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Research Article

Factors Related to Instructional Leadership Perception and Effect of Instructional Leadership on Organizational Variables: A Meta-Analysis

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Abstract

In this meta-analysis, effects of teacher characteristics on instructional leadership perceptions and some organizational variables is tested. Findings of the total of 67 independent studies are gathered in the meta-analysis which represents a population of 36,756. According to the findings of this meta-analysis performed by using random effects model; while task type, school level and type have effect on instructional leadership perception, gender and branch of the teachers have no effect. Besides, it is discovered in this meta-analysis that instructional leadership has medium-level effect on some organizational variables. According to the analysis results, the most reliable scale for measuring instructional leadership is found to be 'Instructional Leadership Behaviors of School Administrators' scale developed by Şişman.

Keywords

Instructional leadership • Organizational variable • Meta-analysis • Standardized mean difference

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It has been placed a great emphasis on leadership skills of school principals associated with research on effective schools since the end of 1970s. Leadership skills of a school principal have been considered as one of the main factors on school effectiveness. As a result, a transition from school principalship to school leader has become an important issue. In this light, instructional leadership has come into the picture as a new conceptualization of leadership with regard to school principals. Instructional leadership of school principals has been identified as the skills, which principals directly show or enable the others to show in order to increase the achievement level of students in schools (De Bevoise, 1984). Related literature about school administration has described instructional leadership skills of school principals in various aspects and dimensions (Daresh & Ching-Jen, 1995; Hallinger & Murphy, 1985; Wildly & Dimmock, 1993). Research has indicated that there has been a close relationship between instructional leadership skills of school principals and school outputs, student achievement, and restructuring of schools (Chance, 1991; Duke, 1987; Hallinger & Murphy, 1990). On the other hand, it has been found that these instructional leadership skills have also to some extent related to personal and contextual factors (Cooke, 1995; Gulledege, 1995; Wildly & Dimmock, 1993).

Dimensions of Instructional Leadership Skills of School Principals

There has been some classification of instructional leadership skills of school principals in the related literature. These classifications mainly consist of identifying and defining the school visions, missions and goals, building consensus about school goals, providing the necessary resources for teaching, coordination, management, control and evaluation of teaching and curriculum, monitoring evaluating and developing the staff, creating close relationship and cooperation between staff, regular teaching-learning climate, enabling the support from society and environment, being a role model and teaching source (Andrews & Soder, 1987; Blank, 1987; Daresh & Ching-Jen, 1985; DeBevoise, 1984; Hallinger & Murphy, 1985, 1986; Heck, Larsen, & Marcoulides, 1990; Krug, 1992; Reed, Krysinski, Gougeon, & Furman, 1988; Wildly & Dimmock, 1993).

The skills in question in this research consisted of five dimensions that are stated in the following: (i) Identifying and sharing school goals, (ii) Management of instructional programmes and teaching process, (iii) Evaluation of teaching process and students, (iv) Supporting and developing teachers, (v) Creating a safety learning climate and work environment.

Identifying and sharing school goals. It is expected from a school principal playing a leading role in identifying school goals by initially determining school vision and mission. The importance of school goals need to be emphasized, explained and shared during the meetings with students, teachers and parents.

Management of instructional programmes and teaching process. One of the main inputs of school is programmes. In order to successfully implement such programmes, necessary conditions and maximum learning opportunities need to be prepared. In successful schools, school principals have a pivotal role in planning, implementing and coordinating of programmes.

Evaluation of teaching process and students. This dimension involves teaching, inspection, evaluation of programmes, monitoring and evaluating student development. School principal should discuss and provide feedback about the teaching process and results of student evaluation with the school staff. Also, s/he needs to make use of the results in determining the success level of school and programmes goals.

Supporting and developing teachers. One of the main responsibilities of the school principal is to help every people in the school develop their professional qualifications, also, to enable teachers make use of these new knowledge and qualifications in the school. Otherwise, all the effort made for developing teachers performance would be futile. In this respect, the school principal has an essential role in rewarding and acknowledging teachers for their various accomplishments.

Creating a safety learning climate and work environment. School principals need to create and maintain a positive teaching-learning environment and climate, which help students and teachers to work enthusiastically. Therefore, school principals should know and motivate various subcultures and tendencies in school. They should lead and enable to create and share innovative ideas related to teaching, learning and education.

The Problem and Hypothesis

Research indicates that in order for school principals to have a positive impact on school inputs they need to be either instructional manager or instructional leader and them also need to spend most of their time on subjects related to teaching, learning and education in general (De Bevoise, 1984; Hallinger & Murphy, 1985; Purkey & Smith, 1983; Wildy & Dimmock, 1993). Since the main function of school is to provide learning, school principals need to focus on this aim. However, research points out that school principals spent majority of their time on some routines that are not directly related to education (Hallinger & Murphy, 1985, p. 220). These routines are mainly providing schools with funding, dealing with infrastructure problems, meeting with visitors, attending various meetings, phone calls, and correspondences.

