Education and Science

Vol 40 (2015) No 182 1-28

Content Analysis of Papers Published in Educational Journals with High Impact Factors *

Seher Yalçın [1], Hatice ÇiğdemYavuz [2], Münevver İlgün Dibek [3]

Abstract

The purpose of this study was to carry out a content analysis on the papers published in high-impact educational journals between 2009 and 2014 and to identify the trends over the selected years. The criteria for the analysis were; number of authors, time between the submission and publication of the papers, keywords, the field and rationale of the study, sample size, descriptions of participants, data collection tools and analysis, and software. The current study was designed as a descriptive content analysis study and utilized a purposive sampling technique. A total of 789 papers were selected from the "Journal of Educational Psychology", "Educational Psychologist", "Educational Researcher" and "American Education Research Journal". Content analysis was employed to analyze the collected data. The results of the analyses showed that the most commonly studied fields were educational psychology, linguistic properties and mathematics in the four journals. In terms of the content, the rationales for writing the papers were generally related to gaps in the literature and theoretical discussion. It was found that generally, studies involving research were conducted with elementary/high school students and data was collected from large samples (larger than 10000) using achievement tests and questionnaires. It was revealed that concerning the trends in data analysis methods, there was a similar pattern from 1970s to date, and generally, multilevel modelling was used when appropriate to the data sets. This situation indicates standard data analyses are essential for researchers. From the findings of the current study, it is recommended for researchers to work with heterogenous sample and various types of participants together (family, teacher, peer, etc.).

Keywords

Educational journals

Impact factor

Content analysis

Article Info

Received: 25.06.2015

Accepted: 27.11.2015

Online Published: 16.01.2016

DOI: 10.15390/EB.2015.4868

* This study was presented at International Congress on Education for the Future: Issues and Challenges.

[1] Ankara University, Faculty of Educational Sciences, Division of Measurement and Evaluation, Turkey, yalcins@ankara.edu.tr

[2] Ankara University, Faculty of Educational Sciences, Division of Measurement and Evaluation, Turkey, hcyavuz@gmail.com

[3] Ankara University, Faculty of Educational Sciences, Division of Measurement and Evaluation, Turkey, munevver.ilgun@gmail.com

Introduction

Referring to scientific research is essential to solve problems in education, develop required services, foster innovations and provide regulations based on valid and reliable policies, strategies and methods. In addition, research studies should be conducted to explain the components of education and the relationships between them, evaluate practices according to the current conditions and scientific facts, improve services and create productive administrations (Alkan, 1989). Several reasons can be listed for the necessity of research studies. First, they provide further educational improvement (Mortimore, 2000). Secondly, the review of these studies creates an opportunity to determine the trends in current research and evaluate the results as well as contributions to the field and benefits for researchers (Selçuk, Palancı, Kandemir, & Dündar, 2014). In order to get advantaged from these contributions efficiently, it is important gathering the studies up according to their features. To do that, the journals being linked to special departments/topics become significant.

Today, journals are the most popular sources for accessing research studies. Moreover, scientific journals allow for a more systematic and planned way of examining research studies in a specific field. Thus, they have a significant role in developing scientific knowledge. In particular, scientific studies published in journals are the principal indicators of production and accumulation of high-quality knowledge in a specific area. While all journals offer these advantages to researchers, they differ according to certain criteria. This difference is mostly observed in the indexation of scientific journals. Today, one of the commonly accepted indexes in the scientific community are those used by the Institute for Scientific Information (ISI).

ISI indexes a scientific journal after comprehensive evaluations based on several criteria concerning the quality and quantity of studies published in that specific journal (Asan, 2005). In addition, the evaluation of scientific journals mostly depends on their impact factors. A journal's impact factor is based on two elements; "the numerator, which is the number of citations in the current year to items published in the previous two years, and the denominator, which is the number of substantive articles and reviews published in the same two years" (Garfield, 2006, p. 90).

When it comes to making decisions or judgements about a journal or certain papers, the reliability of the impact factor may be questionable. However, there is currently no better technique to be used in research evaluation (Hoeffel, 1998). For this reason, the impact factor has continued to attract the interest of researchers since it was first developed (Archambault & Lariviere, 2009). As a result, indexes, particularly those offered by ISI for specific scientific fields have gained an important position in the scientific community.

