

## An Examination of Postgraduate Theses on Kolb's Experiential Learning Theory in Türkiye

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*The aim of this study was to examine the postgraduate theses written on Kolb's Experiential Learning Theory between 2002 and 2022 in Türkiye. In this purpose, 56 of postgraduate theses registered in the Thesis Centre of Council of Higher Education were examined. In addition to their perspectives on Kolb's Experiential Learning Theory, graduate theses were examined in terms of graduation degree, date of completion, university they were completed, title of advisors, sample group studied and research design. The study was carried out through document analysis that is one of the qualitative research methods. In this study it was revealed that the theses examined focused on only learning styles and ignored experiential learning cycle and other components of the Experiential Learning Theory.*

**Keywords:** *experiential learning, Kolb's Experiential Learning Theory, content analysis*

### Introduction

Experiential learning is based on pragmatism that emerged in the 1870s. David A Kolb, who defined learning as the process in which experiences turn into knowledge, has been working on Experiential Learning Theory since the 1970s. Kolb is still actively sharing research and updates on Experiential Learning Theory with the academy. Kolb explained experiential learning as a philosophy and a cyclical process that promotes learning by experience. In this process, Kolb was influenced by researchers who had carried out important studies and are considered pioneers in their field. For instance, W. James's studies enabled Kolb to study the concepts of conscious experience and metacognition and to focus on the relationship between abstract concepts and concrete experiences (Evans 2008). Dewey's studies, which draw attention to the importance of individual experiences in learning, have been important in shaping the Experiential Learning Theory. Dewey, like James, argued that development is possible through the transformation of abstract ideas into actions. Another name who influenced Kolb during the development of Experiential Learning Theory is Mary Parker Follet. Follet focused on the terms of interdisciplinary perspective, experience, and interaction. Lewin's ideas on action research also influenced Kolb's studies of the experiential learning cycle and learning spaces (Kolb and Kolb 2005). In addition, Piaget who described intelligence not as an innate feature but rather as the result of interactions between

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individuals and their environment, Vygostky who structured the theory of socio-cultural theory, Jung who revealed the theory of psychological types, Rogers who focused on deep experience and the individual's self-realization process, and Freire's studies which state that personal experiences provide individuals with the opportunity to relate their past with newly learned ones, also inspired Kolb (Evin Gencel and Erdoğan 2022, Evin Gencel et al. 2021, Giroux 2010, Kolb and Kolb 2017).

With the Turkish Ministry of National Education's adoption of the constructivist approach in learning since 2005, the number of research on learner-centered practices and graduate theses on Kolb's Experiential Learning Theory have increased. Kolb's Experiential Learning Theory, which is based on the studies of the important scientists briefly mentioned above, has a deep philosophy, but it has been observed that the studies on the Experiential Learning Theory in Türkiye are only concerned with the classification of learning styles, which are only a part of the theory. In other words, the experiential learning cycle and the philosophy underlying experiential learning are neglected. Therefore, in the current study, it is aimed to perform a descriptive analysis of the postgraduate theses written from 2002 which is the date of the first postgraduate thesis written on Kolb's Experiential Learning Theory, until 2022 in Türkiye. Thus, it is aimed to examine the dimensions of Experiential Learning Theory, which is discussed in those theses, and to draw attention of the researchers studying on Experiential Learning Theory to this issue.

## Literature Review

Kolb has presented the experiential learning process in a holistic and concrete model that has been accepted all over the world (Evin Gencel 2020). According to the experiential learning theory, individuals have concrete experiences as a natural result of their interactions with their environment. Each individual observes and reflects her/his experiences in different ways. Those reflections are effective for individuals to reach abstract concepts, principles, and generalizations. The generalizations they reach, guide further experiences and learning. This process continues as a cycle. This cycle continues as concrete experience, reflective observation, abstract conceptualization, and active experimentation, respectively (Baker et al. 2002, Kolb 1984, 2000, Yoon 2000). The learning cycle should be considered as a spiral in which a learning-teaching activity is organized for each stage (Kolb & Kolb, 2005).

The two fundamental principles in the Experiential Learning Theory are explained as learning is the result of experiences, and individuals do not always learn in the same ways. In this context, it can be said that the Experiential Learning Theory is a constructivist learning theory defined as learning by doing (Burns and Danyluk 2017). According to Kolb and Kolb (2005), learning is a continuous and cyclical process, all learning is re-learning, individual differences guide the learning process, and learning can be defined as a holistic process that includes knowing, thinking, feeling, perceiving and behavior. Learning styles have been classified

with different combinations of different learning modes revealed in the experiential learning cycle (Kolb 2000, Schenck and Cruisckshank 2015) and this classification is one of the important components of the theory. Learning preferences may differ depending on the genetic structure and experiences of individuals. Accordingly, four basic learning styles were initially classified, namely diverging, assimilating, converging, and accommodating (Kolb 2000). As a result of experimental and clinical research findings, those four learning styles were replaced by nine learning styles named initiating, acting, experiencing, balancing, reflecting, imagining, analyzing, thinking, and deciding. Thus, a more flexible and inclusive structure was created (Evin Gencil et al. 2021, Kolb and Kolb 2013).

Teaching in line with the learning cycle and in accordance with different learning styles brought along the need to reorganize the role of educators. In this context, the educator role profile has been introduced as a part of the Experiential Learning Theory. The educator role profile provides a better understanding of educators' roles in the learning cycle regarding how instruction should be structured throughout the learning cycle. The educator role preferences are introduced in four groups namely facilitator, expert, evaluator, and coach, depending on the educators' beliefs about teaching and educational practices. It is emphasized that this structure can be used not only for teachers, but also for all individuals who have a teaching role in various areas of life, such as leaders, trainers, parents, and friends (Kolb and Kolb 2017).

Another important component in the Experiential Learning Theory is the concept of learning space. The learning space should be safe, supportive, but also challenging for learners. It should be ensured that learners are responsible for their own learning processes. The learning spaces include not only the physical environment but also the cultural, institutional, social, and psychological components of learning. Reflective thinking, deep learning and continuity of the experience are important components to consider when creating a learning space (Kolb and Kolb 2013, 2017).