Research on effective school in Turkey seems to be limited. The impact of school principals as an instructional leader on school effectiveness has also been under researched. In addition, research on instructional leadership skills of school principals is also scarce (Alıç, 1991; Balcı, 2001; Gümüşeli, 1996).

It is not well known how school principals organized, managed and evaluated school programme and teaching. In addition, we do not know much about personal, organizational and contextual factors, which affect instructional leadership skills of school principals. A Turkish study by [Gümüşeli \(1996\)](#) directly related to instructional leadership, has been done in primary schools in Istanbul. The fact that it covers only one city has limited the generalisability of the findings of this research.

Therefore, there is a need to do research on identifying leadership skills for school effectiveness in different region, school and context. Considering the international research on instructional leadership, these studies mostly focus on primary school in different school years. Looking at the Turkish context, there are a limited number of studies on this subject, which mostly involve the same school year ([Balci, 2001](#); [Gümüşeli, 1996](#)). However, instructional leadership of school principals should not only be restricted to primary schools.

School principals in primary school are authorized to plan, regulate, conduct and control all the works related to school. They are also responsible in managing, evaluating and developing in accordance with the school aims ([Milli Eğitim Bakanlığı \[MEB\], 1993](#)). In Turkish primary schools, the duty of school principals are described under three heading, which are *(i)* planning, *(ii)* organization and *(iii)* evaluation, in 31 items in accordance with the relevant regulations. In this regard, the school principals are expected to be not only the director of school as a business but also an instructional leader. The fact that there is not educational specialist in Turkish education system requires school principals to act as a specialist regarding education and teaching. Therefore, school principals need to work as instructional leaders in general.

There is numerous research regarding teachers' perceptions on instructional leadership skills of school principals and differences in these perceptions according to demographic variables in the related literature. In addition, there is a considerable amount of research about a relationship between instructional leadership and some organizational variables. In this regard, although it is a relatively new concept, research on instructional leadership, which is indispensable for schools and educational systems, is on the increase. It is because an instructional leader has a pivotal part to play in the work done at schools and whether this work has a positive or negative experience on people. Therefore, it is necessity to examine extensive all the studies on instructional leadership. In this light, this study aims to analyse research on instructional leadership in Turkey and involves three phases: *(i)* in the first phase, the aim is to state the impact of demographic variables on teachers' perceptions regarding instructional leadership of school principals, *(ii)* in the second phase, the impact of instructional leadership on some organizational variables will be examined, and *(iii)* in the last phase, the factors which might affect the average impact of the study

will be considered. Based on the discussion above, this study will test the hypotheses stated below:

H₁ Gender affects instructional leadership perceptions of teachers

H_{1a} Type of issue, research region, school level, study group, and scale has directive roles in gender variable affecting instructional leadership perceptions of teachers

H₂ Work type affects instructional leadership perceptions

H_{2a} Type of issue, research region, school level, study group, and scale has directive roles in work type variable affecting instructional leadership perceptions of teachers

H₃ School level affects instructional leadership perceptions of teachers

H_{3a} Type of issue, research region, school level, study group, and scale has directive roles in school level variable affecting instructional leadership perceptions of teachers

H₄ School type affects instructional leadership perceptions of teachers

H_{4a} Type of issue, research region, school level, study group, and scale has directive roles in school type variable affecting instructional leadership perceptions of teachers

H₅ Branch affects instructional leadership perceptions of teachers

H_{5a} Type of issue, research region, school level, study group, and scale has directive roles in branch variable affecting instructional leadership perceptions of teachers

H₆ There is a positive relationship between instructional leadership and transformational leadership, emotional intelligence, job satisfaction, decision making, school environment, organizational commitment, organizational citizenship.

Method

Research Design

In this, effects of some particular teacher traits on their instructional leadership perceptions and the relationship between various organizational variables and instructional leadership are investigated by utilizing meta-analysis research methodology. Meta-analysis is a design used to gather the results of several independent research studies on certain subjects, and applying statistical analysis on the findings acquired (Little, Corcoran, & Pillai, 2008).

Research Sample and Selection Criteria

In this study, in order to determine the studies that will be included in the meta-analysis, an in-depth search was made on Council of Higher Education (YÖK), where thesis and dissertations in Turkey are being archived and Turkish National Academic Network and Information Center (ULAKBİM), where academic articles are being archived. In addition to these databases, Google scholar, EBSCO and Proquest databases are also scanned. In this phase, using the term ‘instructional leadership’ and limiting the search to key words, titles and abstracts, all the studies including the term are recorded and the total of 124 studies are determined as candidate studies to be included in the meta-analysis. Afterwards, the research papers are subjected to detailed examination to determine their eligibility in the meta-analysis and categorized according to the data they include and the data coding process is performed. During the coding process, total of 57 studies were excluded: 13 studies were did not include instructional leadership, 25 studies did not include X , SD and t values and r/R^2 coefficients and 19 studies were qualitative studies. 67 studies met the criterion were included in the further analyses.