Researchers in the educational field, who seek promotion or are interested in following the latest research and hot topics, tend to review the journals indexed in the Social Science Citation Index (SSCI) used by ISI. Moreover, of these journals, those with high impact factors increase the probability of researchers getting a promotion, receiving a funding, and obtaining a position or job appointments (The PLoS Medicine Editors, 2006). In this context, the main objective of all researchers including those from the educational field is to publish their papers in journals indexed in SSCI and to achieve the quality required by high-impact journals. For that purpose, this study focused on educational journals having the highest impact factor.

In the literature, several research studies have examined articles/papers and dissertations/theses conducted in specific areas such as educational sciences (Arık & Türkmen, 2009; Erdem, 2011; Goodwin & Goodwin, 1985b; Göktaş, Hasançebi, Varışoğlu, Akçay, Bayrak, Baran and Sözbilir, 2012; Hsu, 2005; Karadağ, 2009; Kieffer, Reese, & Thompson; 2001; Selçuk et al., 2014; Tavşancıl et al., 2010; Willson, 1980), educational technologies (Alper & Gülbahar, 2009; Göktaş, Küçük, Aydemir, Telli, Arpacık, Yıldırım ve Reisoğlu, 2012), educational administration (Aydın, Erdağ, & Sarıer, 2010; Aypay et al., 2010; Turan, Karadağ, Bektaş, & Yalçın, 2012), mathematics teaching (Baki, Karataş, Akkan, & Çakıroğlu, 2011; Çiltaş, 2012; Hart, Smith, Swars, & Smith, 2009), science teaching (Chang, Chang, & Tseng, 2010; Lee, Wu, & Tsai, 2009; Sözbilir & Kutu, 2008; Tsai & Wen, 2005), as well as several other areas

(Kleinsasser, 2014; Yılmaz & Altınkurt, 2012). Some of these studies have examined journals indexed in SSCI. Moreover, Turkish Education Association (Türk Eğitim Derneği-TED) emphasized the importance of content analysis by publishing the special issue named "Content Analysis and Meta-Analysis" aiming to provide sources in terms of research methods and trends for future studies in Education and Science Journal.

From the international literature, studies examining high-impact educational journals mostly focused on the papers published in Educational Researcher [ER] and American Educational Research Journal [AERJ] (Elmore & Woehlke, 1998; Goodwin & Goodwin, 1985b; Hsu, 2005; Kieffer et al., 2001; Willson, 1980). However, these studies only covered the period from 1970 to 2000 and there has been no recent research studies investigating high-impact educational journals. Furthermore, there is a necessity to provide researchers with information and recommendations regarding latest research trends, methods, sample size, topics, and the rationale for conducting the studies with a high number of citations. The current study fulfills this need by examining papers published in high-impact journals based on specific criteria, and determining the trends, which will be beneficial for authors, reviewers and journal editors. By this way, current study would be likely to provide beneficial information in terms of stated criteria, to help researchers to acknowledge their deficiencies/unawareness about trends of research areas/topics, to guide about how to publish more qualified and influential studies, and to give journal editors a lead about enhancing the standarts of the journals in international and national level.

The aim of this study was to identify the following questions of studies published in education journals with high-impact factors between 2009 and 2014 by journals and years:

1. What are the field of studies mostly studied?
2. What are the rationales for conducting papers?
3. What are the sample size and the descriptive features of sample/participants?
4. Which types of instruments are mostly used?
5. Which data analyses are mostly used?
6. Which software/packages are mostly used?

Method

Research Model

This study was based on descriptive despricitive content analysis (Çalık & Sözbilir, 2014) since the objective was to examine papers published in journals with high impact factors indexed by SSCI from 2009 to 2014, and to identify the trends by journals and years based on the specified criteria.

Population and Sample

The sample of this study was all journals in the field of educational sciences indexed in SSCI (N=224). The criterion sampling method, one of the purposive sampling methods, was used to select the journals. The selection criteria were as follows: (i) the title of the journal should include the word "Education", (ii) the title of the journal should not include the word "Review", (iii) the full text should be in English, (iv) the journal should have a five-year impact factor, and (v) the journal should not belong to a specific area (such as science and mathematics). Journals including the word "Review" in their title were excluded from the study since they generally have high impact factors due to publishing meta-analysis studies that are often cited by other researchers. The five-year impact factor was chosen over the two-year impact factor since the first provides more reliable information about journals (Asan, 2010). The five-year impact factors of these journals were obtained from the Journal Citation Report (JCR) on Social Sciences (Thomson Reuters, 2015). As a result, four journals that fulfilled these criteria were selected. Book reviews, comments of the editors, and special issues published in these journals were not included in the scope of this study. A total of 789 papers were included in the study. Table 1 presents the selected journals with their impact factors and the distribution of selected papers by journals and years.

