

Acil Servis Doktorları En İyi Nasıl Öğrenir?

How do Emergency Medicine Specialists Learn Best?

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ÖZET:

Amaç: Öğrenme öğrencinin bilgiyi kavrama, zihninde yer etme ve o bilgiyi kullanabilme sürecidir. Eğitimciler öğrencilerinin öğrenme tercihine hitap eden bir şekilde eğitim verdiklerinde, öğrencinin akademik başarısı olumlu yönde etkilenecektir. Bu çalışmada acil tıp hekimlerinin öğrenme tercihlerinin belirlenmesi hedeflendi.

Gereç ve Yöntem: Çalışmaya Türkiye’de acil tıp uzmanlık eğitimi veren on bir kamu hastanesinde çalışan 330 acil tıp hekiminden çalışmaya katılmayı kabul eden 223’ü dahil edildi. Katılımcılara yüz yüze veya posta yoluyla ulaşarak yedi sorudan oluşan anket ve on altı sorudan oluşan VARK testi [görsel (V), işitsel (A), dokunsal (K), okuma yazma (R)] (version 7.8) Türkçe olarak uygulandı. Katılımcılara yaş, cinsiyet, çalıştığı kurumun tipi, acil serviste çalışma süreleri, acil servisteki görev

durumu, sağlık personeline eğitim verip vermedikleri, daha önce eğitici eğitimi alıp almadıkları soruları yöneltildi. Çalışmanın analizleri SPSS software (version 19.0, SPSS Inc., Chicago, IL) paket programı kullanılarak yapıldı

Bulgular: Katılımcıların %61,9’u (n=138) erkekti. Üniversite hastanesinde çalışan hekimler grubun %63,2’ sini (n= 141) oluşturmaktaydı. Katılımcıların %57,4’ü (n=128) sağlık personeline eğitim verdiği ve %67, 3’ünün (n= 150) eğitici eğitimi almadığı tespit edildi. Grubun öğrenme tercihlerinde en çok AK %15,7 (n=35) ve ARK %14,8 (n=33) tercih edildi. Katılımcıların öğrenme tercihleri %43 (n=96) bimodal, %31,8 (n=71) trimodal dağılım gösterdi.

Sonuç: Tek eğitim stili çoğu acil tıp hekimi için, hatta bir acil tıp hekimi için bile uygun değildir. En iyi öğrenme şeklinin iki komponenti vardır. Birisi öğrencinin tercihine uygun eğitim sunulması, diğeri ise öğrencinin kendi öğrenim şeklinin bilincinde olmasıdır. Eğitim faaliyetlerinin eğitici eğitimi almış eğitimciler tarafından uygulanması, eğitim materyallerinin görsel, işitsel, okuma-yazma, kinestetik modüller içermesi mükemmel bir öğrenim ortamı sunar. Acil tıp hekiminin kendi öğrenim tercihinin farkında olması ve her tip eğitim tercihine uygun öğeler içeren eğitim müfredatı hazırlanması eğitimde başarı ve kalitenin artmasına olumlu yönde katkıda bulunacaktır.

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ABSTRACT:

Background: Learning is the process of the student's concept of knowledge, imprinted on the mind, and the ability to use that knowledge. This study aimed to determine the learning preferences of emergency physicians.

Methods: A total of 223 emergency physicians working in eleven public hospitals and agreed to participate the study were included in the study. Participants evaluated with a questionnaire consisting of seven questions and Turkish translation of VARK [visual (V), aural (A), kinesthetic (K), Read- Write (R)] (version 7.8) consisting of sixteen questions, by face-to-face or by mail. We probed the participants' position in emergency department, whether they had taken place in emergency staff training, and whether they had already attended to a facilitation skills course.

Results: 63.2% (n = 141) of the physicians were working in the university hospital. It was found that 57.4% (n = 128) of the participants took charge in training of emergency staff and 67.3% (n = 150) did not attend to a facilitation skills course. In the learning preferences of the group, AK was the most favored by 15,7% (n = 35) and ARK was 14,8% (n = 33). Learning preference distribution of the participants were 43% (n = 96) bimodal and 31.8% (n = 71) trimodal.