Inclusion criteria determined for the study are as follows;

- The research must be performed in Turkey between 2000-2016,
- n , X , SD and t values, which are needed to calculate effect size in independent groups should be available, or,
- n , r or R^2 values needed for correlational meta-analysis should be available,

The latest date for inclusion in this study is January 2016 and only masters’ thesis and PhD dissertations along with articles published in refereed journals. The reason for inclusion of master and doctoral dissertations is to abolish the probable publication bias. Descriptor findings related with the included studies according to the defined criteria of the research are presented in Table 1.

Table 1
Characteristics of the Studies Included in the Meta-analysis

Characteristic	1	2	3	4	5	6	7	Total
	2003	2004	2005	2006	2007	2008	2009	
Publication year of research	n	2	3	1	4	8	3	4
	%	3.0	4.5	1.5	6.0	11.9	4.5	6.0
		2010	2011	2012	2013	2014	2015	
	n	11	6	5	8	7	5	67
	%	16.4	9.0	7.5	11.9	10.4	7.5	100
Type of Research		<i>Dissertations</i>	<i>Article</i>					-
	n	49	18					67
	%	73.2	26.8					100

Coding Process and Operational Definitions

Coding process is the elimination of the complicated data present in a study in order to get clear and easy to handle data (Çoğaltay & Karadağ, 2015). In this research, a coding form was created prior to the statistical analyses and the coding process was made according to this coding form. Main purpose in this is to develop a coding system that is broad enough to see all of the studies and specific enough to avoid any missing data of any research. Coding form used in this research is made up of the following components;

- Research Identification
- Type of the research
- Sampling data
- Data collection tool
- Methodological information
- Quantitative data

Basic objectives of the operational definitions are to bringing research notions into testable data and explaining variables, standard investigation and measurement processes according to their objectives. In this context, definitions of the variables used in the study are as follows:

- *Moderator*: The source of the variations between mean effect sizes of the variables of the study.
- *Instructional leadership*: Revealing of the potential of the instructional staff in order to achieve the instructional goals of the school and sustain this process during the operation of the school.

Effect Size Analyses

The mean effect size achieved in meta-analysis is a standard measurement value in determining the strength and direction of the relationship in the study (Borenstein, Hedges, Higgins, & Rothstein, 2009). Mean effect size in this study is calculated in two different methods. For the H_1 through H_5 hypotheses of the study, *Standardized Mean Difference* (Cohen d); and for the H_6 hypothesis, Pearson Correlation Coefficient (r) was calculated. Standardized mean effect size is used for comparing independent group means and this effect is accepted to be comparable between studies based on two different variables. Since the correlation coefficient takes values between $+1$ and -1 , in calculations, this r value is transformed into the z value in the z

table (Hedges & Olkin, 1985).

Independent from mean effect size method, there are two basic models in meta-analysis studies: *Fixed effect model and random effect model*. In determining which model will be used in a certain study, characteristics of the included studies should be examined to determine which models prerequisites are being met (Borenstein et al., 2009). *Fixed effect model*; (i) assumes the studies included in the meta-analysis are identical and (ii) hosts the idea that the mean effect size will be calculated for a single population. If the studies are thought to be functionally not identical and the calculated effect size is wanted to be generalized to bigger populations, then the method should be *random effects model*. While the fixed effect model predicts a single effect commonly expressed for each study, random effect model predicts the mean of the effect distribution in the studies (Hedges & Olkin, 1985). Taking these into consideration, *random effects model* is applied in this meta-analysis study.

It was seen that while instructional leadership was graded by factors in some of the studies, it was graded as a total variable with providing statistical data for the factors for others. Since data collection tools were different through the studies, analyses were performed over the total instructional leadership grades. Besides, since the studies are from different regions of Turkey, studied in different grade levels and using different data collection tools, moderator analyses were also performed considering that these may affect the effect size. In data analyses, *Comprehensive Meta-Analysis* software is utilized.

Moderator Variables and Moderator Analysis

Moderator analysis is an analysis method used to test the direction of the differences between the sub-groups and the differences between the effect sizes of the moderator variables. In a meta-analysis study, moderator analysis is performed by planning according to the purpose of the study and the process is carried out according to the plan (Littel, Corcoran, & Pillai, 2008). The statistical significance of the difference between the moderator variables is tested by the Q statistics developed by Hedges and Olkin (1985). In this method, Q is divided into $Q_{between}$ [Q_b] and Q_{within} [Q_w] and analyses are performed over these two different Q s. While Q_w tests the homogeneity within the moderator variables, Q_b tests the homogeneity between the moderator variables (Kulinskaya, Morgenthaler, & Staudte, 2008).

Since only the differences between the moderator variables are of interest in this study, only the Q_b values are used. Five moderator variables are determined in this study which thought to have effect on the effect size. First of these variables is the data collection tool which is different in all studies with different items and factors measuring instructional leadership perceptions. Actually this moderator can be visualized as a way of testing reli-

ability and validity of the data collection tools used for instructional leadership. Secondly, the grade level and the school type the study was performed is taken as a moderator variable considering possible effect on the effect size. Third moderator variable is set as the geographical region of the study. Thinking the study group the study was performed, fourth moderator variable is set as the sample of the study. Finally, as the fifth moderator variable, type of the study is determined considering publishing bias.