Table 1. The Number of the Papers by Years and Journals

Journals	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**Tümü**
Journal of Educational Psychology (IF: 5.305)	67	69	63	79	61	61	400
Educational Psychologist (IF: 5.137)	15	6	13	7	10	9	60
Educational Researcher (IF: 4.286)	15	14	11	20	27	26	113
American Education Research Journal (IF: 3.511)	33	27	40	38	42	36	216
Total	130	116	127	144	140	132	789

IF: Impact Factor

As shown in Table 1, the journal with the highest impact factor and the highest number of papers was the Journal of Educational Psychology (f: 400). On the other hand, of all the selected journals, Educational Psychologist published the lowest number of papers (f: 60). The total number of selected papers published in these journals over the 6 years was 789.

It was determined that the journals fulfilled the criteria of the study were owned by The American Psychological Association (APA) or The American Educational Research Association (AERA). The reason why only these associations' journals were fulfilled the criteria of the study can be that the origins of APA and AERA date back approximately 110 years. In order to identify the included journals, some desprictive information as number of authors, time between submission and publication of papers, keywords are presented in following. The mean number of authors for JEP, EP, ER, and AERJ was approximately 4, 2, 3, and 3 respectively. For all papers, the minimum number of authors was 1 and the maximum was 13. The mean number of authors was 3, the median was 3 and the mode was 2. Therefore, it can be concluded that most papers in these journals had two authors.

When the time between submission and publication of papers examined, it was seen that the mean for JEP, ER, and AERJ was approximately 13, 7, and 12 respectively. There was no information about the time between submission and publication of papers in EP. According to findings, papers were published earliest in ER and latest in JEP. Considering the time between submission and publication of papers, it was found that while the earliest time was one month, the latest time was 46 months. Moreover, for all papers it was found that the mean time between the submission and publication of the papers was 11 months, the median was 11 and the mode was eight. This indicates that papers were mostly published in these journals within eight months of submission.

Appendix 1 presents the codes, categories and themes created based on the content analysis of keywords included in the selected papers. As it can be seen in Appendix 1, mostly studied theme was linguistic concepts with the frequency being 267. After that, it was determined personal and affective concepts (f: 174) and culture and race (f: 160) were the mostly studied themes.

Data Collection and Analysis

In the first stage of data collection, the full texts of articles published in the selected journals were obtained from the databases of Ankara University and the Middle East Technical University. In the second stage, a form was devised using the existing forms from other studies, in which papers and theses were examined (Çiltaş, 2012; Hsu, 2005; Selçuk et al., 2014; Tavşancıl et al., 2010). This form consisted of the following 11 sections; descriptive information on papers (such as journal and years), number of authors, time between the submission and publication of papers, keywords, field and rationale of the study, size and features of population-samples/study group, features of data collection techniques/tools, and software used for data analysis.

For the variables relating to the field and rationale of the study, features of the population-sample/study group and features of data collection techniques/tools, the information was coded by using the form devised by the authors. In this form, the units of the analyses were predefined. In addition, the keywords of the papers, data analysis methods/techniques and software were noted on this form. The journal Educational Psychologist was excluded from the coding of keywords since papers published in this journal did not use keywords.

Categorical and frequency analyses were used to perform a content analysis on the data. Content analysis is "an objective and systematic classification of data, in which words are transformed to numbers and inferences are made about the messages contained in the verbal, written and other materials in terms of meaning and/or language"(Tavşancıl & Aslan, 2001, p. 22). In categorical analysis, the message is broken down into units, which are then grouped into categories according to specific criteria. Frequency analysis reveals the frequency of units and elements in the manner of percentage and proportion (Bilgin, 2006).

