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The Effect of the Usage of Virtual Reality in Tourism Education on Learning Motivation

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Abstract

Humanity has developed with technology by following the new products that emerge throughout their lives. Technology, especially in education, enables students to show interest by having different and fun experiences in the course. It is thought that technology in applied and theoretical courses is also considered to be important in tourism education just as it is in engineering, architecture, and medicine as an effective tool for students to enjoy and succeed in the course. Besides that, it is possible to say that it is easier for students to access information and save time with technological tools. In the 21st century, educational establishments have started to benefit from many technological innovations. One of these innovations, which is Virtual Reality (VR), enables students to be motivated to the course with a fun and different experience by breaking their connection with the outside world. This study aims to measure the difference and the effect of using virtual reality in tourism education in terms of motivation in learning compared to video usage. The population of the study is composed of students in Tourism Department at Çukurova University, Turkey and the sample consists of students from the School of Tourism and Hotel Management in Çukurova University, Turkey. 60 students participating in the study have been selected with convenience sampling, experimental design has been used in the study, and their data have been collected by questionnaire technique. In the research findings, it has been determined that the use of virtual reality differs from video usage in some aspects in terms of student motivation and it is the more effective tool.

Keywords: technology, virtual reality, motivation of learning, innovative product

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Introduction

In order students can be successful and motivated in the course, the facilities offered by the establishments should be educationally beneficial. Especially in recent years, technology has a considerable important role in the studies carried out for students to be effective in the course. The usage of technology not only makes the teaching of the course fun and simple but also it makes easier to access information (Shin, 2018).

Virtual reality technology, which is one of the new technologies and is spreading rapidly although it is not well-known in the world yet; “It usually refers to artificial, digital worlds in which users can interact and navigate” (Disztinger, et al.2017: 255). It is used by legal and natural people in many areas. One of the most important of these areas is education. Some

education establishments with certain resources have started to use virtual reality for students to learn with different experiences.

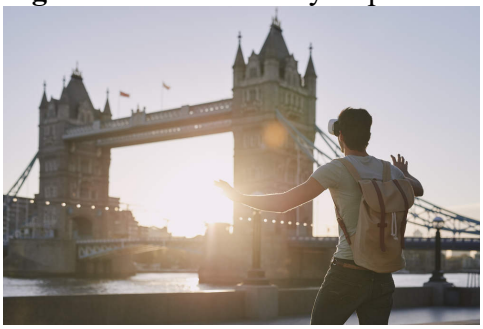
Students must be highly motivated to become successful in the courses. Motivation refers to the factors that make people move or act (Ball, 2012). The content of the course, the way how it is taught, especially the tools used during the course affect the students' motivation. First of all, in this study, an in-depth literature review has been conducted to determine the problem. Inferences obtained as a result of the literature review have been interpreted. This study aims to measure the difference between using virtual reality in tourism education in terms of learning motivation compared to the use of video and its effect on learning motivation. Keller's (2010) ARCS scale has been presented to the experimental and control groups as a pre-test and a post-test. By evaluating the obtained findings, application-oriented analysis has been made.

Literature Review

Virtual Reality

Virtual reality has been defined by many scientists in different ways. According to Disztinger, et al. (2017: 255) the concept of virtual reality usually refers to artificial, digital worlds in which users can interact and navigate. On the other perspective, virtual reality is embodied simulation that shares the same basic mechanism as the brain (Riva et al. 2019). Similarly, Keller et al. (2018) define it as a technology that allows the user to interact with virtual objects. Singh et al. (2020) state that it is to develop simulated expertise, somewhat similar to the real-time situation. Besides, Hu et al. (2021) suggest that virtual reality is a technology that revolutionizes the market by providing users with immersive experiences including freedom of movement. Although there have been changes in terms of words or expressions over the years in the definitions, it has been observed that scientists have generally looked from a similar perspective. Virtual reality is a technology that has changed over the years and is constantly evolving. Definitions made in recent years have been examined to see how much this technology has developed. However, the process from the starting point to the present is also very important in terms of understanding technology. In this context, the historical stages of the use of virtual reality, whose creator is accepted to be science fiction writer William Gibson, are respectively (Kurbanoğlu, 1996: 23; Arat & Baltacıoğlu, 2016: 107); Panoramic Pictures (19th Century wall paintings), First Flight Simulator (1929), Sensorama (the 1950s), Head Mounted Display (1960-61), Ultimate Screen (1965), Virtual Reality Term Formation (1989), 21st Century Virtual Reality Development (2000-2015).

