

# Classifying Master's and PhD Theses Whose Titles Contain Concept of "Critical Thinking" by Different Variables<sup>1</sup>

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International Journal of  
Modern Education Studies

December, 2017

Volume 1, No 1

Pages: 58-68

<http://www.ijonmes.net>

#### Article Info:

Received : 13.10.2017

Revision1 : 24.10.2017

Accepted : 25.12.2017

#### Abstract:

Independent and original thinking are the concepts which define critical thinking. A critical thinker doesn't passively accept other people's views and thoughts, on the contrary he constitutes his own thoughts by analyzing them. This independence liberates his mind, heart and actions (Doğanay and Ünal, 2006). In this context, the definition of critical thinking can be summarized as reaching a conclusion by reasoning (collecting information for a present situation, defining assumptions and evidences, discussing the defined evidences and inferring and synthesizing) on a problem or a situation (Demirel, 2006). Critical thinking becomes a basic skill in occupational groups. To improve the quality of the services people get, all professionals, especially doctors, teachers, architects, lawyers, nurses, builders, must have the ability to think critically. This study aims to classify the master's and PhD theses whose titles contain the concept of "critical thinking" by different variables. The data were collected from the 211 master's and PhD theses completed between 1999- 2014 and registered to database of Council of Higher Education. This study was conducted through descriptive survey model and descriptive statistics were used in the analysis process. Thesis were examined and classified under the following topics; (1) academic level, (2) the universities in which they were prepared, (3) preparation year, (4) research method, (5) research model, (6) education level of the participants, (7) departments in which they were prepared (8) gender of the researchers, (9) degree of the supervisors (10) number of pages. At the end of the study it was found that most of the theses about critical thinking were master's theses and they were prepared in well-established universities. There are hardly any theses prepared in private universities. The number of theses about critical thinking reached its top point between 2009-2012. While most of the master's theses were conducted through quantitative method, most of the PhD theses were conducted through mixed and experimental designs. The participants of most of the theses about critical thinking were university and primary school students. Teachers and nurses participated in more theses than other occupational groups. Most of the theses about critical thinking were conducted in the field of education. nursing and health care departments takes the second place. However, it is interesting that hardly any theses were conducted in the fields of law, politics, public administration, sociology and psychology. Another interesting point is that most of the theses were prepared by female researchers.

**Keywords:** Critical thinking, Classification, Master Thesis, PhD Thesis

#### Citation:

Arslantaş, S., Kurnaz, A. (2017). Classifying master's and PhD theses whose titles contain concept of "critical thinking" by different variables. *International Journal of Modern Education Studies*, 1(1), 58-68.

<sup>1</sup> This articles is produced from a conference paper.

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## INTRODUCTION

Thinking is an active, purposive process performed to understand the situation one is in. Everything lies in the thoughts, is managed and produced with the thoughts. Thoughts are unified by balancing the mind, body and spirit. However, in order to choose the most effective ones, eliminations must be done. This elimination is done with the critical thinking. While producing the thoughts which haven't been produced before creativity comes into prominence. The things which constitute life are the continuous creation of thought (Kurnaz, 2011). Thinking is the reflection of outside world to human mind. Moreover, thinking means things and thoughts which are mentally formed and revived. Thinking is all the mental behaviors people purposefully do to get rid of internal and external factors which disturbs them and their physical and psychological balance (Kazancı, 1989: 12).

Today's educators accept that critical thinking is a disciplined and self-controlled thinking which reveals perfect thinking related to a specific thought field or style and they state that it occurs in two ways. If the mental process is designed to serve the interests of a certain group or individual, it keeps the other people out of the subject. It becomes a complex process and called "weak-sense critical thinking". If it is designed to take into account the thoughts of opposing groups and individuals, it becomes an impartial process and called "strong-sense critical thinking". While weak-sense critical thinking composed of micro skills of critical thinking such as thought analysis, synthesis and evaluation, strong-sense critical thinking includes disciplined and impartial perspectives related to a problem. Strong-sense critical thinking is freed from the traps caused by the egocentrism and self-deception (Demirel & Şahinel, 2005).

Watson and Glaser (1964) defined critical thinking as a general process which contains actions such as problem solving, questioning and research. They summarize it as both a skill and attitude, defining a problem, collecting and choosing the necessary information to solve the problem, defining structured and unstructured assumptions, choosing assumptions leading to a conclusion, inferring valid conclusions and discussing the validation of these conclusions. Ennis (1989), who has many studies on critical thinking, defined critical thinking as thinking reasonably and reflectively while deciding what to do and to believe. According to McPeck (1981) it is a skill and tendency of thinking skeptically and reflectively on the content and information of a given discipline. When these definitions are unified, a new definition can be made. Critical thinking is a skill and tendency of thinking skeptically and reflectively while deciding what one does and believes.

