E". Mastropieri and Scruggs (1998) stated that when the acronym technique is used, what each letter stands for should be learned well (Cited in Köksal, 2013). Sometimes it is not possible to form a meaningful word or a sentence using the initial letters of the words that students are supposed to learn. In such a situation, the students might rearrange the acronym by adding other letters into the word (Korkmaz, 2007). For example, the acronym FıSTıKÇıŞaHaP, meaning a man called Şahap, who sells nuts, is widely used in Turkish language lessons to help learners remember stop sounds in the Turkish language. As it is seen in the example, vowels are inserted within consonants to make a meaningful acronym (Korkmaz,2007; Akt; Köksal,2013). The present study aims to investigate the impact of the letter-phonetic method as a mnemonic device on the attainment and retention in freshman nursing students in the unit about health-care system, health teams and the role of nurses in the lesson titled "Introduction to Nursing and Rapport" in the first year of the nursing department in the faculty of health sciences.

### ***Purpose of the Study***

The purpose of the present study is to investigate the impact of letter-phonetic method as a mnemonic device on the attainment and retention in freshman nursing students in the unit about health-care system, health teams and the role of nurses in the lesson titled "Introduction to Nursing and Rapport" in the first year of the nursing department.

### ***Research Questions***

- (1) Is there a significant difference between the post-test attainment scores of the treatment group which received instruction using letter-phonetic method as a mnemonic strategy and the control group, which was instructed traditionally to help attain the objectives in the unit, health-care system, health teams and the roles of nurses in the lesson "Introduction to Nursing and Rapport" in the first year of the nursing department?
- (2) Is there a significant difference between the pre-test and post-test attainment scores of the treatment group which received instruction using letter phonetic method as a mnemonic strategy to attain the objectives in the unit, health-care system, health teams and the roles of nurses in the lesson "Introduction to Nursing and Rapport" in the first year of the nursing department?
- (3) Is there a significant difference between the mean pre-test and post-test attainment scores of the control group, which was instructed traditionally to help them attain objectives in the unit, health-care system, health teams and the roles of nurses in the lesson "Introduction to Nursing and Rapport" in the first year of the nursing department?
- (4) Is there a significant difference between the retention test scores of the treatment group which received instruction using the letter-phonetic method as a mnemonic strategy and the control group, which was instructed traditionally to help attain the objectives in the unit, health-care system, health teams and the roles of nurses in the lesson "Introduction to Nursing and Rapport" in the first year of the nursing department?
- (5) Is there a significant difference between the post-test and retention test scores of the treatment group which received instruction using letter phonetic method as a mnemonic strategy and the control group, which was instructed traditionally to attain the objectives in the unit, health-care system, health teams and the roles of nurses in the lesson "Introduction to Nursing and Rapport" in the first year of the nursing department?

### **Method**

This study adopts an experimental method with a pretest, posttest and control group. The experimental method is a type of research in which the data to be observed are created to explore the causality of relations between the variables that are taken under control by the researcher (Karasar, 2007). This study was carried out using two randomly assigned groups. One of these was the treatment group (letter-phonetic method), while the other one was the control group (traditional learning). The learners were tested before and after the instruction in both groups. The present study was carried out on nursing students in the Department of Nursing at the Faculty of Health Sciences at Kafkas University in Kars, an eastern province in Turkey.

The study aimed to test whether there was a statistically significant difference between late

post-test scores of the control group instructed traditionally and the treatment group which received instruction through letter-phonetic method as a mnemonic device to acquire the objectives of the unit titled "Health-care system, health teams and the roles of nurses." The study lasted for 8 sessions in 4 weeks. During this period the instructor taught issues regarding the health-care system, health teams and the roles of nurses in the lesson "Introduction to Nursing and Rapport" Class 1/A was assigned as the treatment group, while 1/C was assigned to be the control group before the instruction. 39 students in the treatment group and 37 students in the control group, totally 76 students, took part in the study. The learners in the treatment group received one-hour instruction about the letter-phonetic method. Moreover, the instructor was informed about the method and how to implement it. During the instructional period, the treatment group was taught using the letter-phonetic method as a mnemonic device, while the control group was instructed using traditional methods (such as lecturing).