The Experiential Learning Theory has a multidimensional structure. However, it is noteworthy that there are few studies in the literature that deal with these dimensions holistically. Some examples of studies that apply Experiential Learning Theory with its various dimensions can be summarized as follows. Abdulwahed and Nagy (2009) applied experiential learning in chemical engineering laboratory education and determined that the experimental group achieved their learning goals at a significantly higher level than the control group. Healey and Jenkins (2000) revealed that experiential learning is a model that can be applied in geography teaching. Towns (2001) also provided education in accordance with different learning styles during the experiential learning cycle in chemistry education, Baker et al. (2012) adapted experiential learning as a comprehensive agricultural education model and reached positive findings. Lisko and Valerie (2010) revealed that Kolb's Experiential Learning Theory can be an alternative strategy in nursing education. Evin Gencil (2008) applied the experiential learning cycle in social studies education and determined that the cognitive and affective characteristics of the students in the experimental group had significant positive effects when compared to the control group. However, the number of studies

focusing only on learning styles, both in Turkey (Coşkun and Arslan 2021, Dikmen et al. 2018, Durukan 2013, Ekici 2013, Ergür 2000, Gokdag Baltaoglu and Guven 2019, Koçakoğlu 2010, Kılınç and Güzel 2022, Ozgur 2013, Peker Ünal 2021, Peker and Mirasyedioğlu 2003, Sırmacı 2010, Senyuva 2009, Seyhoglu 2010, Tuna 2008, Guven and Kurum 2007, Ustabulut 2021, Yılmaz and Altun 2015, Yigit and Nevruz 2019) and in other countries (Agustino and Pertiwi 2021, Fahy 2005, Federico 2000, Golightly 2019, Goodridge et al. 2017, Lu et al. 2007, Simpson and Du 2004, D'Amore et al. 2012, Kaur et al. 2020, Castro and Peck 2005, Kim and Roh 2007, Jones et al. 2010, Nurasma and Kaur 2020) are higher.

As can be seen, different findings have been reached in research on experiential learning. In terms of being comprehensive research in postgraduate theses, examining the contributions they provide to this field, the subjects they examine or neglect, and the determination of research trends will contribute to the literature. Staton-Spicer and Wulff (1984) argue that the most appropriate way to study a research field is to analyze research in that field. It will also help researchers in their careers and scientific publications by providing information about current research and trends in their field (Lee et al. 2009). The fact that the studies in the literature mostly focused only on learning styles brought up the idea of examining this situation in postgraduate theses. It was decided to examine whether the postgraduate theses on Kolb's Experiential Learning Theory deal with the theory in all its aspects. It is also important in terms of revealing the research trend and the gaps in the field.

Examining which dimensions of the theory are studied in postgraduate theses on the Experiential Learning Theory can provide important clues about the subject tendencies of the research. Such studies can contribute to the process of considering the neglected dimensions of the field by researchers, together with the determination of the most intensively studied subjects in the field. Examination of scientific research methods applied in graduate theses written on Experiential Learning Theory is important in terms of providing important information about the methods frequently used in research. In this context, it is thought that future research in this field will make important contributions by examining the theses written in the 20-year period between 2002-2022 on experiential learning theory in Türkiye. The findings of this study can be a valuable reference source for researchers in terms of presenting current trends in the field in terms of subject, method, and analysis techniques. Thus, with this study, it is aimed to contribute to the development of the field of Experiential Learning and to provide data to researchers who will work in the field.

All postgraduate theses completed in Türkiye can be accessed online from the Thesis Centre of Council of Higher Education. It is determined that the first post graduate thesis on experiential learning in Türkiye was completed in 2002 and 56 postgraduate theses have been completed since then. So, in this study, 42 master's thesis, 13 doctoral dissertations, and 1 proficiency in art thesis were examined. Postgraduate theses were examined in terms of their perspectives on Kolb's experiential learning theory, graduation degree, date of completion, university they were completed, title of advisor, study group and research design.

## Method

The study was carried out through document analysis, one of the qualitative research methods. Document analysis includes the analysis of written materials containing information about the event or facts to be investigated. Document analysis is also the process of reviewing or evaluating materials and documents transferred from a computer environment and over the internet, apart from written materials, from certain aspects, and it is carried out through superficial examination, detailed reading, and interpretation steps (Bowen 2009, Corbin and Strauss 2008).

The sampling of this study consisted of 56 graduate theses completed between 2002-2022 on Kolb's Experiential Learning Theory in Türkiye. In order to obtain data, keywords such as "Kolb's Experiential Learning Theory", "Learning Styles", "Kolb's Learning Styles", "Experiential Learning" were searched in the Higher Educational Council database (<https://tez.yok.gov.tr/UlusalTezMerkezi/istatistikler.jsp>). Content analysis provides the opportunity to compare the contents of many texts or documents by converting them into tables and charts. In addition, characteristics such as trend, frequency, density, and area are determined according to the research questions (Neuman 2011). In this study, a form was developed to examine the theses in terms of graduate degree, completion year, university and institute, title of advisor, sampling group, methods, perspective on Experiential Learning Theory. Findings are presented with frequency tables.

To ensure the confirmability of the research and to prevent researcher bias, the content analysis process was carried out by two different researchers. After this process, it was determined that the percentage of the agreement was 91%. For improving the credibility of the study, the public link where the theses are accessed, the searched keywords are shared in the current study. To ensure the transferability of the current study, the research method, data collection and interpretation process were explained in detail.

## Findings

Postgraduate theses on Kolb's Experiential Learning Theory in Türkiye were examined in terms of "graduation degree", "year", "university and institute", "advisor titles", "sample group", "research designs", "perspective on Experiential Learning Theory" and the findings were presented with frequency tables.

**Table 1.** *Distribution of Examined Theses in Terms of Graduation Degree*

Degree	f
Master of Science/Education	42
Doctor of Philosophy	13
Proficiency in Arts	1
Total	<b>56</b>

As seen in Table 1, 42 of the postgraduate theses were at master's level, 13 of them were at doctorate level and one of them was at proficiency level in art. The

distribution of those theses in terms of the years they were completed is shown in Table 2.