Figure 1. Virtual Reality Experience



Source. Verdict, 2021

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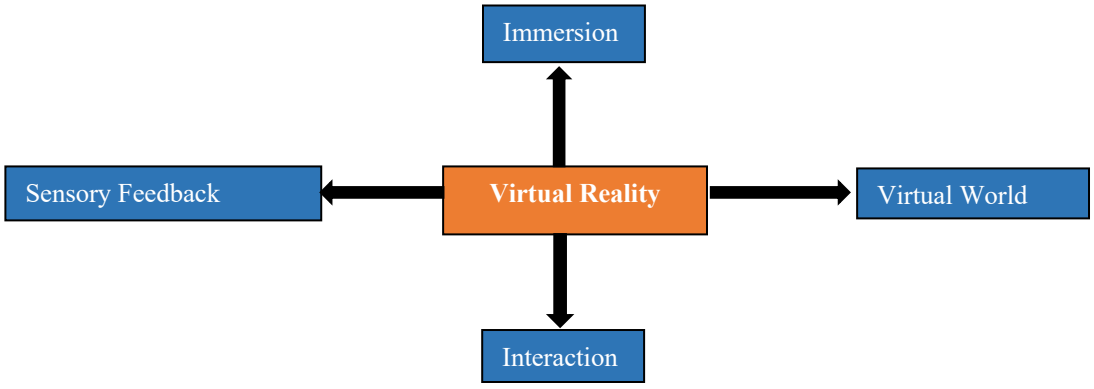
Virtual Reality Environment and Features

Virtual reality is an environment where users experience an event in the real world or imaginary world in a three-dimensional way by feeling it in the simulated world with special virtual reality clothes (glasses, gloves, wired clothes). While creating virtual environments, it is aimed that the participants have a different virtual trip experience by using virtual reality glasses and action cameras. To reduce cognitive load and increase the efficiency of 3D visualization, there is an interactive feature in addition to observation in the immersive virtual reality environment that provides source code scanning feature to users (Kayapa, & Tong, 2011; Vincur et al. 2017).

Sherman and Craig (2003) gathered the experiences of people in these environments under four features of virtual reality. These are "the virtual world", "Immersion", "Sensory Feedback" and "Interaction".

Figure 2. Virtual Reality Features



Source. Sherman & Craig (2003).

Virtual World: It is a permanent, simulated, and immersive environment that provides avatars and communication tools where users can move and interact real-timely in the world created by network computers (Girvan, 2018).

Immersion: Virtual reality refers to the objective compliance level provided by the system and the subjective psychological response of the users (Bowman & McMahan, 2007). Besides, the mappings used in the visualization of cities are displayed on the computer screen. Buildings and streets in visualization are immersed in a 3D virtual reality environment. This visualization is displayed with the immersion feature in a 3D virtual reality environment (Chotisarn et al. 2020)

Sensory Feedback: Sensory Feedback is the reaction of the person who experiences virtual reality experience in the virtual environment (Çaba, 2018).

Interaction: Situations such as the users entering the simulated world from the real world and moving around there, can be cited as examples of the interaction feature of virtual reality (Roussou, 2004). In a study, pen-based air painting in virtual reality has been compared with surface-aided painting. It has been found that the accuracy measured by the mean total deviation from a target hit is significantly increased when it is a physical drawing surface. This situation can be explained by the different features of interaction concepts. 3D reality is immersive,

unrestricted, and categorized in life-size while pen and tablet input is precise, restrained, and ergonomic (Drey et al. 2020).