### ***The Application of Letter-Phonetic Method Used in The Study***

First, the instructor gives information to the learners about preventive health services in the health-care system.

"...Now, the scope of health services is to help the society, family and individuals, reach a certain level in terms of health services and to do this in an organized, planned and coherent way. Today, health-care services are presented in "three steps" to every member of the society. Possible losses, if preventive health-care services are not provided in the health-care system, are as follows:

- *Loss of human health*
- *Loss of lives*
- *Loss of production and productivity*
- *Meaninglessness in life*
- *Economic loss*

It is possible to create an acronym (ÜYECİ) by using the letter-phonetic method as a mnemonic device to help learners remember the aforementioned losses easily.

**Ü:** *Üretim ve verim kaybı (Loss of production and productivity)*  
**Y:** *Yaşamın anlamını yitirmesi (Meaninglessness in life)*  
**E:** *Ekonomi kaybı (Economic loss)*  
**C:** *Can kaybı (Loss of lives)*  
**İ:** *İnsans sağlığının kaybı (Loss of human health)*

After this presentation, the instructor wants the learners to tell him what each letter stands for.

He says, "Now, let's repeat the information that we coded using the initials." The learners, together with the instructor, repeat the information several times.

The instructor moves onto the roles of nurses after giving the learners the information mentioned above.

"...Nurses significantly contribute to the health-care system. This contribution is ensured

through the use of the functions and the methods to put these roles into practice. Nurses assume roles that of a/n

- *Practitioner*
- *Administrator*
- *Educator*
- *Creative person*
- *Researcher*
- *Professional.*

The information can be coded using the letter-phonetic method as "Beniderneğe UYE YAP", meaning "Register me as a member of the association" to facilitate recall. The acronym "UYEYAP" helps remember the roles of nurses in the health-care system.

**Ü:**Uygulayıcı (*Practitioner*)  
**Y:**Yönetici (*Administrator*)  
**E:**Eğitimci (*Educator*)  
**Y:**Yaratıcı (*Creative*)  
**A:**Araştırmacı (*Researcher*)  
**P:**Profesyonel (*Professional*)

After this presentation, the instructor wants the learners to tell him what each letter stands for.

He says, "Now, let's repeat the information that you coded by using the letters." The learners repeat the information together with the instructor a few times.

At the end of the lesson, the instructor gives the acronyms to the learners and tries to get feedback from the students to test whether they remember the content.

### ***Sample Evaluation Questions***

(1) Write what each letter in the following acronym stands for.

|           |           |
|-----------|-----------|
| <b>Ü:</b> | <b>Ü:</b> |
| <b>Y:</b> | <b>Y:</b> |
| <b>E:</b> | <b>E:</b> |
| <b>C:</b> | <b>Y:</b> |
| <b>İ:</b> | <b>A:</b> |
|           | <b>P:</b> |

(2) What does the acronym "Beniderneğe UYE YAP" stand for?

(3) What does the acronym "ÜYECİ" stand for?

### ***Sample acronyms used in the study:***

The acronym "**KaTaR**" used to teach the three-step health-care services:

**K:**KoruyucuSağlıkHizmetleri (Preventive Health Care Services)

**a:**

**T:** TedaviEdiciHizmetler (Remedial Services)

**a**

**R:** RehabilitatifveSosyalHizmetler (Rehabilitative and Social Services)

The KaYGı acronym used to teach prior objectives of nursing with respect to individual and public health as a health discipline:

**K:** Koruma (Protecting)

**a**

**Y:**Yardım Etme (Helping)

**G:** Geliştirme (Development)

**I**

The HABER acronym used to teach the independent roles of nurses:

**H:** Hasta haklarının savunma (Advocating patient rights)

**A:** Araştırma (Research)

**B:** Bakım (Care)

**E:** Eğitim (Education)

**R:** Rehabilitasyon (Rehabilitation)

## **Data collection tools**

### ***Attainment test***

In order to collect data about the dependent variable in the study, an attainment test was developed and piloted. The objectives in the unit "health-care system, health teams and the roles of nurses" were identified to prepare the material to be used in the course called "Introduction to Nursing and Rapport." A test form with 30 questions was prepared. To do so, items that cover each issue in the unit to be studied were constructed in line with the scope of each subject to ensure content validity.

In this step, the opinions of testing and evaluation experts were sought. Before the test was administered as the pretest, it was given to supposedly two equal groups. After obtaining the results, item analysis was carried out for each item. After the item analysis, those items with item facility (P<sub>j</sub>) between 0,40 and 0,60 and item discrimination (r<sub>pb</sub>) over 0,30 were directly included in this test. In this way, a test that was composed of 20 items with average item facility and high discrimination index was created. KR20 internal reliability coefficient of the resulting test was calculated to be 0,82. The pretest helped the researchers to observe the extent to which the learners had the objectives of the unit covered in the study. The attainment test was administered to both groups as the posttest to find out whether the learners reached the objectives of the unit.

The attainment test developed in the study was also used as the retention test to calculate the retention scores of the learners.

## **Findings and Interpretations**

This section elaborates on data collection and analysis. The data collected before and after the instruction were analyzed using appropriate statistical techniques, and they are presented in tables.

The first research question of the study is: "Is there a significant difference between the posttest attainment scores of the learners in the control and treatment group?"

In line with this purpose, the data were analyzed using independent sample t test, and the



results are presented in Table 2.

**Table 2:** A Comparison of the Post-test Attainment Scores of the Learners in the Treatment and Control Group

|                       | Group     | N  | x     | sd   | t    | p    |
|-----------------------|-----------|----|-------|------|------|------|
| Attainment (Posttest) | Treatment | 39 | 78,21 | 9,56 | 9,35 | ,000 |
|                       | Control   | 37 | 57,70 | 9,55 |      |      |

When Table 2 is examined, it is seen that the mean post-test scores of the learners in the treatment group was  $\bar{X}=78,21$ , while that of the learners in the control group was  $\bar{X}=57,70$ . Therefore, there was a significant difference between the mean post-test scores of the treatment and the control group in favour of the former. This finding suggests that the letter-phonetic method used in the treatment group as a mnemonic device is highly effective in boosting retention.

The third research question of the study was "Is there a meaningful difference between the pre-test and post-test attainment scores of learners in the treatment group?"

In line with this purpose, the data were analyzed using independent sample t test, and the results are presented in Table 3.

**Table 3:** A Comparison of Pre-test and Post-test Attainment Scores of the Learners in the Treatment Group

|                 | Treatment Group | N  | x     | sd   | t      | p    |
|-----------------|-----------------|----|-------|------|--------|------|
| Attainment Test | Pretest         | 39 | 45,26 | 9,73 | -20,75 | ,002 |
|                 | Posttest        | 39 | 78,21 | 9,56 |        |      |

Table 3 demonstrates that the mean pre-test scores of the learners in the treatment group was  $\bar{X}=46,26$ , while their post-test scores was  $\bar{X}=78,21$ . This finding suggests that the letter-phonetic method used in the treatment group is highly effective in boosting learners' success.

The third research question of the study was "Is there a meaningful difference between the pretest and post-test attainment scores of learners in the control group?"

In line with this purpose, the data were analyzed using independent sample t test, and the results are presented in Table 4.