Conclusions: The best learning style has two components. One of those to provide appropriate training to the preference of the learner, and the other is that the learner is aware of his own learning style. Implementation of training activities by trained trainers, provides an excellent learning environment in which the training materials contain visual, auditory, read-write and kinesthetic modules. The awareness of the emergency physicians own learning preference and the preparation of curriculum containing the items appropriate

for all types of medical training preferences will contribute positively to the success and quality of education.

INTRODUCTION

Learning style is defined as the total of cognitive, emotional, and physiological characters that function as relatively stable indicators of how a student perceives and interacts with the learning environment (1). The concept of learning style was first coined by Rita Dunn in 1960. By definition, it is a way in which each individual focuses, on processes and retains new and difficult knowledge. It is an interaction which occurs differently for everyone (2).

Learning style is influenced by numerous factors in life. As a result, the learning style of each student varies depending on age, socioeconomic and cultural status, and the way they interact with the environment (3). Learning styles, which are unique to each individual, influence not only educational activities, but also activities influences acquisition of information and brings about behavioral change throughout life. Learning styles depend on several characteristics such as innate genetic characteristics, physical and psychological environment, dominant intelligence type, and areas of interest, but they are very difficult to change (4).

Presenting information to students considering their learning style is accepted as the best way to enable them to understand, process, and store that knowledge. Various models have been developed to understand learning styles. These models are divided into four main groups: personality traits, dominant sensory method used in information processing, social interaction, and instructional preferences used in obtaining information (5). Knowing their own learning preferences makes learning easier

and faster for individuals. Learning styles also affect the way people express themselves. While people with visual preferences express themselves through visual imagery and pictures, people with auditory preferences use melodies, tone of voice, and drama-like expressions (4)

There are many techniques used in defining learning styles and that aim at better learning. Each method has its own advantages and disadvantages. However, each contributes to developing the curriculum, designing and implementing training models aimed at enhancing learning, and providing teachers with more information about students (6,7).

One of the most commonly used learning styles in the literature is VARK. Neil Fleming developed this model by adding R (Read-Write) to the three senses that are essential in learning (V-visual, A-aural, K-kinesthetic) and defined it as VARK. In this sense, V students learn better by seeing or observing materials such as pictures, visuals, and diagrams. For A students, listening, discussing, and recording are the best ways to learn. R students learn by using written resources. K students learn more by doing, touching, performing, and experiencing. Some students choose one of these styles while learning, while others do not make a specific preference. Multimodal students prefer two or more dominant learning methods (8). The VARK Questionnaire includes 16 items. Each of the 16 items asks individuals what they would prefer to do in distinct scenarios. Each question is composed of structured sentences. It can be used to determine the learning preferences of both students and teachers. (9).

Today's medical students are very diverse in terms of age, culture, ethnicity, experience, and learning styles. While this diversity is pleasant, it lays responsibilities to trainers

(10). In addition to conveying knowledge and encouraging students to acquire knowledge, taking responsibility is very important for faculty members. Teachers' adopting learning styles influences their teaching methods and contexts (11). It is the duty of medical teachers to get to know all the students and provide them with all the knowledge and skills by using appropriate training methods. When the teaching method is in accordance with students' learning styles, their levels of achievement, motivation, and morale increase. Teachers can use the VARK test to help students gain additional skills (12).

Emergency medicine specialist training involves a complicated teaching process that includes theoretical and practical considerations. Students who emerge as an emergency medicine specialist are considered to have gained theoretical and practical skills necessary for responding to all emergency patients. Therefore, it is thought that learning can be most effective when emergency medical trainers develop a teaching curriculum covering the preferences of all students and when learners become aware of their own learning style and use the teaching materials presented to them. This study aims to identify the learning styles of emergency medicine physicians in Turkey.

METHOD

A. Study Group: Eleven public hospitals that offer emergency medical specialist training (eight universities and three training and research hospitals) participated in this study. A total of 223 of the 330 emergency medical physicians working in these institutions agreed to participate. Survey questions and the VARK test were administered face-to-face or by post.

B. Questionnaire Items: The participants were asked about their age, gender, type of institution

they were working at, amount of time they had spent working at the emergency department, their position at the emergency department, whether they trained other health personnel, and whether they had received trainer training previously.

C. VARK test: Participants filled in the VARK survey version 7.8 in Turkish. The validity and reliability test of the VARK Questionnaire in Turkish was conducted by Güven (9).