Usage Areas of Virtual Reality in Education

Virtual reality applications are technologies with a wide variety of usage. These technological developments, which were thought to be possible only in science fiction films a quarter-century ago, can be experienced today. Virtual reality is not only a technology but also an experience that people live. Technology from the past to the present, growing like a snowball, is used in fields such as game, health, film, astronomy, marketing, sports, and education (Bayraktar & Kaleli, 2007; Radianti, et al. 2020).

The use of virtual reality for education about exploration, practical and technical skills, operations, maintenance, and academic issues creates positive results for students. Besides, students learn much better when they are immersed in a 3D environment that makes things more fun and exciting. This technology enables students to explore, travel without leaving the classroom, visit places where they want to learn without moving, have a professional orientation, and more (CRISS, 2018; Nemec et al. 2017).

Virtual reality is used in medicine, architecture, history, science, military education, and recently in tourism education. Virtual reality is used in medical education in both physical and psychological fields. Applications used in the near term are surgical planning, inter-surgery tour, and surgical simulation. Its use in rehabilitation medicine and psychiatry has also made significant progress. It is also foreseen that virtual endoscopy may replace standard endoscopic procedures for diagnostic screening soon (Labovitz & Hubbard, 2020). It is possible to say that the effect of virtual reality, which is used as a seriously important tool in medical education, is more in architectural education. Technology that contributes to students' creativity also plays an important role in expanding their perspectives. Supporting this information Portman et al. (2015), it is stated that virtual reality technology improves collaboration between design team members as well as adding virtual assets to real-world views. Virtual environments motivate designers by making it easier for them to discover and express their products. Virtual reality is a very powerful environment for dealing with both reality and the past. Therefore, its use in history education attracts students' attention. Some researchers question why this teaching style differs from the books. However, computer-based technologies are known to be more flexible and accessible than traditional information sources. Virtual reality (VR) technologies have become more affordable and accessible in recent years. This technology offers new methods and opportunities in the field of digital learning (Pirker et al.2020). In addition to all the training, it is known that the most common use of virtual reality and other advanced technologies is in the field of science. New technological solutions are necessary for science education, which is faced with difficulties in some subjects. Virtual reality and virtual environments are becoming more common in education, and many studies focus on the impact of the virtual environment on learning and knowledge (Manseur, 2005). In particular, in physics education, the use of digital simulations or virtual labs to support student understanding is part of so many classrooms. Virtual reality experiences create exciting, engaging, and realistic learning setups for experimenting and working with simulations. Several studies have shown that virtual reality experiences have a positive effect on learning (Pirker et al.2020). Besides, it is known that virtual reality technology is a more important tool in areas based on experience. Therefore, with the

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development of computer graphics and hardware, visualization technology has become an important method for representing battlefield simulations. These technologies are known to be closely related to computer graphics, physics modeling, military modeling, graphics hardware, etc. (Strickland, 2019). It is seen that virtual reality is used in many areas. It is thought that the use of this technology, which is not used enough in tourism education, will increase student motivation in tourism education in the coming years. While some scientists in the field of tourism highlight the importance of using virtual reality for tourism purposes, they make an effort to ensure that students use this technology in their classrooms for free. Many virtual constructions such as gold awnings and placing sculptures on the coliseum have been made by experts to present them to the students. Students at Gonzaga University have experienced these destinations in virtual reality. In the feedback received afterward, the students have stated that the course has been very interesting and fascinating (Tormey, 2019).

Pros and Cons of Using Virtual Reality

Virtual reality is a technology that has been used for individual purposes or institutional life recently. However, it is possible to have some positive and negative situations experienced during or as a result of the usage of virtual reality.

Virtual reality, which is one of the utmost developing technology, is considered a system that facilitates and improves people's lives in many areas. Education, which is one of these areas, offers new perspectives and provides great improvements. Virtual reality experiences offer ways of modeling the complex tasks and performances that have a matter of life and death in real-life learning. Instead of putting an inexperienced driver in the vehicle, the trainers eliminate the major risks by giving the training in a simulated world. Students are trained with virtual reality technologies especially in the use of vehicles in places such as commercial aviation and the military navy (Mott, 2019).