**Table 2.** *Distribution of Examined Theses in Terms of the Years they were completed*

Year	f	Year	f
2002	1	2012	3
2003	0	2013	5
2004	1	2014	3
2005	0	2015	3
2006	1	2016	3
2007	1	2017	1
2008	2	2018	5
2009	3	2019	8
2010	6	2020	3
2011	5	2021	1
		2022	1
Total			<b>56</b>

As can be seen in Table 2, only 2 of postgraduate theses on experiential learning were completed until 2005. The constructivist learning approach was adopted in Türkiye in 2005 and then it is seen that the thesis on experiential learning were completed every year. According to the Table 2, it is seen that the first thesis on Kolb's Experiential Learning Theory was completed in 2002. Table 2 shows that the highest number of these were written in 2019 (f=8) and then in 2010 (f=6). In 2002, 2004, 2006, 2007 and 2017 one thesis was completed each year in while no thesis was completed in 2003 and 2005.

The distribution of theses in terms of the universities they were completed is shown in Table 3.

**Table 3.** *Distribution of Examined Theses in Terms of the Years they were completed*

University	f	University	f
Abant İzzet Baysal University	2	Kocaeli University	1
Adnan Menderes University	2	Marmara University	3
Ahi Evran University	1	Mehmet Akif Ersoy University	2
Akdeniz University	2	Muğla Sıtkı Koçman University	2
Anadolu University	2	Necmettin Erbakan University	2
Ankara University	1	Ondokuz Mayıs University	2
Dokuz Eylül University	5	Onsekiz Mart University	4
Dumlupınar University	1	Orta Doğu Teknik University	1
Düzce University	1	Osman Gazi University	1
Fırat University	2	Siirt University	1
Gazi University	4	Trakya University	1
Hacettepe University	2	Uşak University	1
İnönü University	2	Yıldız Teknik University	2
İstanbul Bilgi University	1	Kara Elmas University	2
Kara Harp Okulları	1	Karadeniz Teknik University	1
İzmir Demokrasi University	1		

As can be seen in Table 3, postgraduate theses on Kolb's Experiential Learning Theory have been conducted in 30 different universities since 2002. Türkiye consists of seven geographical regions. When the distribution of universities in the Table 3 is examined, it is seen that postgraduate theses on The Experiential Learning Theory of Kolb were written in all seven geographical regions of Türkiye.

The distribution of theses in terms of the institutes they were completed is shown in Table 4.

**Table 4.** *Distribution of Examined Theses in Terms of the Institutes they were completed*

Institutes	f
Educational Sciences	32
Social Sciences	13
Natural and Applied Science	8
Other	3
Total	<b>56</b>

According to Table 4, it is seen that the highest number of theses on Kolb's Experiential Learning Theory were written in the Institute of Educational Sciences (n=32), followed by the Institute of Social Sciences (n=13) and Natural and Applied Science Institutes (n=3) respectively.

The findings regarding the distribution of the titles of the advisors of the postgraduate theses on Kolb's Experiential Learning Theory are presented in Table 5.

**Table 5.** *Distribution of Examined Theses in Terms of the Titles of Advisors*

Title of the Advisors	f
Assistant Prof.	16
Associate Prof.	18
Prof.	22
Total	<b>56</b>

According to Table 5, the advisors of 22 theses were professor, 18 of these were associate professor, and 16 of these were assistant professor. The number of theses supervised by professors were higher than that of other academics. However, it can be said that the numbers are close to each other when we look at the number of theses completed in terms of the titles of the advisors.

The distribution of theses in terms of sample group is presented in Table 6.

**Table 6.** *Distribution of Examined Theses in Terms of the Sample Group*

Sample Group	f
Elementary School Students	4
Middle School Students	13
High School Students	10
Undergraduate Students	25
Teachers	4
Total	<b>56</b>

As can be seen in Table 6, the sample groups of the theses examined mostly consisted of undergraduate students ( $f=25$ ). This was followed by secondary school ( $f=13$ ), high school ( $f=10$ ), primary school students ( $f=4$ ) and teachers ( $f=4$ ), respectively.

Findings regarding the distribution of postgraduate theses on Kolb's Experiential Learning Theory in terms of research designs are presented in Table 7.

**Table 7.** *Distribution of Examined Theses in Terms of the Research Design*

Research Design		f
Quantitative	Correlational Research	33
	Descriptive Research	3
	Experimental Research	10
Qualitative	Phenomenological Research	1
	Case Study	2
Mixed	Triangulation Design	5
	Explanatory Design	2
Total		<b>56</b>

As stated in Table 7, it is seen that the most applied method in the theses examined was the quantitative research method ( $n=46$ ), followed by mixed ( $n=7$ ) and qualitative ( $n=3$ ) research methods, respectively. When the theses are examined in terms of method, it is seen that the most preferred one is Correlational Research Design.

The distribution of the examined theses in terms of perspective on The Experiential Learning Theory is presented in Table 8.

**Table 8.** *Distribution of Examined Theses in Terms of Perspective on the Experiential Learning Theory*

Perspective	f
Learning Styles	52
Learning Styles and Learning Cycle	3
Educator Role Profile	1
Total	56

As seen in Table 8, 52 of postgraduate theses focused only on learning styles, ignoring other components of the Experiential Learning Theory. Table 8 shows that learning styles and the experiential learning cycle are considered together holistically in only 3 theses. The Educator role profile has been the subject of only one thesis.