In this study, the content analysis was performed in the following stages (Tavşancıl & Aslan, 2001; Yıldırım & Şimşek, 2011; Zhang & Wildemuth, 2009): Preparing data, defining the unit of analysis, developing categories and a coding scheme, testing the coding scheme, coding the whole text, assessing the coding consistency, drawing conclusions from the coded data and reporting on the findings. In this study, two types of coding were employed. In the first type, concepts were obtained from the examination of the keywords, data analysis methods/techniques and software. In the second type of coding, concepts were defined in a general framework depending on the field and rationale of the study, features of the population-sample/study group, and features of data collection tools that were employed (Strauss & Corbin, 1998).

Before developing the coding scheme, five articles which were randomly chosen by the researchers were simultaneously examined by three researchers. Once an agreement was reached on the coding scheme, papers were distributed among the three researchers to be examined according to the coding form. After coding was completed, three researchers examined randomly selected 30 papers to determine any inconsistencies in coding. The coefficient of inter-scorer agreement was found to be .96. This value indicated a high consistency among the researchers who coded the papers (Tavşancıl & Aslan, 2001).

Once all the codes were obtained, they were grouped according to their themes. In this process, it was considered whether that internal and external consistency were established. Depending on the depth and extent of the data, two-level themes were used in the coding of the keywords (Yıldırım & Şimşek, 2011). To this end, two experts from the department of psychological counseling and guidance and one expert from the department of measurement and evaluation checked the themes and whether the categories were grouped under the appropriate theme. Appendix 1 presents the codes and themes for keywords including their frequencies according to years. In the context of the study, thesis, papers, books, texts and so forth were addressed as documents. By utilizing from related literature, achievement tests and scales were not addressed as questionnaires. Because, while achievement tests assess whether individuals have learned the related academic topic/subject or not, this doesn't become the same case for scales and questionnaires (Cohen & Swerdlik, 2013). Moreover, scales are considered as

measurement tools developed in order to measure a psychometric construct or domain and to provide total score over items of the scale. For this reason, the statistical procedures can be conducted by using the total score obtained from the scale (Erkuş, 2011). ANOVA, ANCOVA, MANOVA and other types of variance analysis were combined to form the theme of "variance analysis ", the different types of regression analysis were combined to form the theme of "regression analysis" and all t-test models were combined to form the theme of "t-test".

Results

In this section, the results of the study are presented in the following subsections; the field of the study, the rationale for conducting the study, sample size, descriptive features of participants, data collection tools and analysis, and software.

Field of the Study

Table 2 presents the distribution of the field of the studies by years and journals.

Table 2. The Distribution of Field of Studies by Years and Journals

	Field of study	Educational Psychology	Language Skills	Mathematics Education	Measurement and Evaluation	Science	Preschool Education	Social Sciences	Technology	Educational/Academic Achievement	Psychology-Clinic	Race/ethnicity	Curriculum	Teacher Education	Educational Administration	Culture	Research	Higher Education	Special Education	Arts Education	Physical education	Medicine
2009	JEP	18	23	20	5	8	11	1	4	1	7	1	-	-	-	-	-	-	-	-	-	1
	EP	13	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-
	ER	1	1	-	3	-	-	1	-	1	-	-	1	-	1	1	4	-	-	-	-	-
	AERJ	9	4	8	1	4	2	14	3	-	-	-	12	-	-	-	-	-	-	-	-	-
Total		41	29	28	9	12	13	16	7	2	7	1	14	-	1	1	4	-	-	-	-	1
2010	JEP	16	26	18	-	4	3	1	3	6	2	2	3	2	-	-	2	-	3	1	-	-
	EP	5	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
	ER	-	2	1	1	1	-	1	2	2	3	-	-	-	-	2	1	-	-	-	-	-
	AERJ	2	3	5	3	1	-	1	-	-	-	4	1	8	1	1	1	2	-	-	-	-
Total		23	32	24	4	6	3	3	5	9	5	6	4	1-	1	3	4	2	3	1	-	-
2011	JEP	17	21	9	3	6	1	-	4	1	1	1	2	2	-	-	-	1	-	-	-	1
	EP	11	-	-	-	-	-	-	-	1	-	-	-	1	1	-	1	1	-	-	-	-
	ER	-	2	-	1	-	1	-	1	3	1	-	1	1	-	-	-	-	-	-	1	-
	AERJ	6	6	2	4	1	1	4	1	1	-	7	4	1	5	1	-	3	-	-	-	-
Total		34	29	11	8	7	3	4	6	6	2	8	7	5	6	1	1	5	-	-	1	1
2012	JEP	39	24	19	14	8	13	1	7	-	6	-	-	-	-	-	1	-	1	-	-	-
	EP	6	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ER	2	-	2	3	-	1	-	1	9	1	4	1	2	-	-	1	-	-	-	-	-
	AERJ	5	1	6	-	4	1	8	3	3	-	3	1	4	1	5	-	1	-	-	-	-
Total		52	26	28	18	12	15	9	11	12	7	7	2	6	1	5	2	1	1	-	-	-