In the science world, it is stated that virtual reality has both positive and negative aspects. The disadvantages of using virtual reality including its cost, its hardware, and the time required to learn how to use software are shown as possible for health and safety issues. In many studies, it is asserted that virtual reality has negative psychological, physical, and social effects on users (Pantelidis, 2009; Botero & Whatley, 2020). From another point of view, Baudrillard (1995) argues that reality has given its place to artificiality, the fact that it is now recognized through imitation of the subject, and that even this can be called a murder.

The Concept of Motivation

Motivation is a term that is frequently used, especially in psychology. It refers to the factors that make people take action (Usher & Kober, 2012). In general, people taking action for certain goals reveals their motivation towards that. For instance, the fact that observing a person works hard in almost every task that comes to that person can lead to the conclusion which is that the person has a goal to achieve. Otherwise, if the person is not willing enough for the given tasks, it is possible to say that that person is not motivated enough for the target (Ball, 2012). In another aspect, Lai (2011) expresses motivation as underlying causes of human behavior. People's taking action to do something is directly related to their motivation. Usher and Kober (2012) argue that many reasons decrease and increase motivation and solving them is very complex. When

motivation is viewed from the perspective of an organization, it is explained as encouraging the employees to move in the targeted direction and reaching the result. At this point, the company has several responsibilities for the employees to reach the target motivation. First of all, it is necessary to provide basic conditions such as providing a suitable environment for working and payment of wages. After these basic redeemed conditions, the relevant department's effort to increase the motivation of the employees will enable the business to act in a motivating structure (Çiçek, 2005).

Motivation Theories

In the study, from motivation theories; Maslow's hierarchy of needs, Herzberg's motivation/hygiene theory, Vroom's expectation theory, and finally Keller's learning motivation model used in the method of the study have been examined.

Maslow's Hierarchy of Needs: In 1954, Maslow first published Motivation and Personality, which laid down his theory about how people meet various personal needs in the context of their work. Based on his observations, he argued that there is a general need recognition and satisfaction model that people generally follow in the same order (Gawel, 1996). Maslow's hierarchy of needs theory was formed with the idea that people always tend to want something and what their desires are (Haque et al., 2014). The theory consists of five stages. These are physiological needs, the need for security, the need for love and belonging, the need for respect-prestige-ego and self-realization (Koltko-Rivera, 2006).

Herzberg's Motivation/Hygiene Theory: Understanding what motivates people in their work-life is very important for anyone trying to become a manager. Herzberg is known as one of the best theorists of motivation research. In particular, motivational ideas in hygiene-motivation theory are crucial to help the average manager understand what motivates people. This theory has tried to explain the needs and desires of individuals and what these factors are that motivate them to meet these desires (Ball, 2013).

Vroom's Expectation Theory: Expectation theory refers to the decision theory of work motivation and work performance. The common theme of these theories is that an individual realizes his motivation at a certain level of effort (Ferris, 1977). Expectation theory is built on four assumptions. The first assumption is people's expectations of businesses about their needs, motivations, and past experiences. The second assumption is that an individual's behavior is the result of a conscious choice. The third assumption is that people want different things from the organization. The fourth and final assumption is that people choose among alternatives to optimize results (Lunenburg, 2011).

Learning Motivation (ARCS Model): This model is derived from the motivation, performance, and instructional effect theory developed in the late 1970s. Keller's model of motivation, performance and instructive effect is a macro theory that defines a network of relationships of personal and environmental characteristics on effort, performance, and outcomes. More specifically, in a motivational context, effort, motives, or values are assumed to be the result of anticipation of success. Also, it serves to confirm or deny the expectations. This theory is based on the synthesis of many research areas related to human motivation. Its purpose is to help

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answer the questions about how to design motivational strategies with instructions to encourage or sustain learning (Keller, 2000; Wongwiwatthananukit & Popovich, 2000).