The main findings and recommendations of the examined postgraduate studies are presented in Table 9. Table 9 has been included in the Appendix as it was too large to be presented within the main body of this study. As can be seen in Table 9, studies have been conducted in different educational levels and fields such as mathematics, science, social studies, nursing, art, and sports. The number of studies involving teacher candidates and teachers as participants is also high. It is noteworthy that the studies are mostly descriptive and focused on the distribution of participants' learning styles. The relationship between learning



styles and variables such as academic achievement, attitudes towards classes, critical thinking tendency, and teaching strategies has been frequently examined. It is also notable that Kolb's experiential learning cycle has been implemented in postgraduate theses completed in 2006, 2021, and 2022. Apart from these studies, a small number of intervention studies have been conducted in the teaching process, where the design was not aligned with the experiential learning cycle, but some activities compatible with learning styles were implemented. It is worth noting that among all the examined postgraduate studies, there is a lack of a postgraduate thesis focusing on the nine styles that extend Kolb's four basic learning styles. In the current study, which included the last two years, 2021 and 2022, it can be interpreted that there is a tendency from descriptive studies towards practical applications, considering the examination of both learning styles and the experiential learning cycle.

### **Discussion and Conclusion**

In this research, postgraduate theses on Kolb's Experiential Learning Theory written between 2002-2022 in Türkiye were examined in terms of degree, year, university, institute, advisor titles, sample group, research designs, and perspective on the Experiential Learning Theory.

When the postgraduate theses on Kolb's Experiential Learning Theory were examined, it was seen that most of the theses were written at the Master of Science/Education level. In this case, it can be said that doctoral dissertations that can examine the subject of Experiential Learning Theory more comprehensively and deal with this subject from different perspectives should be done. When examined according to the year theses were completed, it was seen that the first thesis on experiential learning was written in 2002 (Kılıç 2002) and only the learning styles of the participants were examined descriptively in that thesis. The Ministry of National Education in Türkiye has adopted the constructivist approach in learning since 2005. As a result of this development, it has been observed that the number of research and postgraduate theses on learner-centered practices related to Kolb's Experiential Learning Theory has increased. The first holistic thesis in Türkiye on Kolb's Experiential Learning Theory was written in Evin Gencil (2006), at the doctorate level. It has been observed that there has been a decrease in the number of theses on experiential learning since 2020. This may be due to the fact that education has been suspended for a long time because of COVID-19 Global Pandemic, which has been effective all over the world since 2020.

Since 2002, postgraduate theses on Kolb's Experiential Learning Theory have been written at 31 different universities in seven geographical regions of Türkiye. It can be said that the data on experiential learning are provided from all regions of Türkiye. In the future, meta-analysis and meta-synthesis studies on those theses can provide comprehensive data.

It was seen that most of the theses on Kolb's Experiential Learning Theory were written in Educational Sciences Institutes and the sample groups of the theses

examined mostly consisted of undergraduate students. In future studies, it may be recommended to examine different sample groups and to carry out studies to compare the obtained data. Especially, if applied studies are carried out in which teachers are selected for the sample group, it can be ensured that teachers' competencies about experiential learning are increased.

It has been determined that the theses on Kolb's Experiential Learning Theory were generally carried out in accordance with quantitative research methods. The studies which were carried out with qualitative and mixed methods can contribute to the literature. The most remarkable result of this research is that most of the theses examined were descriptive studies focusing only on learning styles.

A study examining the theses written on experiential learning in the literature could not be found. Comparative analysis of postgraduate studies conducted on Kolb's Experiential Learning Theory across various countries can provide valuable contributions to the literature. In this study, postgraduate theses on Experiential Learning Theory in Türkiye were examined. Similar studies can be carried out by examining manuscripts published in peer reviewed journals.

The Experiential Learning Theory is based on the study of many important scientists and has a deep philosophy. Although learning styles are an important component of this theory, the concept of learning styles should not be considered independent of other important components of the theory such as experiential learning cycle, learning spaces, and educator role profiles. However, this is exactly what is done in postgraduate theses in Türkiye. In this context, it can be said that experiential learning in Türkiye should be understood adequately and correctly.

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## Appendix

**Table 9.** *Main Findings and Suggestions of Examined Theses*

Year	Degree	Learning Style Classification	Main Findings	Suggestions based on the Findings
2002	Master of Science /Education	Diverging, Assimilating, Converging, Accommodating (4 Basic Styles)	A weak correlation was found between the dominant learning style and learning activities. It was concluded that learning activities could not differ according to the dominant learning style.	Deterministic cause-effect relationships should not be sought between the dominant learning style and learning activities. It would be beneficial to perceive this relationship in a more flexible context.
2004	Doctor of Philosophy	4 Basic Styles	It has been concluded that there is a significant relationship between the learning strategies used by secondary school students and their teachers' and their own learning styles.	Information and discussion meetings should be organized for both students and teachers regarding the superior and limited aspects of learning styles.
2006	Doctor of Philosophy	4 Basic Styles	In the descriptive part of the study, it was determined that the learning style most preferred by the secondary school students was assimilation, and the learning styles of the students did not differ according to their gender. In the experimental dimension, it was determined that the education based on the experiential learning theory had a positive effect on the achievement of the students in the Social Studies course and their attitude towards the course.	The importance of individual differences affecting learning and experiential learning practices should be included in pre-service and in-service teacher education. In this process, practical activities should be planned, and teacher candidates should be trained as competent individuals in education based on learning styles. The effects of experiential learning, which was determined to have positive effects on social studies course success and attitude, in other courses should be examined.
2007	Master of Science /Education	4 Basic Styles	It has been determined that male students studying in high school prefer active experimentation style more than female students while learning physics, and 10th grade students prefer concrete experimentation while learning physics. No significant relationship was determined between other learning styles and physics learning styles scores.	Students who prefer assimilating learning style should be given the opportunity to observe, think, and focus on the abstract concepts rather than social issues. Those students can learn better by reading textbooks, narration, and visual aids. Since they prefer active experimentation and concrete experimentation less, it may be necessary to develop skills such as practicing, testing theory and ideas.