When we evaluate different definitions and approaches about critical thinking, it is possible to reach some common points. First of all, critical thinking is a complex and holistic thinking process which contains knowledge, skills, strategies and attitudes. The basic principles of this thinking process can be summarized as follows (Doğanay and Ünal, 2006):

Critical thinking is a process of perceiving the truth objectively. However, truths may not be as they seem. So critical thinking is reaching a conclusion by exploring a truth with its positive and negative, visible and non-visible sides. Critical thinking is a process of reasoning depending on the information at hand. But the process of getting information is a critical one. In this process, the sources of the information must be questioned, the information must be cross checked from different sources and assumptions and biases must be defined. A critical thinker is aware of how and why he thinks. He takes into account not only his thinking process but also the thinking process of others.

One of the significant concepts which defines critical thinking is original thinking. A critical thinker doesn't passively accept other people's views and thoughts, on the contrary he constitutes his own thoughts by analyzing them. This independence liberates his mind, heart and actions (Doğanay and Ünal, 2006). In this context, the definition of critical thinking can be summarized as reaching a conclusion by reasoning (collecting information for a present situation, defining assumptions and evidences, discussing the defined evidences and inferring and synthesizing) on a problem or a situation (Demirel, 2006).

Critical thinking becomes a basic skill for occupational groups. To improve the quality of the services people get, all professionals, especially doctors, teachers, architects, lawyers, nurses, builders must have the ability to think critically. Within the scope of 2071 aims, Turkey aims to train people who have high-level mental abilities such as critical, reflective and creative thinking, and problem solving. It has become a necessity that all professionals must be equipped with high-level abilities to support the development of the country, to produce new technologies and to compete with their colleagues at an international level.

On the basis of the reasons mentioned above, studies about the teaching of critical thinking and determining the critical thinking ability of people are done. It is certain that these studies will continue. That determining in what occupational fields, to what extent and in what points these researchers focused on and developing the future ones concerning it is necessary.

### *Purpose*

This study aims to classify the master's and PhD thesis whose titles contain the concept of "critical thinking" by different variables. Thesis were examined and classified under the following topics; (1) academic level, (2) the universities in which they were prepared, (3) preparation year, (4) research method, (5) research model, (6) education level of the participants, (7) departments in which they were prepared (8) gender of the researchers, (9) degree of the supervisors (10) number of pages.

## METHOD

### *Research Model*

This study was conducted through descriptive survey model. Descriptive statistics, percentages and frequencies were used in the analysis process. The qualitative methods in the research were conducted by the document analysis. The technique as "systematic examination of existing records or documents as data sources". A document review involves analysis of written materials that contain information about the cases or phenomena targeted to be investigated. A document review is a data collection technique that is inevitable for almost any research. If there is no document there is no knowledge (Madge, 1965).

### *Data Collection Tools*

The data were collected from the 211 master's and PhD theses completed between 1999-2014 and registered to database of Council of Higher Education.

Theses were examined and classified under the following topics:

1. Academic level of the theses
2. The Universities in which the theses prepared
3. Preparation year
4. Research method
5. Research Model
6. The education level of the participants
7. Department in which the theses prepared
8. Gender of the researchers
9. Degree of the theses supervisors
10. Number of pages

## RESULTS

The findings obtained from 211 theses are stated below. The academic level of the theses are shown in the Table 1.

**Table 1**

Distribution of theses regarding their academic level

Academic level of thesis	N	%
Master's	152	% 72
PhD	59	% 28
<b>Total</b>	<b>211</b>	<b>% 100</b>

As it is seen in table -1 152 out of 211 theses were master's (%72) and 59 (%28) of them were PhD theses. According to the data most of the theses were master's theses.

The second question of the study was about how is the distribution of the theses regarding the universities prepared in. Results are shown in Table 2.