Generational Differences in Learning Motivation: Technology is seen as inevitable in terms of learning motivation and materials. Technology is used intensively in the development of social learning habits and rapid access to information of generation Z (Voller, 2010). Generation Z refers to the group born after 2000, including the late 1990s. This generation forms the population currently studying at universities. It is possible to say that this generation, which grew up in a period of rapid technology change, was born into technology. For this reason, their use of digital technologies is very important in terms of adapting to the period in which they live (Afshar et al., 2019). In generation Z, the educational structure has almost completely changed. Their conflicts with generation Y come into play precisely at this point. The transformation of education and training materials to digital is very difficult for generation Y. It can even be said that in some periods, they almost seem to speak different languages than each other. Although generation Y, who has received their education with the traditional method, can use technological tools to a certain extent while providing education, they cannot fully satisfy generation Z, which is the technology generation. Another difference seen between generations is the fact that unlike generation Y, who act collaboratively, Generation Z is very individualistic. These students, who are accustomed to fast information flow and process information differently, want to do their learning in the form of speed, nonlinear processing, multitasking, efficient use of technology, individuality, and personalized work (Kulcsar, 2020).

The Relationship Between Virtual Reality and Learning Motivation

Technology has recently been acting as a major tool in providing easy access to information. The 21st-century student generation is in great interaction with technology. It is possible to say that this interaction is increasing every day. Experts in the field of pedagogy state that technology integration is useful, meaningful, and necessary for a school to function successfully. However, it is stated that many teachers are reluctant to use technology. It is possible to say that students are curious but also anxious about technology. Although this anxiety reflects negativity on students' motivation, it is seen that students' motivation to learn with technology, in general, is higher. Learning motivation and the effects of technology on nonselective education should be taken into account to create a 21st-century classroom in which students' needs can be fully supplied (Francis, 2017). The determination of factors that increase students' motivation to learn continues to be intensively investigated by education researchers. As web-based learning, digital tools, and advanced technologies become more easily accessible, the focus is on student motivation and the relationship with technology (Wieking, 2016). Özdemir (2015) has investigated the effect of technology on the learning-teaching process and motivation in his study with semi-structured interview technique. In the study, it has been concluded that the use of educational technologies in the Science and Technology course contributes positively to the teaching-learning process. Godzicki et al. (2013) has found that when technology is used, students are more likely to participate in classroom activities. Besides that, based on the results of the action research project, teachers have stated that students are more motivated in using technology, and their interest in learning increased. The technology-supported learning environment has increased student motivation and participation by 9 % after the intervention period.

The development of technology constantly continues. It is possible to say that virtual reality, which is one of the utmost points reached in this field, is one of the tools used extensively in education. Virtual reality is a technology with useful features for education. It is interactive and it presents the environments to the students in 3D and besides, it has some features such as visualization, audibility and even giving tactile feedback. It is stated that the presentation and visualization of learning materials in 3D is important in terms of teaching. Visualization with simple video in classes offers students a simple way of learning. Virtual reality technology allows direct interaction with the environment. Interactive learning has many benefits for students. The most important of these is to transform passive learning activity into active learning (Alcoat & Mühlen, 2018). When considered from another perspective, it is stated that virtual reality technology is more interesting than its interactions with real arguments because it presents boring materials to students in a game format even while learning. It has been concluded that it creates an increase not only in adult students but also in children's motivation (Wang, 2017).

The Method of the Research

In the research, the quantitative research method, experimental design, and questionnaire technique have been used. Experimental studies are usually conducted in artificial environments to test and compare the cause and effect relationship (Goertzen, 2017; Mazlum & Atalay, 2017; Başol, 2008). Thus, an experimental design has been preferred in the study to reach cause and effect relationship by measuring students' motivation with Keller's (2010) ARCS Motivation Model. Participants included in the sampling have been divided into two separate groups. Then, in the form of pre-test and post-test, the fine details of the Selimiye Mosque in Edirne Turkey during the construction phase, the abilities of Mimar Sinan, and the information about the features preserved in the current period have been shown with virtual reality (VR) and video method. In this context, the Selimiye Mosque in Turkey, which is seen with the video method (pre-test) in the last period by students who applied in the world video conferencing system has been the preferred course. In the course created by video conference, the information has been shown to the students online. The same information was followed to the post-test group in the classroom with equipment such as virtual reality glasses and headphones. Regarding these two methods, the motivations of the participants have been compared in terms of the content of the course and the tools. According to Özen and Gül's (2007: 416) and Jenkins, (2020) 30 experimental subjects are recommended for each group in causal-comparative research and many experimental studies. In experimental studies conducted with strict controls, 15 experimental subjects can be taken for each group. 60 students have been included as an experiment (30) and control (30) groups to the study.