**Table 9.** *Main Findings and Suggestions of Examined Theses (Continue)*

Year	Degree	Learning Style Classification	Main Findings	Suggestions based on the Findings
2008	Master of Science /Education	4 Basic Styles	It was determined that the learning styles of the teacher candidates studying in different branches differed and although it was not statistically significant, the students with the highest success average were in the “accommodating” style.	Considering that the individual will teach in the way he/she learns, it is necessary to increase the awareness level of teacher candidates about their own learning styles. In this context, it is necessary to add new courses related to learning styles to teacher education programs and organize seminars, courses or conferences on this subject.
2008	Master of Science /Education	4 Basic Styles	In the study, it was determined that the learning styles of the primary school teacher candidates differ according to variables such as grade level, gender, and the type of high school they graduated from. It was also stated that there was no relationship between the socio-economic levels of the participants and their learning style. In addition, a moderate positive and significant relationship was found between the academic achievements of pre-service teachers and their problem-solving skills.	In order to develop individuals' critical thinking and problem-solving skills, curriculum should be designed that include student-centered activities that are appropriate for students' learning styles.
2009	Master of Science /Education	4 Basic Styles	It has been determined that the students are more satisfied with the learning style-based education than the traditional education. In addition, it was stated that most of the participants had assimilating and converging learning styles.	With the adjustments to be made according to learning styles in the educational programs, it can be ensured that the students benefit more from the teaching-learning process. Evaluations can be made with longitudinal studies on those adjustments.
2009	Master of Science /Education	4 Basic Styles	The Science course academic achievement of a group of students was examined according to their learning style. Although there was no statistically significant difference, it was determined that the students with the highest academic achievement were individuals with converging learning style.	Students with high academic success in Science prefer to be active in the lessons, so teachers in Science and Technology classes should include practices such as experimentation and modeling in their classrooms.

**Table 9.** *Main Findings and Suggestions of Examined Theses (Continue)*

Year	Degree	Learning Style Classification	Main Findings	Suggestions based on the Findings
2009	Master of Science /Education	4 Basic Styles	It was determined that the achievement levels of the learners did not differ significantly in the groups where the learning style of the learner and the teacher matched and did not match.	The effects of teaching with groups consisting of students with the same and different learning styles on students' success can be examined. Research should be conducted to examine the effects of students' and teachers' learning styles on the teaching-learning process.
2010	Master of Science /Education	4 Basic Styles	The differences in terms of learning styles of a group of students were examined. It was determined that the students mostly preferred the accommodating learning style. It was found that students who adopted different learning styles benefited from the teaching method techniques applied in the classroom at different levels.	It should be ensured that pre-service teacher education curriculum focus on teaching based on students' individual differences and learning styles.
2010	Master of Science /Education	4 Basic Styles	It was determined that the preferred learning style among the participating science teacher candidates was converger. It was found that learning styles were related to grade level and self-efficacy in science teaching but not related with gender.	The data obtained from studies determining the self-efficacy, study strategies, attitudes, and motivations of teachers or teacher candidates in education can be used in subsequent practices for both in-service and pre-service professional training. This enables the review of educational programs and systems, including adjustments aimed at enhancing the self-efficacy beliefs, attitudes, and motivations of teacher candidates and teachers.
2010	Master of Science /Education	4 Basic Styles	It was found that there is no statistically significant difference between students' learning styles and their ages. In other words, there is no significant correlation between teacher candidates' learning styles and their ages.	Teacher candidates have different learning styles. There are studies that indicate individuals tend to teach in the way they learn. Therefore, it is important to increase the awareness level of teacher candidates regarding their own learning styles. Universities should adjust in their curriculum in this regard and organize seminars, courses, or conferences to address this topic.



**Table 9. Main Findings and Suggestions of Examined Theses (Continue)**

Year	Degree	Learning Style Classification	Main Findings	Suggestions based on the Findings
2010	Master of Science /Education	4 Basic Styles	It was found that there was a significant difference between students' preferred learning styles and their achievement in Mathematics, Science and Technology, and Turkish Language lessons. The highest preference was for the assimilating learning style, while the least preference was for the diverging learning style. However, these differences were not significant when analyzed based on grade level.	In order to inform primary school teachers about learning styles, it is necessary to develop and implement in-service training programs. Learning environments and instructional designs should be adjusted to accommodate different learning styles.
2010	Master of Science /Education	4 Basic Styles	The analysis of data obtained from a group of students revealed that there was no significant relationship between demographic variables and learning styles.	Further research is needed to identify the variables associated with learning styles. The relationship between students' academic achievements in different disciplines and their preferred learning styles should be examined.
2010	Master of Science /Education	4 Basic Styles	A positive correlation was observed among students with different learning styles in terms of evaluative-thinking, evaluative-avoidant, evaluative-planned approach, and confident-avoidant problem-solving skills.	In-service teacher training programs about learning styles should be developed. Additionally, students should be equipped with guidance services to gain knowledge about learning styles, increase their self-awareness regarding their own learning styles, and facilitate their learning processes. Moreover, as students are being taught problem-solving skills, they should be instructed on how to leverage the strengths of their individual learning styles.
2011	Master of Science /Education	4 Basic Styles	It was found that the implementation of multimedia applications results in a statistically significant improvement in the academic achievement and attitude scores of Chemistry teacher candidates, as well as promoting long-term learning. It was observed that these differences varied according to the participants' learning styles.	Studies should be conducted to investigate the impact of designing separate multimedia materials for each learning style on students' achievement, attitude, and retention.

**Table 9.** *Main Findings and Suggestions of Examined Theses (Continue)*

Year	Degree	Learning Style Classification	Main Findings	Suggestions based on the Findings
2011	Master of Science /Education	4 Basic Styles	It was revealed that there was a relationship between the learning styles of primary school teachers and the metacognitive learning strategies they employed, particularly in terms of planning strategies and affective strategies.	It has been identified that classroom teachers utilize assessment strategies to a lesser extent compared to other strategies. Therefore, it is important to provide classroom teachers with knowledge and skills regarding the implementation of assessment strategies in the learning process, both during their undergraduate education and professional development programs. During this process, it is crucial to leverage their strong learning style aspects for effective implementation.
2011	Master of Science /Education	4 Basic Styles	Students from various age groups generally prefer the adapting learning style. It was determined that learning styles do not show significant differences based on students' gender. There was no significant relationship found between students' mathematics achievement and anxiety levels with their learning styles.	Factors influencing mathematics achievement and anxiety among students of different age groups should be investigated.
2011	Doctor of Philosophy	4 Basic Styles	It was found that students' achievements vary according to their learning styles. Students who adopt the converging learning style were observed to have higher academic achievement compared to students who adopt the converging learning style.	Teachers should be aware of the impact of their students' previous experiences and current circumstances on their various characteristics. During the instructional planning process, individual differences should be taken into consideration as much as possible.
2011	Doctor of Philosophy	4 Basic Styles	Learning environments designed in accordance with students' learning styles have positive effects on both their Physics class academic achievements and holistic development.	Teachers should use different teaching methods or techniques that are suitable for students' learning styles in physics classes. Professional development programs should be developed to enhance teachers' skills in instructional design.