D. Statistical Analysis: The analysis was carried out using SPSS (version 20.0, SPSS Inc., Chicago, IL). A descriptive scale of the variables was calculated. Because all variables were categorical, they were presented as frequency and percentage tables. A Monte Carlo corrected chi-square method was used to determine the relations between variables. Categories with significant differences were shown using exponents in tables. To determine the effect of other variables on the modality variable, a multivariate logistic regression model was constructed. The findings were visualized with relevant graphics when necessary. Type-I error rate was taken as 5%, and a p value of <0.05 was accepted as statistically significant.

RESULTS

A. Characteristics of the Study Group

In this study, 61.9% (n = 138) of the participants were male and 49.3% (n = 110) were in the age group of 30–39 years. The ratio of the whole group working at a university hospital was 63.2% (n = 141). Considering the working time at the emergency department, 73.1% (n = 163) of the group had less than five years of experience. Junior doctors constituted 77.1% of the group (n = 172), whereas specialist doctors constituted 13.9% (n = 31). It was found out that 57.4% (n

= 128) of the whole group were training other health personnel in the hospital and 67.3% (n = 150) had not received trainer training (Table 1).

B. Learning Style Characteristics of the Study Group

Learning styles of the participants were as follows: 15.7% of the participants (n = 35) had the AK style, 14.8% (n = 33) had the ARK style, and 9% (n = 20) had the RK style (Table 2). There was no statistically significant difference between the subgroups of gender, age distribution, type of hospital, working time at the emergency department, position at the emergency department, training other personnel, and receiving trainer training in terms of the type of chosen learning style (p = 0.270, p = 0.857, p = 0.082, p = 0.297, p = 0.095, p = 0.609, respectively) (Graph 1, Table 2).

Learning preferences of the participants also varied: 43% of the participants (n = 96) had bimodal and 31.8% (n = 71) showed trimodal learning preference (Graph 2, Table 3). There was no statistically significant difference among the subgroups of gender, age distribution, type of hospital, working time at the emergency department, position at the emergency department, training others, and receiving trainer training in terms of the type of chosen learning style (p = 0.364, p = 0.838, p = 0.141, p = 0.504, p = 0.115, p = 0.835, p = 0.417, respectively) (Table 3).

An investigation of the learning style preferences of those who had trained other health personnel showed that the most common were ARK (n = 21), AK (n = 20), and VAK (n = 11) (Table 2). Bimodal learning methods were the most common in this group (n = 51) (Table 3).

When the distribution of learning method

preferences was examined according to whether the participants had received trainer training, the most common styles were AK (n = 10) ARK (n = 9), and K (n = 8) (Table 2). Bimodal learning methods (n = 29) were the most common in this group (Table 3).

DISCUSSION

The purpose of this study was to determine the learning styles of emergency medical physicians working in Turkey. Unlike other studies, our study also reveals the learning style preferences of the educators.

Emergency medical physicians (junior doctor, specialist doctor, professor) participating in this study preferred multimodal education by 80.3% (Table 3); 86.8% and 68.7% of Urval et al.'s participants in medical faculties preferred multimodal learning style, whereas in Liew et al.'s study of preclinical medical students, 81.9% of participants preferred unimodal learning style. The rate of preference for multimodal learning style in our study is greater than the rate of 64% (n = 147,362, January–March 2017), which is available on the website where Fleming's VARK learning methods are published (3,13-15).

When multimodal learning preference was examined, it was seen that 43% of the participants preferred bimodal, 31.8% preferred trimodal, and 5.4% preferred quadrimodal. Among participants with bimodal learning preferences, 15.7% preferred AK (table 2), 9% preferred RK, and 8.5% preferred AR, whereas among those with a trimodal preference, 14.8% preferred ARK, 8.1% preferred VAK, and 5.4% preferred VRK. Although the rates of preference for bimodal and trimodal learning were different between this study and Breckler's study of physiology students, the distributions were similar (6). Similar to our study, Baykan

and Naçar also found, in their study of first-year medical students, that the most commonly preferred subgroups of trimodal learning preference were 14.4% ARK, 11.1% VAK, and 3.1% VRK (12). There are various rates for quadrimodal learning preference in the literature.

In Al-Saud's study of students at a school of dental medicine, quadrimodal preference was 19%, in Slater et al.'s study of first-year medical students, it was 56.5% for males and 40.5% for females, and it was 6% in Kharb et al.'s study of first-year medical students (16–18).