Validity and Reliability of the Research

Validity and reliability concepts are two most important criteria commonly used in studies. Although these two concepts are especially important factors in determining the quality of the qualitative studies, they are just as important criteria in meta-analyses too. Since the studies included in meta-analyses are naturally not identical, one of the most important steps in choosing studies to be included in meta-analysis is to decide how much they are alike. Although an objective methodology does not exist to assure validity and reliability, following steps are followed in this study:

- Most common criticism for meta-analysis is putting apples and pears into the same basket. At the same time this is a sign of the strength of meta-analyses studies that literature review is aimed to generalize the findings of a group of studies with discrepancies. In this study, while determining the inclusion-exclusion criteria, all the aspects of the research area (instructional leadership). After a series of critical evaluations are made to determine these criteria and as far as possible, identical studies are included in the meta-analysis. Thus this limitation was tried to be minimized.
- There is criticism that meta-analyses ignore discrepancies between studies. In this study, five moderator variables are determined to answer this criticism.
- Random effects model is preferred since studies being included in the meta-analysis cannot functionally be identical.
- Another criticism to meta-analyses is publication bias. In this study, publication bias is tested with *Funnel Pilot*, *Trim* and *Fill* tests and findings are presented in the findings part.
- In order to assure reliability of the coding, all coding procedure is done by 2 separate researchers. The Cohen's Kappa reliability coefficient between coders is calculated .96.
- Each effect size calculations for individual studies are presented in appendix.
- Presentation of the population by the sample. However, no matter how good the sample has chosen, there will be random errors in included and excluded units and the sampling error will not be the same as the population. Provided the study has

infinite samples, then the sampling error would be zero. On the contrary, samples of the studies included in the meta-analysis are not infinite and since it was taken into consideration while the statistical calculations are being made about how much of the effect size error is originated from *sampling error* (Borenstein et al., 2009), no intervention is made on this issue.

Findings

Findings Regarding Publication Bias

Publication bias in meta-analysis is an assumption for the possibility of not being published of the all surveys conducted on a specific topic/notion. In scientific research, it can be thought that the studies specifically with non-significant correlations, effects and differences or with low level correlation, effect and difference do not worth publishing. This situation negatively affects the total effect size and increases the average effect size non-objectively (Borenstein et al., 2009). The effect of publication bias which is also called as missing study or data affects the total effect of meta-analysis studies negatively. In this sense the possibility of having publication bias is taken into consideration in meta-analysis studies. In this context these questions below has been answered to examine the publication bias in this study:

- Is there any proof on any publication bias within the context of the study?
- Can general effect size be a result of publication bias?
- How much of the total effect size depends of publication bias?

In meta-analysis studies, some methods of calculation are used to statistically answer the questions which consist of the possibilities above. Funnel plot is the leading of these methods. Although the figure get by this method is not completely objective, it helps the researcher to see whether the studies are on the effect of publication bias or not. The funnel plots of the studies included for meta-analysis within this study are given in figure 1.

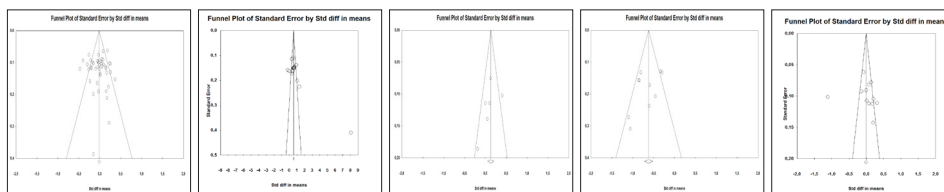


Figure 1. Funnel plots regarding publication bias.

No evidence has been observed in the figures regarding publication bias in the studies included in meta-analysis. In publication bias, funnel plot is expected to be

substantially asymmetrical. The condensing of the studies that intensify at the bottom of the funnel on the one side (especially right side) of the line showing the average effect size of the studies indicate the probability of publication bias. In this study no evidence has been observed regarding publication bias in the studies included in meta-analysis. Despite the fact that no evidence is observed regarding publication bias in funnel plots, the results of Duval and Tweedie’s trim and fill tests, which are done to evaluate the effect amount of effect size dependent on publication bias that are get by the result of meta-analysis done according to random effect model, have been presented in Table 2.

Table 2 shows that there is no difference between the observed effect size value and virtual effect size that is formed to correct the effect derived from publication bias. The reason of this indifference is that the studies intensified at both sides of the center-line are generally symmetrical. As there is no missing data at the right and left sides of the center-line, the difference between observed and virtual effect size is zero.