**Table 2**

Distribution of theses regarding the universities they were prepared in

University	Master's (f)	%	PhD (f)	%	Total	%
Gazi Un.	12	7,9	13	22	25	11,8
Hacettepe Un.	13	8,6	5	8,5	18	8,5
Çukurova Un.	11	7,2	2	3,4	13	6,2
Ankara Un.	7	4,6	4	6,8	11	5,2
Marmara Un.	6	3,9	5	8,5	11	5,2
METU	4	2,6	5	8,5	9	4,3
Sakarya Un.	8	5,3	1	1,7	9	4,3
Anadolu Un.	4	2,6	4	6,8	8	3,8
Dokuz Eylül Un.	3	2	5	8,5	8	3,8
Fırat Un.	3	2	4	6,8	7	3,3
İstanbul Un.	4	2,6	3	5,1	7	3,3
İzzet Baysal Un.	6	3,9	1	1,7	7	3,3
18 Mart Un.	6	3,9	-	-	6	2,8
A.Menderes Un.	3	2	2	3,4	5	2,4
Selçuk Un.	4	2,6	1	1,7	5	2,4
Atatürk Un.	3	2	1	1,7	4	1,9
Karaelmas Un.	4	2,6	-	-	4	1,9
M. Kemal Un.	4	2,6	-	-	4	1,9
Yeditepe Un.	4	2,6	-	-	4	1,9
Bilkent Un.	3	2	-	-	3	1,4
Ege Un.	2	1,3	1	1,7	3	1,4
Kocatepe Un.	3	2	-	-	3	1,4
Konya NEU	3	2	-	-	3	1,4
Mersin Un.	3	2	-	-	3	1,4
Osmangazi Un.	3	2	-	-	3	1,4
Yıldız Technical Un.	2	1,3	1	1,7	3	1,4

İnönü Ün.	2	1,3	-	-	2	0,9
Kocaeli Ün.	2	1,3	-	-	2	0,9
Sıtkı Koçman Ün.	2	1,3	-	-	2	0,9
Sütçü İmam Ün.	2	1,3	-	-	2	0,9
Adıyaman Ün.	1	,7	-	-	1	0,5
Amasya Ün.	1	,7	-	-	1	0,5
Atılım Ün.	1	,7	-	-	1	0,5
Cumhuriyet Ün.	1	,7	-	-	1	0,5
Çağ Ün.	1	,7	-	-	1	0,5
Erciyes Ün.	1	,7	-	-	1	0,5
G.Osmanpaşa Ün.	1	,7	-	-	1	0,5
ITU	1	,7	-	-	1	0,5
Kafkas Ün.	1	,7	-	-	1	0,5
KTU	1	,7	-	-	1	0,5
M. Akif Ün.	1	,7	-	-	1	0,5
19 Mayıs Ün.	-	-	1	1,7	1	0,5
S. Demirel Ün.	1	,7	-	-	1	0,5
T. Erdoğan Ün.	1	,7	-	-	1	0,5
Uludağ Ün.	1	,7	-	-	1	0,5
Uşak Ün.	1	,7	-	-	1	0,5
Yüzüncü Yıl Ün.	1	,7	-	-	1	0,5
<b>Total</b>	<b>152</b>	<b>100</b>	<b>59</b>	<b>100</b>	<b>211</b>	<b>100</b>

The universities which have the most theses about critical thinking are Gazi University Hacettepe University Çukurova University, Ankara University, Marmara University, METU, Sakarya University, Anadolu University, Dokuz Eylül University. Number of theses are respectively 25 (%11,8), 18 (%8,5), with 13 (%6,2), 11 (%5,2), 11 (%5,2), 9 (%4,3), 9 (%4,3), 8 (%3,8), 8 (%3,8). The universities with the least theses are Adıyaman, Amasya, Atılım, Cumhuriyet, Çağ, Erciyes, G.Osmanpaşa, ITU, Kafkas, KTU, M. Akif, 19 Mayıs, S. Demirel, T. Erdoğan, Uludağ, Uşak ve Yüzüncü Yıl universities which have 1 (%0,5) thesis about critical thinking.

Data about when these 211 theses were prepared are shown in Table 3.

**Table 3**

Distribution of theses regarding their preparation year

Year	Master's	%	PhD	%	Total	%
1999	2	1,3	-	-	2	0,9
2000	-	-	-	-	-	-
2001	2	1,3	2	3,4	4	1,9
2002	5	3,3	1	1,7	6	2,8
2003	3	2,0	-	-	3	1,4
2004	2	1,3	2	3,4	4	1,9

2005	6	3,9	2	3,4	8	3,8
2006	6	3,9	4	6,8	10	4,7
2007	7	4,6	7	11,9	14	6,6
2008	13	8,6	3	5,1	16	7,6
2009	19	12,5	4	6,8	23	10,9
2010	22	14,5	6	10,2	28	13,3
2011	24	15,8	8	13,5	32	15,2
2012	16	10,5	5	8,5	21	10,0
2013	14	9,2	13	22,0	27	12,8
2014	11	7,2	2	3,4	13	6,2
<b>Total</b>	<b>152</b>	<b>100</b>	<b>59</b>	<b>100</b>	<b>211</b>	<b>100</b>

As it is shown in table-3 with 32 (%15,2) theses 2011 is the year when the most theses prepared. 2010 takes the second place with 28 (%13,3) theses. 2013, 2009 and 2012 follow them with 27 (%12,8) ,23 (%10,9), 21 (%10,0) theses respectively. It is seen that most of the theses were written between 2009 and 2012.