**Table 4:** A Comparison of Pre-test and Post-test Attainment Scores of the Learners in the Control Group

|                 | Control Group | N  | x     | sd    | t     | p    |
|-----------------|---------------|----|-------|-------|-------|------|
| Attainment Test | Pretest       | 37 | 44,59 | 10,63 | -2,85 | ,000 |
|                 | Posttest      | 37 | 57,70 | 9,55  |       |      |

Table 4 illustrates that the mean pre-test scores of the learners in the control group was  $\bar{X}=44,59$ , while their mean post-test score was  $\bar{X}=57,70$ . This finding indicates that the traditional method used in the study increased the learners' success. However, when the increase in the scores of the treatment and control groups are compared, it is seen that the increase in the former is higher than that in the latter (See Table 3).

The fourth research question of the study was "Is there a meaningful difference between the retention scores of learners in the treatment and control groups?"

In line with this purpose, the data were analyzed using independent sample t test, and the results are presented in Table 5.

**Table 5:** A Comparison of the Retention Scores of the Learners in the Treatment and Control Group

|                | Group     | N  | x     | sd    | t     | p    |
|----------------|-----------|----|-------|-------|-------|------|
| Retention Test | Treatment | 39 | 73,85 | 8,47  | 12,73 | ,000 |
|                | Control   | 37 | 45,68 | 10,75 |       |      |

Table 5 indicates that the mean retention test score of the treatment group is significantly higher than that of the learners in the control group ( $p < ,001$ ). This finding suggests that the letter-phonetic method used in the treatment group is highly effective in boosting retention.

The fifth research question of the study was "Is there a meaningful difference between post-test and retention scores of learners in the treatment and control groups?"

In line with this purpose, the data were analyzed using independent sample t test, and the results are presented in Table 6.

**Table 6:** A Comparison of Post-test and Retention Test Attainment Scores of the Treatment and Control Group

| Test            | Group     | N  | Posttest |      | Retention test |      | Difference |      | t     | p    |
|-----------------|-----------|----|----------|------|----------------|------|------------|------|-------|------|
|                 |           |    | x        | sd   | x              | sd   | x          | sd   |       |      |
| Attainment Test | Treatment | 39 | 78,21    | 9,56 | 73,97          | 9,98 | 3,72       | 4,55 | -6.85 | 0,00 |
|                 | Control   | 37 | 57,70    | 9,55 | 45,68          | 9,54 | 11,90      | 5,82 |       |      |

According to Table 6, a comparison of the post-test and retention test scores of the control and treatment group shows that there was a slight decrease in retention scores of both groups. When the decreases in the mean scores of the learners are examined, it is seen that the decrease in the control group's mean score is statistically significant ( $p < ,05$ ). This finding supports the finding of the previous research question. In other words, the activities carried out using the letter-phonetic method in the treatment group was more effective in helping learners reach the objectives in the lesson in comparison with the traditional activities in the control group.

## Results and Discussions

- (1) There was not a statistically significant difference between the pre-test scores of the control group which received traditional instruction and treatment group which was instructed using the letter-phonetic method. This finding indicates that the groups were equal in terms of their scores before the instruction.
- (2) After the instruction, there was an increase in the scores of both groups. However, there was a significant difference between the mean post-test score of the control and that of the treatment group in favour of the latter. In line with this finding, we can conclude that the use of the letter phonetic method as a mnemonic device in teaching basic knowledge in the lesson "Introduction to Nursing and Rapport" helps increase learner success. Similarly, in a number of other studies, it was found that mnemonic

devices as strategies were more effective than the traditional methods. This finding lends support to some other studies carried out in Turkey (Senemoğlu, 2007; Korkmaz, 2007; Göl, 2010; Kondu, 2011; Köksal, 2013). Moreover, these findings concur well with those of some other studies (Mastropieri and Scruggs, 1998; Kleinheksland Summy, 2003; Fahrer and Harris, 2004; Schunk, 2004; Schumacher, 2005; Heather and Gibson, 2009). As a conclusion, the use of the letter phonetic method in the lesson "Introduction to nursing and Rapport" increases the learner's success.