**Table 9. Main Findings and Suggestions of Examined Theses (Continue)**

Year	Degree	Learning Style Classification	Main Findings	Suggestions based on the Findings
2012	Doctor of Philosophy	The learning styles were not addressed, only experiential learning was mentioned.	In environmental science class, experiential learning activities were conducted. It was found that experiential learning had a significant impact on developing environmental awareness and a positive attitude towards the environment, although it did not show a significant effect on academic achievement.	The effects of experiential learning should be investigated in different themes and subjects. The potential of experiential learning as an alternative for fostering the development of the affective domain, which is often neglected in educational systems, should be considered.
2012	Doctor of Philosophy	The learning styles were not addressed, only experiential learning was mentioned.	It has been determined that experiential learning methods promote teamwork and collaboration. As a result, they have a positive effect on learning experiences.	Experiential learning should be utilized for creating a positive learning environment. The effects of experiential learning in promoting collaboration instead of competition should be further explored through various research studies.
2012	Master of Science /Education	4 Basic Styles	It was found that there are students in classrooms who adopt four different learning styles, but the assimilating style is less preferred. It was determined that all students with different learning styles enjoyed the use of interactive whiteboards in classrooms.	Different educational technologies should be implemented in classrooms. The use of interactive whiteboards should be promoted and encouraged.
2013	Master of Science /Education	4 Basic Styles	It was determined that prospective mathematics teachers preferred the learning styles of converging, assimilating, accommodating, and diverging, respectively. It was found that both male and female students predominantly chose the assimilating learning styles. Furthermore, it was expressed that teacher candidates enjoyed acquiring information about their own learning styles.	Teachers who are aware of their own learning style will also be aware of the individual differences of their students. Learning style inventories should be introduced to teachers and teacher candidates. In this way, teachers can gain information about their students' characteristics and choose appropriate teaching models and materials more accurately.

**Table 9.** *Main Findings and Suggestions of Examined Theses (Continue)*

Year	Degree	Learning Style Classification	Main Findings	Suggestions based on the Findings
2013	Doctor of Philosophy	4 Basic Styles	An experimental study was conducted to investigate whether the attitudes towards learning and academic self-efficacy levels of a group of students differ according to their learning styles. In the experimental group, instructional activities appropriate to their learning styles were implemented. At the end of the intervention, it was found that the attitudes towards learning and academic self-efficacy levels of the students in the experimental group significantly increased.	Informing students about their own learning styles will help them to know themselves better and study more efficiently and effectively. In this context, it would be beneficial for each educational institution to provide seminars on learning styles for students.
2013	Doctor of Philosophy	The learning styles were not addressed, only experiential learning was mentioned.	There was a significant relationship found between experiential learning and students' attitudes towards the design process. Individuals exhibiting different design process attitudes were able to achieve similar quality design outcomes, and conversely, individuals exhibiting the same design process attitudes were able to achieve different design outcomes.	Applying a method that takes into account the individual learning style differences of individuals placed under different design conditions in line with experiential learning can enable the identification of their strengths and weaknesses. This, in turn, allows for the implementation of a method to improve their behaviors based on their identified strengths and weaknesses.
2013	Master of Science /Education	4 Basic Styles	There was found to be no significant relationship and difference between the learning styles of a group of middle school students and their homework motivation and homework styles. However, significant relationships were found between study habits and learning styles. It was noted that utilizing the characteristics of learning styles in the development of students' homework styles, homework motivation, and study habits yielded positive results.	It was emphasized that teachers should consider all learning styles and provide options when assigning homework, to create a rich learning environment. It was suggested that individuals with learning styles different from those adopted by students should also be encouraged to benefit from their interests and talents.

**Table 9. Main Findings and Suggestions of Examined Theses (Continue)**

Year	Degree	Learning Style Classification	Main Findings	Suggestions based on the Findings
2013	Master of Science /Education	4 Basic Styles	A group of high school students were found to predominantly adopt the learning style of diverging, followed by assimilating, converging, and accommodating. It was noted that the number of students adopting each learning style was significant.	In designing educational environments, the various learning styles adopted by students should be taken into consideration. Different methods and techniques suitable for various learning styles should be included in the learning-teaching process.
2014	Master of Science /Education	4 Basic Styles	It was determined that teachers with different learning styles benefited from similar teaching practices and that their teaching practices were not influenced by their own learning styles. Additionally, there was no significant relationship found between the academic achievements of students and their learning styles when considering teachers with different learning styles.	It is recommended to design instructional activities that are flexible, spiral, and follow a learning cycle according to students' learning styles, and to investigate effects of those interventions through experimental studies.
2014	Master of Science /Education	4 Basic Styles	It was determined that learning styles vary according to the educational institution attended, while there were no significant differences based on gender and parental education levels.	To facilitate effective learning, instructional designs that are aligned with students' learning styles should be utilized. Additionally, the effects of these instructional designs should be examined through various scientific research studies.
2014	Master of Science /Education	4 Basic Styles	It was determined that the teaching styles of social studies teachers did not differ significantly based on their gender and the socioeconomic level of the region where they work. It was also found that teachers have a limited level of knowledge about their own learning styles.	Teachers should receive more training on learning and teaching styles in teacher education process. Teacher candidates and teachers should be provided with opportunities to explore learning and teaching concepts from different perspectives.