Research method of the theses are shown in Table 4.

**Table 4**

Distribution of theses regarding their research method

<b>Research Method</b>	<b>Master's</b>	<b>%</b>	<b>PhD</b>	<b>%</b>	<b>Total</b>	<b>%</b>
Quantitative	129	84,9	14	23,7	175	82,9
Qualitative	20	13,2	14	23,7	24	11,4
Mixed	3	2,0	31	52,6	12	5,7
<b>Total</b>	<b>152</b>	<b>100</b>	<b>59</b>	<b>100</b>	<b>211</b>	<b>100</b>

As it is shown in table-4 quantitative method was used in 175 theses (%82,9), qualitative research method was used in 24 theses (%11,4), mixed research method was used in 12 theses (%5,7).

Data about research models of the studies are shown Table 5.

**Table 5**

Distribution of theses regarding their research models

<b>Model</b>	<b>Master'</b>	<b>%</b>	<b>PhD</b>	<b>%</b>	<b>Total</b>	<b>%</b>
Experimental and quasi-experimental	39	25,7	39	66,1	78	37,0
Survey	113	74,3	20	33,9	133	63,0
<b>Total</b>	<b>152</b>	<b>100</b>	<b>59</b>	<b>100</b>	<b>211</b>	<b>100</b>

As it is seen in table-5, of the 211 theses about critical thinking experimental and quasi-experimental models were used in 78 (%37) and survey method was used in 113 (%63) theses.

Data about the education level of the participants of the theses are shown in Table 6.

**Table 6**

Distribution of theses regarding the education level of participants

Education level	Master'	%	PhD	%	Total	%
Primary and elementary school	52	34,2	17	28,8	69	32,7
High school	20	13,2	8	13,6	28	13,3
University	52	34,2	29	49,2	81	38,4
Teacher, Nurse etc.	28	18,4	5	8,4	33	15,6
<b>Total</b>	<b>152</b>	<b>100</b>	<b>59</b>	<b>100</b>	<b>211</b>	<b>100</b>

As it can be seen in table-6, of the theses about critical thinking university students (N=81) take the first place as the target group. At the master's level number of theses whose participants were university students and primary school students (N=52) were equal. While occupational groups participated in many master's (N=28) theses, they participated in only five PhD theses. High school students participate in master and PhD theses at the same rate (%13).

Data about the departments in which theses was prepared are shown in Table 7.

**Table 7**

Distribution of theses regarding their departments

Departments	Master's	%	PhD	%	Total	%
Educational sciences	56	36,8	28	47,5	84	39,8
Science and Mathematics	19	12,5	10	16,9	29	13,7
Primary School (Social sciences, pre-school, education of religion and ethics)	17	11,2	3	5,1	20	9,5
Primary school teaching	11	7,2	5	8,5	16	7,6
Nursing	11	7,2	2	3,4	13	6,2
ELT and Foreign Languages	10	6,6	1	1,7	11	5,2
Turkish and Turkish Literature	9	5,9	1	1,7	10	4,7
Computer and Technology	3	2	4	6,7	7	3,3
Special Education and gifted	3	2	2	3,4	5	2,4
Physical training and sports	2	1,3	1	1,7	3	1,4
Fine arts and Music	2	1,3	1	1,7	3	1,4
Philosophy and religion	2	1,3	-	-	2	0,9
Journalism and communication	1	0,7	1	1,7	2	0,9
Geography	1	0,7	-	-	1	0,5
Handicrafts	1	0,7	-	-	1	0,5
Public relations	1	0,7	-	-	1	0,5
Business	1	0,7	-	-	1	0,5
Architecture	1	0,7	-	-	1	0,5
Sociology	1	0,7	-	-	1	0,5
<b>Total</b>	<b>152</b>	<b>100</b>	<b>59</b>	<b>100</b>	<b>211</b>	<b>100</b>



As it is shown in table-7, of theses about critical thinking 84 (%39,8) of them were prepared in Educational sciences department and 29 (%13,7) were prepared in Science and Mathematics departments. Following five departments are as follows:

N=20 (%9,5) Primary School (Social Sciences, Pre-school, Education of religion and ethics

N=16 (%7,6) Primary School Teaching

N=13 (%6,2) Nursing

N=11 (%5,2) ELT and Foreign Languages

N=10 (%4,7) Turkish and Turkish literature

Data about the gender of researchers preparing the theses are shown in Table 8.