- (3) There was a significant difference between the retention scores of the control and the treatment groups. According to this finding, in comparison with traditional methods, the letter phonetic method used to teach basic knowledge in the treatment group was more effective in boosting retention. When the literature on this issue is examined, it is seen that there are quite a few studies that confirm the findings of the present study.
- (4) The learners retained what they learned for longer periods of time in the treatment group in which the letter phonetic method was used in comparison with the learners in the control group (Olçum, 2000; Carlson, Buskist and Martin, 2000; Kirk, 2003; Rummel, Levin and Woodward, 2003; Schunk, 2004; Schumacher, 2005; Korkmaz, 2007, Heather and Gibson, 2009).

### **Recommendations**

The following recommendations can be made under the light of the findings of the present study carried out to investigate the impact of mnemonic devices on attainment and retention in learners.

- (1) The letter-phonetic method can be used in different lessons in the department of nursing.
- (2) Prospective studies might focus on the impact of learner generated letter-phonetic coding on learners' attainment.
- (3) The present study was limited with the unit "Health-Care System, Health Teams and the Roles of Nurses" in the course "Introduction to nursing and Rapport." This method can be used in all other units in the aforementioned lesson. What the present research study tries to achieve is to demonstrate that this method can be used throughout the course "Introduction to Nursing and Rapport."
- (4) New studies can be carried out to focus on the use of other mnemonic devices.

### **Acknowledgement**

This article was presented in the International Interdisciplinary Conference in Venice in May 12-15 2013 and was published as conference proceedings.

### **References**

- Arends, R.I. (1997). Classroom Instruction and Management. USA: The McGraw Hill.
- Altun, İ. (2010). Building a Quality Culture in Nursing. In Fortier A&Turcotte S (Eds.), Health Education: Challenges, Issues and Impact, Nova Science Publishers, USA, pp.237-239