**Table 9.** *Main Findings and Suggestions of Examined Theses (Continue)*

Year	Degree	Learning Style Classification	Main Findings	Suggestions based on the Findings
2015	Master of Science /Education	4 Basic Styles	When examining the distribution of learning styles among music teacher candidates, it was determined that all four major learning styles were adopted. Although students' music learning approaches and musical performance achievements did not significantly differ based on learning styles, some variations were observed.	It has been determined that music education program students who are prospective teachers are represented in all four of Kolb's learning style groups. Based on this finding, it is recommended that music educators arrange their classroom environments according to individual learning styles.
2015	Master of Science /Education	The learning styles were not addressed, only experiential learning was mentioned.	It was found that experiential learning positively influences students' attitudes towards learning.	It is recommended to implement instructional designs based on experiential learning in order to foster the development of positive attitudes towards learning.
2015	Master of Science /Education	4 Basic Styles	There was no significant relationship found between the subject competencies of final-year students in the Faculty of Education and their learning styles. Furthermore, it was determined that learning styles were independent of variables such as gender, type of high school attended, field of study at high school, and the department of education.	Further research should be conducted to identify the variables associated with the learning styles of teacher candidates.
2016	Doctor of Philosophy	4 Basic Styles	It was determined that the learning styles of teacher candidates did not vary according to their grade levels and genders. Additionally, it was found that education faculty students had a low level of competence in understanding learning styles.	Curriculum should be developed during the pre-service training process of teacher candidates to enable them to develop competencies in individual differences affecting learning and education based on learning styles.

**Table 9. Main Findings and Suggestions of Examined Theses (Continue)**

Year	Degree	Learning Style Classification	Main Findings	Suggestions based on the Findings
2016	Doctor of Philosophy	4 Basic Styles	It was found that portfolio implementation related to learning activities that were compatible with different learning styles contributes to better and more enduring learning outcomes, and positively affects learners' creativity in Science Class.	Instructional designs should be developed in science education that include activities suitable for each learning style and learner products should be compiled in portfolio files. Individual differences should be considered for effective science education.
2016	Master of Science /Education	4 Basic Styles	According to the opinions of teacher candidates, the social studies instruction organized in the Second Life virtual environment, tailored to different learning styles, increased interest, and motivation in the lesson, provided concrete and lasting learning experiences, deviated from traditional classroom settings, increased self-efficacy levels, and allowed for instant feedback.	To determine the effectiveness of the Second Life environment integrated learning styles interventions should be designed in various subjects of social studies as well as other subjects such as Mathematics, Science, and Language Learning, and their effects should be investigated.
2017	Master of Science /Education	4 Basic Styles	It was found that the layered curriculum integrated with learning styles enhanced academic achievement in English language learning. Additionally, it was observed that there were variations in students' learning styles as a result of the intervention.	The utilization of innovative approaches such layered curriculum that makes the learning environment enjoyable, breaks monotony, and considers students' individual characteristics such as intelligence and learning style, while providing them with choices and encouraging them to take responsibility for their own learning, would be beneficial in English language teaching.
2018	Master of Science /Education	4 Basic Styles	The findings indicated that providing education aligned with students' learning styles had positive effects on the foreign language learning process. Observations conducted in three different classrooms revealed that teachers generally took students' learning styles into consideration.	Teachers need to consider that each student may have different learning styles and provide learning environments that cater to these differences. The importance of learning styles should be considered to accelerate students' learning process and create a rich learning environment.

**Table 9.** *Main Findings and Suggestions of Examined Theses (Continue)*

Year	Degree	Learning Style Classification	Main Findings	Suggestions based on the Findings
2018	Doctor of Philosophy	4 Basic Styles	It was concluded that the utilization of the 5E model and activities based on learning styles in the University Piano Education course had a positive and effective impact, according to student perceptions.	In piano education, various activities should be prepared that encompass the topics of harmony and musical forms, aiming to develop students' cognitive, affective, and psychomotor skills.
2018	Master of Science /Education	4 Basic Styles	It was determined that the virtual reality activities implemented in the programming course were perceived as distracting by students with converging and accommodating learning styles.	Teachers delivering programming courses can receive necessary training on organizing activities that cater to all learning styles, considering that classrooms consist of students with diverse learning styles.
2018	Master of Science /Education	4 Basic Styles	In the individual instrument lessons, it was determined that students' learning styles demonstrated a balanced distribution, with students mostly adopting the diverging style, characterized by learning through doing and thinking. Additionally, students exhibited high motivation towards individual instrument education.	In order to increase awareness of learning styles among students and teachers, in-service trainings and seminars can be organized, and periodic assessments of learning styles can be conducted. This way, individuals can learn how to learn on their own in the most effective way possible.
2018	Master of Science /Education	4 Basic Styles	It was found that individuals who adopted the assimilating" learning style outperformed individuals with the converging" learning style in routine problem-solving tasks, while individuals who adopted the accommodating learning style achieved higher success in non-routine problem-solving tasks compared to individuals with the converging learning style in Math Class.	The relationships between learning styles and routine/non-routine problems can also be examined in other science disciplines such as chemistry and physics, in addition to mathematics. This would allow for a comprehensive understanding of the relationships between learning styles and routine/non-routine problems across different subject areas.



**Table 9. Main Findings and Suggestions of Examined Theses (Continue)**

Year	Degree	Learning Style Classification	Main Findings	Suggestions based on the Findings
2019	Doctor of Philosophy	The learning styles were not addressed, only experiential learning was mentioned.	Regarding simulation-based experiential learning applications, students expressed that they learned by doing and experiencing, felt that everyone was equal, highlighted the presence of a democratic learning environment, and found it enjoyable and pleasurable. However, some students mentioned that although the method made the lesson enjoyable, they felt that they couldn't grasp certain information.	Studies conducted in Turkey on experiential learning have focused more on learning styles rather than integrating the method into educational processes. It is recommended to develop examples of experiential learning applications and share them with teachers, as this will increase access to new methods and techniques.
2019	Master of Science /Education	4 Basic Styles	Through the correlation analysis between 21st-century learner skills and learning styles, it was determined that the Autonomy skill had a positive and statistically significant relationship with the "Concrete Experience" and "Abstract Conceptualization" learning styles, a negative relationship with the "Reflective Observation" and "Active Experimentation" learning styles. It was also found that the Cognitive skill of Science Education teacher candidates had a positive and statistically significant relationship with the "Abstract Conceptualization" learning style, a negative relationship with the "Reflective Observation" learning style.	Activities should be conducted to develop 21st-century learner skills in Science Education teacher candidates, and the relationships between the 21st-century skills of teacher candidates in different disciplines and their learning styles should be investigated.
2019	Master of Science /Education	4 Basic Styles	In the study conducted on a group of English language learners, it was found that the most preferred learning style was active experimentation, and there was no statistically significant relationship between learning styles and listening anxieties.	Teachers should maintain ongoing communication with families regarding students' learning processes, learning methods and styles, and personal characteristics in order to enhance students' learning experiences. Collaborative work with families is important to ensure a more positive learning process for students.