Table 2
The Results of Duval and Tweedie’s Trim and Fill Test

Variables	Excluding Study (right)	Point Estimate	CI (Confidence Interval)		Q
			Sublimit	Upper Limit	
Gender					
Observed values		-.01	-.07	.04	125.1
Adjustment values	0	-.01	-.07	.04	125.1
Task [Administrator-Teacher]					
Observed values		.90	.53	1.27	403.6
Adjustment values	0	.90	.53	1.27	403.6
School Level [Primary School-High school]					
Observed values		.11	.00	.22	11.6
Adjustment values	0	.11	.00	.22	11.6
School Type [Private-State]					
Observed values		-.65	-.82	-.48	22.9
Adjustment values	0	-.65	-.82	-.48	22.9
Branch [Class-Branch]					
Observed values		.01	-.17	.19	153.4
Adjustment values	0	.01	-.17	.19	153.4

Findings Regarding the Effect of Gender on Instructional Leadership Perceptions

Meta-analysis results that show the effect of gender variable on instructional leadership perceptions of teachers have been presented in Table 3. Findings don’t support H₁ hypothesis which state that gender variable affects the instructional leadership perceptions of teachers. According to random effect model, in Turkish sample standardized average effect size of instructional leadership perceptions of teachers according to gender has been calculated as (d) -.01 and it is not meaningful statistically. This finding explains that the instructional leadership perceptions of male and female teachers are

similar. Findings support the H_{1a} hypothesis which state that *the scale used in research and the region where the research has been conducted* play moderator role between gender and instructional leadership. In moderator analysis when the research region considered, average effect size difference is statistically meaningful ($Q_b = 22.91, p < .05$). When the analysis results have been examined, it is seen that in studies conducted in Eastern and Southeastern Anatolia Regions, instructional leadership perceptions of male teachers are high, in Black Sea Region instructional leadership perceptions of female teachers are higher. However there is no difference in other regions in terms of gender. When the scale used in research considered the effect size difference is statistically meaningful ($Q_b = 14.87, p < .05$) and in studies where the scale developed by Beycioğlu is used, it is recognized that instructional leadership perceptions of female teachers are higher while in studies conducted by using other scales instructional leadership perceptions of male teachers are higher. On the other hand in studies conducted by using the scales developed by both Şişman and Hallinger, there has been found no difference according to gender. Besides the difference between female and male teach-

Table 3
The Effect of Gender on Instructional Leadership Perceptions: Meta-analysis Results

Variables	k	N _{Meta}	N _{Female}	D	CI		Q	Q _b
					Sublimit	Upper Limit		
Gender	45	8,408	8,050	-.01	-0,07	0,04	125.18	
Moderator [Type of Research]								.37
Article	7	1,330	1,044	-.060	-.22	.10		
Dissertation	38	7,078	7,006	-.006	-.06	.05		
Moderator [Region]								22.91*
Mediterranean	2	501	397	.04	-.57	.65		
Eastern Anatolia	3	897	483	.17*	.06	.28		
Aegean	8	1,322	1,285	.03	-.04	.11		
Southeastern Anatolia	1	221	161	.25*	.05	.45		
Central Anatolia	12	2,838	2,752	-.01	-.07	.07		
Black Sea	5	578	514	-.14*	-.27	-.02		
Marmara	14	2,051	2,458	-.07	-.19	.03		
Moderator [School Level]								5.02
Primary School	27	4,658	5,436	.01	-.04	.08		
Mixed	9	1,991	1,414	.02	-.09	.13		
High School	9	1,759	1,200	-.15*	-.01	-.01		
Moderator [Study Group]								4.80
Mixed	14	2,777	2,139	.06	-.01	.13		
Administrator	2	445	61	-.07	-.49	.35		
Teacher	28	8,408	5,750	-.04	-.12	.03		
Moderator [Scale]								14.87*
Şişman	21	4,371	4,224	-.01	-.09	.07		
Hallinger	5	750	710	-.09	-.20	.19		
Beycioğlu	3	735	597	-.23*	-.34	-.12		
Other	16	2,552	2,519	.12*	-.06	.21		

ers in 21 different studies conducted by using the scale developed by Şişman is very low and this situation is an indicator of high validity and reliability of the scale. In spite of these findings, H_{1a} hypothesis which state that type of issue, school level and study group play moderator role in differentiation of instructional leadership perceptions according to gender is not supported.

Findings Regarding the Effect of Task Type on Instructional Leadership Perceptions

Meta-analysis results that show the effect of task (teacher-administrator) variable on instructional leadership perceptions of teachers have been presented in Table 4. Findings support H_2 hypothesis which state task variable affect instructional leadership perceptions and standardized average effect size has been calculated at high level ($d = .90$). This finding mean that instructional leadership perceptions of administrators are higher than teachers.