- Ay, F. (2007) Hemşirelik Eğitiminde Kullanılan Alternatif Bir Araç: Portfolyo, Fırat Sağlık Hizmetleri Dergisi, Cilt:2, Sayı:4 [An Alternative Tool Used in Nursing Education: Portfolio, Journal of Fırat Health Servies, Volume:2, Number:4]
- Bourne, L.E., Dominowski, R.L., Loftus, E.F.ve Healy, A.F. (1986).Cognitive Processes (2nd Edition). Englewood Cliffs, NJ: Prentice Hall.
- Carlson, N. R., Buskist, W., and Martin, G. N. (2000). Psychology: The Science of Behaviour-Euopean Adaptation (6.ed.) Great Britain: Pearson Education Limited.
- Çetin İ (2008).Hemşirelik Öğrencileri İçin Yeni Bir Ders; Hemşirelikte Bilgiye Ulaşım, Fırat Sağlık Hizmetleri Dergisi, Cilt:3, Sayı:7. [A New Lesson for Nursing Students: Access to Information in Nursing., Journal of Fırat Health Servies, Volume:3, Number:7]
- Çınar, N., Altun İ, Köse, D. (2011) Öğrenci Hemşirelere Göre Hemşirelik Eğitiminde Gözlenen Eksiklikler, Erişimtarihi: 15.03.2013  
[http://akademikpersonel.kocaeli.edu.tr/ialtun/poster/ialtun30.06.2011\\_08.34.22poster.pdf](http://akademikpersonel.kocaeli.edu.tr/ialtun/poster/ialtun30.06.2011_08.34.22poster.pdf) [Observed Deficiencies in Nursing Education According to Student Nurses]
- Downie, R.S. (1971) Roles and Values: An Introduction to Social Ethics, Methuen Co., Ltd., Soffolk,
- Eren, N. veUyer, G.(1989) Sağlık Meslek Tarihi ve Ahlakı, HatiboğluYayınları, 3. Baskı, Ankara, [Health Profession History and Ethics, Hatiboğlu Publishing]
- Eysenck, M.W., and Keane, M.T. (1995). Cognitive Psychology : A student's handbook (2nd ed). London: Lawrence Erlbaum Associate Ltd.
- Fahrer. C. and Harris, D. (2004) LAMPPOST: A mnemonic Device for Teaching Climate Variables. Journal of Geography Education 103:86-90
- Göl, F. (2009) Coğrafya Dersinde Bellek Destekleyicilerin Erişi, Tutum ve Kalıcılığa Etkisi (Ortaöğretim 10.Sınıf).Yayınlanmamış DoktoraTezi. Gazi Üniversitesi, Eğitim Bilimleri Enstitüsü, Ortaöğretim Sosyal Alanlar Eğitimi Anabilim Dalı, Coğrafya Eğitimi Bilim Dalı. [The Effect of Mnemonic Devices on Achivement, Attitude and Retention in Geography Lessons. ( Secondary School 10th Class) Unpublished Doctorate Thesis]
- Heather A., Gibson, M. A. (2009). Using mnemonics to increase knowledge of an organizing curriculum framework. Teaching and Learning in Nursing, 4, 56–62.International Council of Nurses (ICN). Definition of nursing <http://www.icn.ch/about-icn/icn-definition-of-nursing>, 12/04/2011
- Kaya, H. and Emine, A. (2002) Öğrenme Biçimleri / Stilleri ve Hemşirelik Eğitimi C. Ü. Hemşirelik YüksekOkulu Dergisi, , 6 (2) [ Learning Styles and Nursing Education. C.Ü. The Journal of Nursing High School 6(2)]
- Keçeci, A. (2007). Hemşirelik eğitiminde iletişime yeni bir yaklaşım: Transaksiyonelanaliz. Uluslararası İnsan Bilimleri Dergisi [Bağlantıda]. 4:2. Erişim: <http://www.insanbilimleri.com> [ A new Approach to Communication in Nursing Education: Transaksiyonelanaliz]
- Kleinheksel, K. A. and Summy, S. E. (2003). Enhancing Student Learning and Social Behavior Through Mnemonic Strategies. Teaching Exceptional Children. Nov/Dec, Vol. 36 Issue 2, 30-35. EBSCOHOST No: 11449730.
- Kırk, E., P. (2003). How Learning A Mnemonic Structure Influences Attention Demand At Retrieval. (Unpublished Ph.D. Thesis), The Florida State Universty, College Of Arts And Sciences.
- Kondu, C.(2011) Hafızanızı Geliştirme Teknikleri. 18.04.2012 tarihinde şu adresten alınmıştır.  
<http://webcache.googleusercontent.com/search?q=cache:fhhMOJnvKPMJ:www.cemal-kondu.com/index.asp%3Fs%3Dmakale%26Oku%3D441+e%3C4%9Fitimde+akrosti%>

[C5%9F+%C3%B6rnekeriandcd=21andhl=trandct=clnkandgl=usandclient=firefox-aandsource=www.google.com](http://www.google.com) [ Memory Developing Techniques]