Research Problem and Hypotheses Development

In previous studies on technology in the field of education, the use of many technological devices has been encountered (Augmented reality, projection, computer-based classes). However, there is no study on virtual reality. Therefore, virtual reality technology, which is thought to affect students with its immersion, interaction, and virtual world feature, has been chosen as the instrument to be used in the study. Besides the many countries, measurements have been done in several groups (Science, Mathematics and English teaching in Turkey, USA, Europe) but all of them in any country related to tourism students and tourism motivation

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measurements on education has not been demonstrated in any study. As a result, the question, "Does the use of virtual reality in tourism education make any difference in students' motivation?" has become a problem and Keller (2010) has decided to measure the ARCS learning motivation dimensions.

In line with this problem, hypotheses have been developed using previous studies in the literature. In these studies, it is seen that advanced technology supports student motivation in many ways. Chuang (2014) states that since technology-assisted learning is fun, interesting, and practical, it makes students more active in the classroom and is effective in asking for more information. While it increases their motivation for learning and their interest in learning, it also makes them pay more attention. In another aspect, Chang, Jui-Hu, Wei Chiang, and Lugmayr (2020) state that the use of advanced mobile augmented reality facilitates the courses. For this reason, they have stated that the use of this tool in the courses increases the motivation of the students and accelerates their learning processes. Besides, Gülbahar (2007) states that for the successful adaptation of theoretical knowledge to practice, it is necessary to define the role of technology in teaching-learning and management processes. The contributions of technology use in schools support traditional classroom environments, open the classroom to the outside world, and increase student success.

After the literature review done above, the hypotheses of the research have been formed according to tourism education and Keller, 2010.

- *H1* There is a statistically significant difference between virtual reality and video methods in learning motivation.
  - *H1a* There is a statistically significant difference between virtual reality and video methods in terms of attention dimension in learning motivation.
  - *H1b* There is a statistically significant difference between virtual reality and video method in terms of satisfaction dimension in learning motivation.
  - *H1c* There is a statistically significant difference between virtual reality and video methods in terms of confidence dimension in learning motivation.
  - *H1d* There is a statistically significant difference in learning motivation between virtual reality and video method in terms of interest-relevance dimension.
- *H2* There is a statistically significant difference in learning motivation between virtual reality and video methods in terms of success.

According to the results obtained from the findings of the research, while H1 and H1a have been supported, H1b, H1c, H1d, and H2 have not.

The Purpose and Importance of the Research

Visualization made with simple video in the courses offers students simple learning. Virtual reality technology allows direct interaction with the environment. Interactive learning has many benefits for students. The most important of these is to transform passive learning activity into active learning (Alcoat & Mühlen, 2018). As a result of the literature review, the conclusion that the use of virtual reality in tourism education is a subject that has not been studied sufficiently yet reveals the unique value of the research.

The research has been designed to propose passive learning as well as active learning to tourism students studying in institutions training intermediate staff or managers in the field of tourism. Apart from traditional learning, virtual reality offers to students;

- Learning experience by feeling themselves where the work is done well
- To make the course interesting with the three-dimensional multi-teaching method.
- Interactive learning
- Permanent experience with the immersion feature
- Virtual internship as well as practice internship
- Different opportunities such as increasing the applicability of theoretical courses

Findings of the Research

In the research, the participants have been divided into two groups as experiment and control. The course has been first watched by the experimental and control groups by video method. Later, while no action has been applied to the control group, the experiment group has been re-watched by the virtual reality method. In the study, the findings obtained as a result of statistical analysis of the data obtained before and after the experiment are included. In this sense, firstly the reliability and validity of the scale, then the pre-test independent group t-test of the independent groups, and the pre-test and post-test differences of the dependent groups have been measured with the dependent group t-test. Experimental and Control Group (pre-test) reliability coefficient ratios have been 0.887, Virtual reality and Video (post-test) reliability coefficient has been 0.903 highly reliable.