Findings don't support H_{2a} hypothesis which state that type of issue, research region school level and scale used in research play moderator role in differentiation of instructional leadership perceptions according to task type (administrators-teacher) ($p > .05$). However when the results of analysis have been examined, when the scale used in research has been considered, although the effect size difference is not statistically meaningful ($Q_b = 1.98, p > .05$) in studies where the scale developed

Table 4
The Effect of Task [Administrator-Teacher] Variable on Instructional Leadership Perceptions: Meta-analysis Results

Variables	k	N _{Administrator}	N _{Teacher}	D	CI		Q	Q _b
					Sublimit	Upper Limit		
Task [Administrator-Teacher]	17	904	6,741	.90	53	1.27	403.65*	
Moderator [Type of Research]								2.85
Article	3	773	736	.18*	.07	6.29		
Dissertation	14	773	6,005	.50*	.33	0.66		
Moderator [Region]								5.38
Mediterranean	2	83	316	.72*	.11	1.32		
Eastern Anatolia	3	197	1,192	.48*	.28	.67		
Aegean	3	138	1,748	.53*	.35	.70		
Central Anatolia	4	229	876	2.30*	.44	4.17		
Black Sea	1	40	207	.33	.00	.67		
Marmara	4	217	2,402	.59*	.16	1.01		
Moderator [School Level]								3.19
Primary School	10	494	4,450	1.13*	.47	1.79		
Mixed	5	280	1,781	.58*	.37	.79		
High School	2	130	510	.79*	.51	1.07		
Moderator [Scale]								1.98
Şişman	6	415	3,581	.57*	.40	.74		
Gümüşeli	2	99	366	3.93	-4.17	12.03		
Other	5	225	1,892	.69*	.45	.92		

by Gümüşeli is used, it is recognized that the difference between the perceptions of administrators on themselves and teachers' perceptions on their administrators is not meaningful. This situation is an indicator of the problems in validity and reliability of the scale developed by Gümüşeli.

Findings Regarding the Effect of School Level on Instructional Leadership Perceptions

Meta-analysis results that show the effect of school level variable on instructional leadership perceptions of teachers have been presented in Table 5. Findings support H_3 hypothesis which state school level variable affect instructional leadership perceptions and standardized average effect size has been calculated at low level ($d = .11$). This finding signifies that instructional leadership perceptions of teachers who work at primary school level are higher than the teachers who work at high school level.

Findings don't support H_{3a} hypothesis which state that type of issue and scale used in research play moderator role in differentiation of instructional leadership perceptions according to school level (primary school-high school) ($p > .05$). Besides the effects in various studies conducted by using the scale developed by Şişman is very close (Sublimit = .17 & Upper limit = .23) and this situation is an indicator of high validity and reliability of the scale.

Table 5
The Effect of School Level [Primary School-High School] on Instructional Leadership Perceptions: Meta-analysis Results

Variables	k	N _{Primary School}	N _{High School}	D	CI		Q	Q _b
					Sublimit	Upper Limit		
School Level [Primary School-High School]	7	1,855	1,182	.11	.00	.22	11.64*	
Moderator [Type of Research]								.42
Article	3	656	514	.08	-.05	.21		
Dissertation	4	1,199	668	.15	-.01	.32		
Moderator [Scale]								1.24
Şişman	2	705	236	.20	.17	.23		
Tanrıöğen	2	730	692	.12*	.02	.23		
Other	3	420	254	.03	-.12	.18		

Findings Regarding the Effect of School Type on Instructional Leadership Perceptions

Meta-analysis results that indicate the effect of school type variable on instructional leadership perceptions of teachers have been presented in Table 6. Findings support H_4 hypothesis which state school type variable affect instructional leadership

perceptions and standardized average effect size has been calculated at high level ($d = .65$). This finding state that instructional leadership perceptions of teachers who work at private schools are higher than the teachers who work at state schools.

Findings support H_{4a} hypothesis which state that study sample play moderator role in differentiation of instructional leadership perceptions according to school type (state-private) ($Q_b = 8.23, p < .05$). Examination of the analysis results reveals that according to the studies performed on school administrators and teachers, instructional leadership perceptions of private school workers are found to be higher than their public counterparts, whereas the studies performed on mixed groups suggest higher instructional leadership perceptions for public school workers than for private school workers. However no moderator effect of issue type has been determined.

Table 6
The Effect of School Type [State-Private] on Instructional Leadership Perceptions: Meta-analysis Results

Variables	k	N _{State}	N _{Private}	D	CI		Q	Q _b
					Sublimit	Upper Limit		
School Type [State-Private]	10	2,282	514	-.65	-.82	-.48	22.95*	
Moderator [Type of Research]								2.39
Article	4	926	211	-.78*	-.95	-.62		
Dissertation	6	1,356	303	-.52*	-.79	-.32		
Moderator [Study Group]								8.23*
Mixed	2	684	109	-.34*	-.56	-.12		
Administrator	3	270	146	-.77*	-.99	-.54		
Teacher	5	1,328	259	-.70*	-.96	-.44		

Findings Regarding the Effect of Branch on Instructional Leadership Perceptions

Meta-analysis results that indicate the effect of branch variable on instructional leadership perceptions of teachers have been presented in Table 7. Findings don't support H_5 hypothesis ($p > .05$) which state branch variable affect instructional leadership perceptions of teachers. This finding indicate that instructional leadership perceptions of both class and branch teachers are similar.