In unimodal learning preference, our participants were predominantly 7.6% K, 5.8% R, 4% A, and 2.2% V. The rates for unimodal learning preferences are considerably variable in the literature. In a study conducted by Panambur et al. with preclinical medical students, 9% preferred K, 9% R and 9% A; in Asiabar et al.'s study of first-year medical students, 21.7% preferred R, 18.5% A, and 6.5% K (19, 20).

We concluded that our learning style preferences may change over time. To illustrate, among physicians with a working time of 0–1 year at the emergency department, the most common learning style preference was AK (n = 12), VAK (n = 7), and K (n = 6); among physicians with a working time of 2–5 years, the most common learning style preference was ARK (n = 19), AK (n = 15), RK (n = 10), and VAK (n = 10); and finally, among physicians with more than 5 years of experience at the emergency departments, it was ARK (n = 9), AK (n = 8), and AR (n = 7). However, this difference is not statistically significant (p = 0.297). In Samarakoon et al.'s study on the learning styles of undergraduate and graduate medical students, learning styles in the first year were 69.9% multimodal and 30.1% unimodal; in the last year, they were 67.5% multimodal and 32.5% unimodal, whereas

during graduate studies, they were 52.9% unimodal and 47.1% multimodal (21).

The dominance of the multimodal learning preference in our group and the existence of a wide variety of subgroups may be because emergency medical specialist education is available at the graduate level, and therefore, emergency medical physicians acquire a multiple sensory learning experience during such a long training process.

Almost every study on learning preferences in the literature has produced different results. When we examine these studies, we can see that diverse groups from a wide variety of geographies are investigated. This difference may be due to a range of factors such as social, cultural, economic, access to information, occupation, and learning time.

It is important to emphasize that students will remember 20% of what they read, 30% of what they hear, 40% of what they see, 50% of what they say, and 60% of what they do. This increases to an average of 90% for a combination of what they say, hear, see, and do (12).

Limitations of the study: 11 public hospitals (eight university hospitals and three training and research hospitals) in Turkey offering emergency medicine training participated in this study. A limitation of this study is that our findings cannot be generalized to all emergency physicians.

As a result, faculty members should receive training to understand their learning styles and adopt them into their teaching preferences, and programs that aim to enhance teaching should be implemented. Instructors should spare more time for educational activities to understand the profile of their students, reveal their learning preferences, and accordingly design teaching materials. They should be encouraged in this direction. When preparing

teaching materials and motivating students to learn, there should be visual and auditory themes, and the program should be supported by various models and simulations.

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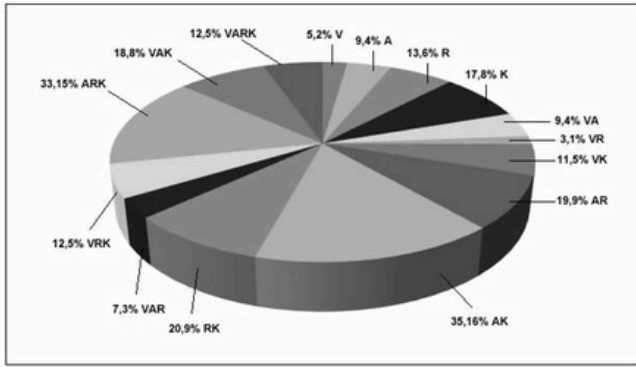
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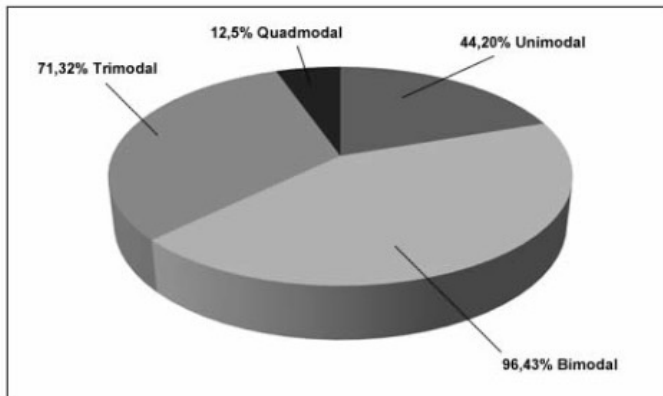
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Graphic 1: Distribution of Participants in terms of Learning Styles (n, %) (V: Visual; A: Aural; R: Read-Write; K: Kinesthetic)