**Table 9.** *Main Findings and Suggestions of Examined Theses (Continue)*

Year	Degree	Learning Style Classification	Main Findings	Suggestions based on the Findings
2019	Master of Science /Education	4 Basic Styles	In a study conducted with a group of teacher candidates, it was found that the most adopted learning style was assimilating, followed by accommodating, diverging, and converging learning styles.	Teacher candidates have different learning styles, and it should be acknowledged that similar teaching methods and techniques used in the educational process may not have the same impact on every student. Therefore, teacher training programs should incorporate instructional design that caters to students with different learning styles.
2019	Master of Science /Education	4 Basic Styles	It was determined that nursing students predominantly adopt the diverging learning style, followed by the assimilating, accommodating, and converging learning styles. In terms of their critical thinking tendencies, students who embrace the converging learning style obtained the highest overall average, while those who adopt the transforming learning style had the lowest average.	Providing students with critical thinking skills and tendencies is crucial as it contributes to all aspects of life. Therefore, determining students' learning styles and delivering instruction that is tailored to their learning styles, along with fostering their critical thinking skills and tendencies, is an important necessity for contemporary education programs.
2019	Master of Science /Education	4 Basic Styles	A simulation game designed according to learning styles was found to be more effective in enhancing teamwork skills among nursing students. It was observed that in a collaborative environment, students were able to compare their existing knowledge and thoughts with those of their peers, leading to the recognition of any deficiencies or misconceptions in their learning process.	It is recommended that nursing education curriculum should reviewed and restructured by utilizing different methods and strategies to enhance the reflective thinking levels of nursing students. During the curriculum restructuring process learning styles of students should also take into consideration.
2019	Master of Science /Education	4 Basic Styles	It was determined that no research could be found in the Turkish literature regarding the Kolb Educator Role Profiles. Additionally, it was found that there were no studies in the Turkish literature on the concept of Learning Environments, which defined the characteristic features of the learning habitat required for experiential learning.	It is recommended to conduct studies aimed at enhancing the capacity to implement experiential learning in mainstream educational programs. The need for the dissemination of Kolb Educator Role Profiles and Learning Environments concepts has been emphasized.

**Table 9.** *Main Findings and Suggestions of Examined Theses (Continue)*

<b>Year</b>	<b>Degree</b>	<b>Learning Style Classification</b>	<b>Main Findings</b>	<b>Suggestions based on the Findings</b>
2019	Proficiency in Art	4 Basic Styles	The study concluded that the Concept Development Education model had a positive impact on creativity in art education. Additionally, although not statistically significant, it was found that students with the learning style of differentiation achieved higher scores in creative thinking education compared to other styles.	In future studies, it is believed that conducting student monitoring/assessment through the developed Concept Development Education Model and evaluating students based on this scale would be beneficial.
2020	Master of Science /Education	4 Basic Styles	In the study examining the relationships between sports and learning styles, it was found that students who have a habit of engaging in sports tend to have a learning style of accommodating while students who do not participate in sports tend to have a learning style of assimilating. This difference was found to be statistically significant.	The findings indicate that the students participating in the study have diverse learning styles, including all four styles. Therefore, it is emphasized that teachers and sports educators should consider these learning styles when preparing the learning-teaching environment.
2020	Master of Science /Education	4 Basic Styles	The research findings indicated that implementing activities that were suitable for different learning styles in traffic safety education increased children's awareness of road safety. It facilitated the learning of fundamental concepts and rules related to traffic.	It is recommended that traffic safety culture be established through the coordination of various stakeholders at the individual, regional, and national levels, taking into account the individual differences of the learners in this process.
2020	Master of Science /Education	4 Basic Styles	The results revealed that students in the Physical Education and Sports department had four different learning styles.	It is recommended that teachers and coaches take into consideration the fact that students/athletes have four different learning styles and prepare the learning-teaching environment accordingly. They should provide seminars to inform students/athletes about their learning styles and offer guidance services in this regard.

**Table 9.** *Main Findings and Suggestions of Examined Theses (Continue)*

<b>Year</b>	<b>Degree</b>	<b>Learning Style Classification</b>	<b>Main Findings</b>	<b>Suggestions based on the Findings</b>
2021	Master of Science /Education	4 Basic Styles	The experiential learning in teacher education provided through the inverted learning model was found to have several strengths, including an increase in individual learning effort, a sense of high responsibility and accountability, self-confidence, interaction, active participation, and effective and efficient learning in a fun and liberating environment. Participants described experiential learning as an ideal tool for in-depth learning that caters to students' diverse needs and considered it a positive and significant element in the learning process.	It is recommended to plan research studies that focus on identifying the strategies for integrating and disseminating the experiential learning model into the Turkish education system. Additionally, the potential benefits and challenges of implementing experiential learning in the Turkish context can be investigated.
2022	Doctor of Philosophy	4 Basic Styles	The integration of experiential learning and virtual reality technology was found to have a positive impact on the learning experiences of teacher candidates. This approach, which allowed for the individualization of instruction, was deemed beneficial for teacher candidates. Through the use of virtual reality technology, they were able to have a school experience that closely resembled reality.	It has been recommended to study on implementing all stages of the experiential learning cycle through virtual reality technologies.