Findings support H_{5a} hypothesis which state that type of issue play moderator role in differentiation of instructional leadership perceptions according to branch ($Q_b = 4.79, p < .05$). When the results of the studies examined, it is recognized that in articles class teachers' instructional leadership perceptions are higher while in dissertations branch teachers' instructional leadership perceptions are higher. However no moderator effect of scale and study region has been determined. Besides the effects in various studies conducted by using the scale developed by Şişman is very close (Sublimit = .07 & Upper limit = .01) and this situation is an indicator of high validity and reliability of the scale.

Table 7
The Effect of Branch [Class-Branch] on Instructional Leadership Perceptions: Meta-analysis Results

Variables	k	N _{Class}	N _{Branch}	D	CI		Q	Q _b
					Sublimit	Upper Limit		
Branch of Teacher [Class-Branch]	13	3,171	2,821	.01	-.17	.19	153.42	
Moderator [Type of Research]								4.79*
Article	2	280	250	.26*	.09	.43		
Dissertation	11	2,891	2,570	-.03	-.23	.01		
Moderator [Region]								3.84
Aegean	4	1,141	830	.18*	.07	.30		
Central Anatolia	5	1,262	1,237	-.18	-.61	.24		
Marmara	4	768	753	.05	-.10	.22		
Moderator [Scale]								.51
Şişman	7	1,962	1,700	-.05	-.07	.01		
Other	6	1,209	1,120	.07	-.17	.18		

Findings Regarding the Effect of Instructional Leadership on Some Organizational Variables

Meta-analysis results between instructional leadership and some organizational variables have been presented in Table 8. In this study 21 correlational data was used and attained sample group formed by 7,893 person in total to determine the average effect size of instructional leadership on some variables. Findings support H₆ hypothesis ($p < .05$) which state a positive relation between instructional leadership and some organizational variables. The average effect size of instructional leadership has been calculated as .52 for Transformational Leadership; .72 for emotional intelligence; .37 for job satisfaction; .44 for decision making strategy, .58 for organizational climate; .44 for organizational commitment and .56 for organizational citizenship. When these sizes have been evaluated in terms of average effect classification, they have a medium level effect (Cohen, 1988; Thalheimer & Cook, 2002).

Table 8
Findings Regarding the Correlations Between Instructional Leadership and Some Organizational Variables: Meta-analysis Results

Variables	k	N	r	CI		Q
				Sublimit	Upper Limit	
Transformational Leadership	2	772	.52	-.23	.88	124.1*
Emotional Intelligence	3	944	.72	.50	.85	53.83*
Job Satisfaction	2	643	.37	.11	.58	6.32*
Decision Making Strategy	2	850	.44	.08	.70	16.44*
Organizational Climate	2	624	.58	.10	.84	48.71*
Organizational Commitment	7	2,468	.44	.33	.54	64.38*
Organizational Citizenship	3	1,862	.56	.35	.71	63.28
Total	21	7,893	.52	.42	.61	688.08*

The findings regarding research hypotheses are summed up in Table 9. As it is indicated in the table, all hypotheses, except H₁ and H₅, have been verified.

Table 9
Summary of Hypothesis Testing Results

Hypotheses	Independent Variable	Dependent Variable	Effect Size	Results
H ₁	Gender [Male & Female]	→ Instructional Leadership	-.01	Rejected
H ₂	Task [Administrator & Teacher]	→ Instructional Leadership	.90	Accepted
H ₃	School Level [Primary School & High School]	→ Instructional Leadership	.11	Accepted
H ₄	School Type [State & Private]	→ Instructional Leadership	-.65	Accepted
H ₅	Branch of Teacher [Class & Branch]	→ Instructional Leadership	.01	Rejected
H ₆	Organizational Variables	→ Instructional Leadership	.52	Accepted

Discussion

67 studies have been included in this meta-analysis study which aims to determine the relationships between instructional leadership and various organizational variables and the effects of some particular teacher traits on their instructional leadership perceptions. Type of issue, study region, school type, school level, sample and the scales used have been dealt with as moderator variable in this study. No evidence regarding publication bias has been observed in the study. Both funnel plots and Trim and Fill test results have indicated that there is no publication bias.

According to the meta-analysis results gender does not have an effect on instructional leadership perception. This finding show parallelism with the results of meta-analysis on various leadership styles conducted before (Eagly & Johnson, 1990; Eagly & Karau, 1991; Eagly, Johannesen-Schmidt, & van Enge, 2003; Kış, 2013; Lord, De Vader, & Alliger, 1986). Accordingly in future studies on instructional leadership, gender should not be used as a variable. According to the results of moderator analysis, in studies conducted in Eastern and Southeastern Anatolia Regions, instructional leadership perceptions of male teachers are high, in Black Sea Region instructional leadership perceptions of female teachers are higher.