Table 1. Experiment Group and Control Group Analysis of Differences Independent T-Test Pre-Test

	Experiment Average	Control Average	p
Total (H1)	3,8389	3,8648	0,813
Attention (H1a)	3,8250	3,9139	0,553
Satisfaction (H1b)	4,1611	4.2611	0,452
Confident (H1c)	3,6556	3,6148	0,772
Interest-Relevance (H1d)	3,8259	3,7852	0,690
Success (H2)	1,2083	1,1750	0,464

In the total averages of the dimensions, it has been observed that the average motivation score of the control group is higher than that of the experimental group. Likewise, the ratio of the control group in attention and satisfaction dimensions is higher than the experimental group. It is seen that the average of the experimental group is higher in the dimensions of confidence, interest-relevance, and success. However, these differences are not statistically significant at a 95% confidence interval according to the independent sample t-test result ($p > 0.05$).

As a result of the application, it has been concluded that there are some differences between the experimental group and the control group averages, but there is no significant difference between the two groups at a 95% confidence interval. In general, it is possible to say that the participants have similar characteristics in terms of all dimensions. This part of the study, it is aimed to reach the result of homogeneous distribution of the groups. When the difference analysis between the groups has been examined, it has been concluded that they have shown a homogeneous distribution.

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Table 2. Virtual Reality Technology Difference Analysis With Video Lecture Dependent T-Test Pre-Test and Post-Test

	Video Average	Virtual Reality Average	p
Total (H1)	3,5758	3,8075	0,044
Attention (H1a)	3,8243	4,2503	0,008
Satisfaction (H1b)	4,1610	4,4610	0,089
Confidence (H1c)	3,6553	3,9300	0,120
Interest-Relevance (H1d)	3,8260	3,8563	0,781
Success (H2)	1,2083	1,1167	0,078

In the second experimental phase of the study, virtual reality and video technology difference measurement (post-test), the average of the virtual reality technology in the total of the dimensions (0,044) is higher than the video method and it is statistically significant at the 95% confidence interval according to the dependent sample t-test result has been found significant ($p < 0.05$)

Although the virtual reality method averages of attention (0,008), satisfaction (0,089), trust (0,120), and interest-relevance (0,078) are higher than the video method, only the attention average is statistically significant at the 95% confidence interval according to the dependent (related) sample t-test result ($p < 0,05$). Unlike the others, it is seen that the rate of people in the video method is higher in measuring success (0.078). However, this result is not statistically significant.

Based on these findings, it is possible to say that students who are educated with virtual reality technology are more motivated. Besides, it is thought that their attention to the course will be higher since they are not affected by external factors that distract them because they are in a completely simulated world. It is expected that there will be a serious improvement in the long-term performance of the students who carry out the course activities carefully.

Conclusion and Recommendations

In the field of education and training, it is aimed to ensure that students participate in the course in an excited, active, and enthusiastic manner. Institutions operating in this field are working to ensure that the courses are taught most efficiently. Especially since the beginning of the 21st century, which is called the technology age, all institutions aim to train students by making technological innovations. In this direction, they follow the development of technology and create new methods. When the latest technology has been examined, it is possible to talk about several experiences that people had difficulty imagining before. With virtual reality technology, which is one of these experiences, it is thought that students who feel themselves fully involved in the course activity will participate with greater excitement, desire, and motivation. This technology used by only some institutions is very new and this is why it is not known by many institutions. However, it is thought that its awareness and use will increase in the coming years and that it will be of great importance.

The study has been designed to measure the differences in using virtual reality and video methods in tourism education learning motivation and the effect of virtual reality on students. The population of the study is composed of students in Tourism Department at Çukurova University, Turkey and the sample consists of students from the School of Tourism and Hotel Management in Çukurova University, Turkey. 60 students participating in the study have been

selected with convenience sampling, experimental design has been used in the research, and experimental data have been collected by questionnaire technique. In line with the purpose of the study, the data obtained by the survey technique have been analyzed by independent (unrelated) groups t-test and dependent (related) groups t-test.