Graphic 2: Distribution of participants in terms of learning modalities (n, %)

Table 1: Participant Characteristics (ER: Emergency Department)

Characteristics		n*	%*
Gender	Male	138	61.9
	Female	85	38.1
Age Distribution	25–29	91	40.8
	30–39	110	49.3
	40–44	15	6.7
	+45	7	3.1
Type of Hospital	University	141	63.2
	Training & Research	82	36.8
Working Time at the ER	Less than 5 years	163	73.1
	More than 5 years	60	26.9
Position	Junior Doctor	172	77.1
	Specialist Doctor	31	13.9
	Professor	20	9
Training Other Health Personnel	Yes	128	57.4
	No	95	42.6
Receiving Trainer Training	Yes	73	32.7
	No	150	67.3

Table 2: Learning Style Characteristics of the Groups (TR: Training and Research Hospital, UH: University Hospital)

Learning Style	%	n	Gender (n)		Age Distribution (n)				Type of Hospital (n)		Working Time at the Emergency Department (n)			Position at the Emergency Department (n)			Training Others (n)		Receiving Trainer Training (n)	
			M	F	25-29	30-39	40-44	45+	TR	UH	0-1 y	2-5 y	5+ y	Junior Dr.	Specialist Dr.	Professor	Yes	No	Yes	No
AK	15,7	35	26	9	19	14	2	0	12	22	12	15	8	31	1	3	20	15	10	25
ARK	14,8	33	23	10	12	17	2	2	11	22	5	19	9	27	2	4	21	12	9	24
RK	9	20	11	9	9	6	3	2	5	15	4	10	6	13	3	4	10	10	7	13
AR	8,5	19	14	5	7	9	2	1	11	8	3	9	7	14	3	2	10	9	3	16
VAK	8,1	18	11	7	8	10	0	0	3	15	7	10	1	18	0	0	7	11	5	13
K	7,6	17	9	8	7	8	2	0	6	11	6	7	4	12	3	2	11	6	8	9
R	5,8	13	8	5	3	7	2	1	9	4	2	4	7	6	6	1	8	5	5	8
VRK	5,4	12	5	7	5	6	0	1	3	9	3	7	2	11	1	0	7	5	2	10
VAR K	5,4	12	10	2	3	8	1	0	5	7	2	5	5	6	5	1	7	5	6	6
VK	4,9	11	5	6	4	7	0	0	3	8	2	5	4	9	2	0	6	5	4	7
A	4	9	5	4	4	4	1	0	4	5	1	5	3	6	2	1	7	2	4	5
VA	4	9	4	5	5	4	0	0	2	7	4	4	1	8	1	0	4	5	4	5
VAR	3,1	7	2	5	3	4	0	0	4	3	1	5	1	5	2	0	6	1	3	4
V	2,2	5	3	2	1	4	0	0	2	3	0	3	2	3	0	2	2	3	2	3
VR	1,3	3	2	1	1	2	0	0	1	2	0	3	0	3	0	0	2	1	1	2
%n	100	223																		
p				0,270		0,857			0,082			0,297			0,095		0,609		0,248	

Table 3: Participants Characteristics in terms of Modal Learning

Learning Style Modality	%	n	Gender (n)		Age Distribution				Type of Hospital		Working Time at the Emergency Department			Position at the Emergency Department			Training Others		Receiving Trainer Training	
			M	F	25-29	30-39	40-44	45+	T	U	0-1 y	2-5 y	5+ y	Junior Dr.	Specialist Dr.	Professor	Yes	No	Yes	No
Uni Modal	19,7	44	25	19	15	23	5	1	21	23	9	19	16	27	11	6	28	16	19	25
Bi modal	43	96	61	35	45	41	7	3	35	61	25	45	26	77	10	9	51	45	29	67
Tri modal	31,8	71	42	29	28	38	2	3	21	50	16	42	13	62	5	4	42	29	19	52
Quad modal	5,4	12	10	2	3	8	1	0	5	7	2	5	5	6	5	1	7	5	6	6
	100	223	p=0,364		p= 0,838				p=0,141		p=0,504			p= 0,115			p=0,835		p=0,417	