Another significant finding of this study is that instructional leadership perceptions of administrators are higher than teachers' perceptions and standardized average effect size has been calculated at high level. This finding of the study can be explained by social psychology theories of *self-efficacy* (Bandura, 1997) which is defined as "the belief of someone on the his/her ability of achieving specific actions that enable him/her to get intended outcomes" and *self-affirmation* (Steele, 1988) which is defined as "the affirmation of someone the good sides possessed by him/her in various ways." According to the theories, especially in eastern society, it is inevitable that

perceptions of the people regarding themselves are higher than the perceptions of the others (Bandura, 1997; Hyde, Hankins, Deale, & Marteau, 2008). In this study the finding of administrators' perceptions are higher than teachers' perceptions shows parallelism with these explanations. However detailed studies are needed concerning the reasons of this detected difference.

The effect of school level on teachers' instructional leadership perceptions is at low level and the instructional leadership perceptions of teachers who work at primary school level are higher than the teachers who work at high school level. Besides it has been concluded that branch variable doesn't affect teachers' instructional leadership perceptions. No comparison could be done as no meta-analysis research which consists of the perceptions of primary school and high school teachers concerning instructional leadership could be attained.

It has been determined in this study that school type affects teachers' instructional leadership perceptions at high level. The instructional leadership perceptions of teachers who work at private schools are higher than the teachers' perceptions who work at state schools. The primary reason of this finding is that designation requirements for private school administrators are more serious.

In 67 studies examined within the context of this study, 25 different instructional leadership scales were used. The most frequently used the scales are respectively (i) *Instructional Leadership Behaviors of Administrators Scale* developed by Şişman (2004) and used in 29 studies; (ii) *Administrators' Educational Administration Evaluation Scale* developed by Hallinger (1992) and used in 7 studies; (iii) *Principal Instructional Management Rating Scale* adapted by Gümüşeli (1996) and used in 5 studies. Significant results have been get from the study about the scales that take place as moderator variable. When taken into account the assumption that the scales measure the same structure in principle, the scales should not play moderator role, should have same results with calculated average effect size and sublimit-upper limit average effect size should be narrow. However the only scale that provide these properties is the *Instructional Leadership Behaviors of Administrators Scale* developed by Şişman (2004). Instructional Leadership Behaviors of Administrators Scale has showed very close average effect sizes with general effect size in all analyses and sublimates-upper limits are close to each other in the studies where the scale was used. This indicate that the reliability and validity of the scale is high.

Another significant result get by the study is about the relations between instructional leadership and some organizational variables. Results have indicated that instructional leadership affects Transformational leadership, emotional intelligence, job satisfaction, decision making strategy, school environment, organizational commitment and organizational citizenship at medium level. This finding shows parallelism

with other meta-analysis findings which examine the relations between instructional leadership and some organizational variables (Fang et al., 2015; Jackson, Meyer, & Wang, 2013; Karadağ, 2015; Karadağ, Çiftçi, & Bektaş, 2015; Tian, Risku, & Collin, 2015). This finding means that with the exhibition of instructional leadership behavior, teachers adopt positive attitudes for their work, love their work, they feel themselves belong in their school and association at school environment is at high level (Locke, 1976; Luthans, 1992; Wray, Luft, & Highland, 1996). Medium level positive relation confirmed by the study can be explained in two ways. Firstly, positive attitude of instructional leaders toward teachers, their support and value for the personnel and effective problem solving abilities ensure the personnel to be more successful and productive, to be occupied by their works and to associate with their co-workers in school environment (Avolio, Bass, & Jung 1999). Secondly, instructional leaders become role models for teachers and motivate them. In this case, teachers don't resist to their leaders and become much happier (Bass, 2000; Hawkins, 2011; Yukl, 2008). Nevertheless in Turkish education system, which has bureaucratic characteristics, it is more probable for teachers to have more positive attitudes for instructional leader administrators when compared with western countries. Such leadership consists of the behaviors in which teachers are considered important, they are listened to and their interests are taken into consideration. Briefly a supportive atmosphere is formed in the organization (Burns, 1978; Bass, 1985, 1999; Bass & Riggio, 2006; Leithwood, 1992; Yukl, 1999).

Limitations and Suggestions

The biggest disadvantage of this study is that the data is based on only the differentiation and correlational studies. Qualitative studies rather than quantitative are more effective in understanding of the nature of the instructional leadership. When this has taken into consideration, it is not completely true to claim that the findings can explain the correlational effects exactly. Moreover, a great majority of the school leadership studies are formed by survey research and this is a possible indicator of publication bias. Despite many strategies developed to attain studies to be included in meta-analysis, it has not been possible to reach all of them. The reason for this is that full texts of some studies didn't take place in databases used within the study. Therefore, some studies, which are thought to have proper data for this study, have stayed out of the meta-analysis. Although no data regarding publication bias is get statistically, the difficulty to attain unpublished studies indicates that publication bias couldn't be determined clearly. Another limitation at the study is that the sample is restricted to articles and dissertations published between 2000-2016.

Some suggestions are made in the light of the findings of the study;

- With reference to the positive effect of instructional leadership on organizational

variables, necessary precautions should be taken for all stakeholders to adopt instructional leadership behaviors in achieving instructional objectives.

- Reliable and valid data collection tools should be preferred in future studies conducted on instructional leadership.
- Future studies should be designed by considering studies conducted in various countries and cultures.

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