When the similarities obtained in the first stage are examined; there is no significant difference between the experimental and control groups. Besides, no significant difference has been observed in Attention, Trust, Satisfaction, Interest-Relevance, and Success dimensions. Based on these results, it is possible to say that the two groups of participants have similar characteristics. Thus, the validity of the choice of the experimental group has been ensured.

In terms of the purpose of the study, in the final test phase where the main experiment has been conducted, the experiment group whose learning motivations have been measured by having a video watched has been carried out as a post-test. The differences of the experimental group's learning motivations for the video and virtual reality application have been analyzed through the pre-test and post-test dependent groups t-test, and only a significant difference has been observed in the Attention dimension. While there is a significant difference in attention dimension, there is no significant difference between Confidence, Satisfaction, Interest-Relevance, and Success. However, a significant difference has been found as a result of the difference test applied for the total motivation to learn, including all dimensions. Based on the findings, it is seen that the average of the total learning motivation towards VR application and the attitude towards the dimension of attention are higher with a significant difference compared to the video application.

Remarkably, there is no difference in terms of virtual reality and video method in the dimensions of learning motivation, Confidence, Satisfaction, Interest-Relevance, and Success. This result is thought to be since the participants of the research sample consist of individuals called the digital generation who tend to use digital tools effectively, they have habits of using these products in different areas or they are not dominant in creating surprising value. In this context, it is interpreted as perceiving the use of virtual reality in education as an expected, possible, or in other words a necessary situation for students. On the other hand, it is also emphasized that although they are used to the digital age, students may be confused by this technology and hesitant to accept it.

- Handled as a problem during the design phase of the study, the question, “Does the use of virtual reality in tourism education makes any difference in students' motivation?”, have been answered with the findings of the research as follows.
- It has been observed that there is a significant difference in the learning motivation of the students. However, this difference is not supported by all dimensions. For this reason, it is thought that it is a subject that preserves its originality for the design of new studies and the results can vary in many ways.

The results of the studies in the literature (Di Serio, Ibáñez & Kloos; Chiang, Yang & Hwang; Estapa & Nadolny; Gopalan, Zulkifli & Abubakar; Khan, Johnston & Ophoff; Chin, Wang & Chen) have been compared with this study. As a result of this comparison, it is seen that although the students abstain from certain dimensions, their motivation is high while studying with advanced technology as a whole. Based on these results, it is thought that the awareness of

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students and teachers about using advanced technology in courses will increase students' motivation as well as increase their level of success.

The recommendations of the study, which aims to measure the effect of virtual reality on the motivation of learning in tourism education, are as follows; it is recommended that public and local administrations give necessary support to institutions and prepare grounds for the course to be conducted with this method, that the public works on the subject and that at least some of the courses are given to the students with this method, and that local governments provide resources for institutions to design courses by creating different experiences for students with advanced technology. In this case, it will not be sufficient for only public and local governments to provide resources. Some formations are also required to support this. The sector, which will provide great changes and developments in its structure with motivated students, should take important duties and responsibilities in this situation. The use of this method in the training that will be given to students especially during the internship period is thought to give a more permanent result. For this reason, it is recommended that students who have stepped into the sector for the first time use virtual reality technology to increase their learning enthusiasm and increase retention. One of the most important factors in the development of a sector is that the academy and the sector act together. If they act together, they can focus on common problems and receive really useful support from local and general governments. In this sense, the study makes several suggestions for future studies besides the sector. Researches on the use of advanced technology virtual reality in tourism education have not been found in the literature. Researchers are recommended to work on this subject. At the same time, it is observed that the motivation of tourism students with this method is higher. From this point of view, it is suggested to design new studies on learning methods and tools. Finally, using different methods and techniques in the work to be done will provide different results. In this sense, it is recommended to identify and use unused techniques and methods while designing research.

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