- Korkmaz, Ö. (2007). Ayrıntılaşma Kuramına Dayalı Bir Öğretimde Bellek Destekleyicilerin Öğrencilerin Başarılarına ve Öğrenmenin Kalıcılığına Etkisi. Gazi Üniversitesi Eğitim Bilimleri Enstitüsü Eğitim Teknolojisi Anabilim Dalı, Ankara [The Effect of Mnemonic Devices on Achievement and Learning Styles of the Students in Teaching regards to Elaboration Theory]
- Köksal, O. (2013). The effect of mnemonic devices on achievement, attitude, vocabulary learning and retention on the fifth year primary school English lessons. Necmettin Erbakan University, Institute of Education Sciences, Konya, Turkey.
- Levin, J. R., and Pressley, M. (1985). Mnemonics vocabulary instruction: What's fact, what's fiction? *Individual Differences in Cognition*, 2, 145-172.
- Levin, J. R., Johnson, D. D., Pittelman, S. D., Levin, K. M., Shriberg, L. K., Toms-Bronowski, S., and Hayes, B. L. (1990). A comparison of semantic- and mnemonic-based vocabulary-learning strategies. *Reading Psychology*, 5, 1-15.
- Marschark, M., and Hunt, R. R. (1989). A reexamination of the role of imagery in learning and memory. *Journal of Experimental Psychology: Learning and Memory and Cognition*, 15, 710-720.
- Mastropieri, M. A., and Scruggs, T. E. (1988). Increasing content area learning of learning disabled students: Research implementation. *Learning Disabilities Research*, 4, 7-25.
- Mastropieri, M. A., and Scruggs, T. E. (1998) Enhancing School Success with Mnemonic Strategies. *Intervention in School and Clinic* 33 : 201-208
- Mete, S. and Uysal N. (2009) Hemşirelik Mesleksel Beceri Eğitiminde Bir Model Uygulaması. *Hemşirelikte Mesleksel Beceri Eğitimi. Dokuz Eylül Üniversitesi Hemşirelik Yüksekokulu Elektronik Dergisi\*\*DEUHYO ED*, 2(3), 115-123 [ A Model Implementation in Nursing Occupational Skills Education. *Occupational Skills Education in Nursing*]
- Michell, P.H. (1977) *Concepts Basic to Nursing.*, McGraw Hill Book Co., AB Lakistern Pub., New York.
- Moore, K. D. (2000). Öğretim Becerileri. (Çeviren Nizamettin Kaya, Editör E. Altıntaş). (ss. 55-57). Ankara: Nobel Yayın Dağıtım.
- Olçum, Y. (2000). İlköğretim 4. Sınıf Sosyal Bilgiler Dersinde Bellek Destekleyicilerin Erişi ve Kalıcılığına Etkisi, Yayınlanmamış Doktora Tezi. Hacettepe Üniversitesi, [The Effect of Mnemonic Devices on Achievement and Retention in Primary 4th Class Social Sciences Lessons] Unpublished Doctorate Thesis. Sosyal Bilimler Enstitüsü, Ankara.
- Rummel, N., Levin, J. R., and Woodward, M. M. (2003). Do pictorial mnemonic text learning aids give students something worth writing about? *Journal of Educational Psychology*, 95, 327-334.
- Schunk, D.H. (2004). *Learning theories: An educational perspective ( 4th edition)* Upper Saddle River ,NJ: Merrill/ Prentice Hall
- Schumacher, D. L ( 2005) Do your CATS PRRR?: A Mnemonic Device to Teach Safety Checks for Administering Intravenous Medications. *The Journal of Continuing Education in Nursing*. May/ June 2005. Vol 36, No 3 Sayfa 104
- Senemoğlu, N. (2007). *Gelişim Öğrenme ve Öğretim: Kuramdan Uygulamaya*. Ankara: Gönül Yayıncılık. [Development Learning and Teaching: From Theory to Practice].
- Sweda, J, Mastropieri, M. A., and Scruggs, T. E. (2000). Putting mnemonic strategies to work in an inclusive classroom. *Learning Disabilities Research and Practice*, 15(2), 69-74. ERIC No: EJ608054.
- Taşoçak, G (2003) Hemşireliğe eğitiminin felsefi temelleri". V. Ulusal Uluslararası Hemşirelik Eğitimi Sempozyumu, Kapadokya, [The Philosophical Foundation of Nursing Education]

- Thomas, M. H., and Wang, A. Y. (1996). Learning by the Keyword Mnemonic: Looking for the Long Term Benefits. *Journal of Experimental Psychology*,2, 330-342.
- Veliođlu, P.(1985) *Hemşirelikte Bilimselleşmeye Doğru*, Bozok Matbaası. İstanbul, [Towards Scientification in Nursing ]
- Zimbardo, P.G., Johnson, R.L., and Weber, A. L. (2006). *Psychology: Core Concepts*. Boston: Allyn and Bacon.