**Table 8**

Distribution of theses regarding the gender of researchers preparing them

Gender	Master's	%	PhD	%	Total	%
Female	112	73,7	36	61	148	70,1
Male	40	26,3	23	39	63	29,9
<b>Total</b>	<b>152</b>	<b>100</b>	<b>59</b>	<b>100</b>	<b>211</b>	<b>100</b>

As it is shown in table-8, there are more female researchers than male ones especially in master's degree. Of the 211 theses 148 (%70,1) were prepared by female researchers and 63 (%29,9) of them were prepared by male researchers. A closer look into academic level of theses has shown that in master's degree there were 112 (%73,7) female and 40 (%26,3) male researchers, in PhD degree there are 36 (%61) female and 23 (%39) male researchers.

Data about the academic degree of the supervisors are shown in Table 9.

**Table 9**

Distribution of Theses Regarding the Academic Degree of Their Supervisors.

Academic Degree of the supervisors	Master's	%	PhD	%	Total	%
Dr./asst. Prof. Dr.	88	57,9	14	23,7	102	48,3
Assoc. Prof. Dr.	28	18,4	14	23,7	42	19,9
Prof. Dr.	36	23,7	31	52,6	67	31,8
<b>Total</b>	<b>152</b>	<b>100</b>	<b>59</b>	<b>100</b>	<b>211</b>	<b>100</b>

As it is shown in table-9 it is seen that while the academic degree of supervisors of master's theses were generally asst. prof. dr. and assoc. prof. dr. (%57,9), the academic degree of supervisors of PhD theses were prof. dr. (%52,6). When they were examined considering the academic degree of supervisors of the master's theses 88 (%57,9) of them

were Dr./Asst. Prof. Dr., 28 (%18,4) of them were Assoc. Prof. Dr. and 36 (%23,7) of them were Prof. Dr. When they are examined considering the academic degree of supervisors of PhD theses 14 (%23,7) of them were Dr./Asst. Prof. Dr., 14 (%23,7) of them were Assoc. Prof. Dr. and 31 (%52,6) of them were Prof. Dr. The total number of supervisors of master's and PhD theses were as follows; 102 (%48,3) Dr./Asst. Prof. Dr., 42 (%19,9) Assoc. Prof. Dr. and 67 (%31,8) Prof. Dr.

Data about the total page number of the theses are shown in Table 10.

**Table 10**  
Total Page Number of the theses

Level of Theses	N	Average Page Number	Min. Page Number	Max. Page Number
Master's	152	144,96	49	416
PhD	59	249,89	116	630
<b>Total</b>	<b>211</b>	<b>174.30</b>	<b>49</b>	<b>630</b>

As it is shown in table-10, total page number of master's theses were between 46-416 and the average page number was found as 144,96. Total page number of PhD theses were between 116-613 and the average page number was found as 249,89. The average page number of master's and PhD theses were calculated as 174,3.

## DISCUSSION, CONCLUSION AND SUGGESTIONS

Most of the theses about critical thinking were master's theses and they were prepared in well-established universities. There are hardly any theses prepared in private universities. At Çukurova University especially one academician is very effective. From this point of view, by taking necessary measures to encourage academicians to prepare theses in this field, it can be made possible to conduct researches about critical thinking in new universities.

The number of theses about critical thinking reached its top point between 2009-2012. While most of the master's theses were conducted through quantitative method, most of the PhD theses were conducted through mixed and experimental methods. It is thought that experimental and mixed methods should be encouraged in master's level and it is needed that qualitative methods should be used in both levels.

The participants of most of the theses about critical thinking were university and primary school students. Teachers and nurses participated in more theses than other occupational groups. Most of the theses about critical thinking were conducted in the field of education. nursing and health care departments take the second place. However, it is

interesting that hardly any theses were conducted in the fields of law, politics, public administration, sociology and psychology.

Another interesting point is that most of the theses were prepared by female researchers. Although female researchers are predominant in both academic levels, this gap is even more in master's level.

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