Table 2. Continue

Field of study		Educational Psychology	Language Skills	Mathematics Education	Measurement and Evaluation	Science	Preschool Education	Social Sciences	Technology	Educational/Academic Achievement	Psychology-Clinic	Race/ethnicity	Curriculum	Teacher Education	Educational Administration	Culture	Research	Higher Education	Special Education	Arts Education	Physical education	Medicine
2013	JEP	25	15	15	11	6	10	-	8	-	19	-	-	-	-	-	-	-	1	1	-	-
	EP	9	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ER	1	2	1	3	-	-	6	-	3	2	4	4	2	3	-	1	2	-	-	-	-
	AERJ	10	-	8	3	5	2	6	3	3	-	5	-	2	1	2	-	3	-	-	-	-
Total		45	17	24	18	11	12	13	11	6	21	9	4	4	4	2	1	5	1	1	-	-
2014	JEP	23	13	9	3	4	4	-	4	3	1	2	-	2	-	-	1	-	-	-	1	-
	EP	5	-	1	-	-	-	-	-	-	-	1	-	1	-	1	-	-	-	-	-	-
	ER	1	2	2	4	3	1	2	3	2	-	1	-	4	1	-	2	1	-	1	-	-
	AERJ	7	6	3	-	1	-	1	-	4	-	1	4	1	6	4	-	-	-	-	-	-
Total		36	21	15	7	8	5	3	7	9	1	5	4	8	7	5	3	1	--	1	1	-
Sum		231	154	130	64	56	51	48	47	44	43	36	35	33	20	17	15	14	5	3	2	2

As shown in Table 2, most of the studies were conducted in the field of Educational Psychology (f: 231,), followed by Language Skills (f: 154) and Mathematics Education (f: 130).

Over the five-year period, educational psychology was the most investigated area with the exception of 2010, when language skills and mathematics education were found to be the top researched fields.

When the distribution of the field of studies was examined based on the journals, it was determined that studies in JEP were often in the field of linguistic concepts in 2009, 2010 and 2011, whereas educational psychology was top research field in 2012, 2013 and 2014. For all years, it was confirmed that the field of educational psychology were researched in JEP at most. This situation can be resulted from the reason of the number of published papers being greater in JEP among other journals. It was determined that studies in EP were often in the field of educational psychology in all years. Besides, the trends of top research area were not changed generally among years in EP. Top studied research field was educational research, namely not being belonged to any specific research area and generally being focused on educational researches in 2009, clinical psychology in 2010, educational/academic achievement in 2011 and 2012, social sciences in 2013 and measurement and evaluation in 2014 in ER.

The trends of research areas in ER and AERJ were varied. For instance, while educational/academic achievement was the most frequently studied research area in ER, educational psychology was the most frequently studied research area in AERJ. It was found that the trends of top research area were not changed generally among years in EP and studies in EP were often in the field of educational psychology; also studies in JEP were often in the field of linguistic concepts except last three years when educational psychology were found to be the top researched field

The Rationales for the Studies

The rationales for the studies are presented in Table 3:

Table 3. Distribution of The Rationale behind the Papers by Years and Journals

Problem		Gap	Discussion	Review (Meta Analysis, etc.)	Proposing New Model/Method
2009	**JEP**	67	-	1	-
	EP	1	15	1	-
	ER	4	8	-	2
	AERJ	33	2	1	-
Total		105	25	3	2
2010	**JEP**	67	-	2	-
	EP	-	5	1	-
	ER	6	6	-	2
	AERJ	27	-	-	-
Total		100	11	3	2
2011	**JEP**	61	-	-	-
	EP	-	11	5	1
	ER	5	3	2	1
	AERJ	40	-	-	-
Total		106	14	7	2
2012	**JEP**	79	-	5	-
	EP	2	6	2	-
	ER	13	5	1	3
	AERJ	34	2	-	2
Total		128	13	8	5
2013	**JEP**	61	-	4	-
	EP	1	9	3	-
	ER	16	9	-	3
	AERJ	39	3	-	-
Total		117	21	7	3
2014	**JEP**	60	-	1	-
	EP	1	7	-	1
	ER	16	1	6	3
	AERJ	35	1	-	-
Total		112	9	7	4
Sum		668	93	35	18

Table 3 shows that the most frequently reported the rationale for the studies was related to the gap in the literature (f: 668). Only a limited number of studies (f: 18) were conducted to propose new models or methods. According to Table 3, over the five years, most of the studies were conducted to fill the gap in the literature. Other rationales included the discussion of literature, theories and practices.

When the distribution of the rationale for the studies was examined based on the journals, it was determined that studies in EP were often conducted with the rationale of discussion of literature, theories and practices. However, the rationale for the studies was most frequently related to the gap in the literature in JEP and AERJ. It was confirmed that the rationale for the studies in ER was often discussion of literature, theories and practices in 2009 and 2010, whereas the gap in the literature in

2011, 2012, 2013, and 2014. In all years, papers whose rationales was related to proposing new model/method were often published in ER.

The Size of Population-Sample/Study Group

The examination of the sizes of the population-sample/study groups showed that the number of participants ranged from 1 to 35.861.980. The mean size in these studies was 81008. In addition, most of the studies were conducted with 6 participants. The mean size for JEP, EP, ER, and AERJ was 5718, 1581, 125126, and 191608 respectively. The minimum mean size was in studies of ER, the maximum mean size was in AERJ.

The Features of Population-Sample/Study Group

The distribution of the features of population-sample/study group by years and journals is given in Table 4.

Table 4. The Distribution of the Features of Population-Sample/Study Group by Years and Journals

Sample/Study Group		Elementary	Secondary	Teacher	Undergraduate	Preschool	Document	Family	Administrator	Graduate	Academician
2009	JEP	36	17	6	10	12	1	6	-	1	-
	EP	-	-	-	-	-	1	-	-	-	-
	ER	-	-	1	-	1	-	-	-	-	-
	AERJ	10	5	13	3	1	7	1	2	1	-
Total		46	22	20	13	14	9	7	2	2	-
2010	JEP	39	14	14	9	8	2	3	-	2	-
	EP	-	-	-	-	-	1	-	-	-	-
	ER	1	2	-	-	1	-	-	-	-	-
	AERJ	11	5	13	1	2	-	3	2	-	-
Total		51	21	27	10	11	3	6	2	2	-
2011	JEP	36	5	6	20	6	1	2	-	2	-
	EP	-	-	-	-	-	1	-	-	-	-
	ER	2	1	1	-	-	-	-	-	-	-
	AERJ	14	7	15	4	7	-	5	5	1	1
Total		52	13	22	24	13	2	7	5	3	1
2012	JEP	39	15	8	9	14	5	4	1	1	-
	EP	-	1	-	-	-	2	-	-	-	-
	ER	4	7	2	1	2	-	-	-	-	-
	AERJ	11	12	13	4	1	-	6	8	1	-
Total		54	35	23	14	17	7	10	9	2	-
2013	JEP	27	14	6	18	13	4	3	-	1	-
	EP	-	-	-	1	-	2	-	-	-	-
	ER	1	6	2	3	1	-	-	1	-	2
	AERJ	18	9	8	7	5	4	5	-	2	-
Total		46	29	16	29	19	10	8	1	3	2
2014	JEP	28	8	4	15	5	2	-	-	-	-
	EP	-	-	-	-	-	1	-	-	-	-
	ER	9	1	4	-	2	8	1	-	-	-
	AERJ	15	10	7	-	4	1	-	1	-	-
Total		52	19	15	15	11	12	1	1	-	-
Sum		301	139	123	105	85	43	39	20	12	3

As clearly shown in Table 4, most of the studies (f: 301) were conducted with elementary students (from one grade to eight grade). Since the selected journals in the study was in English, meaning of 'elementary' compromises both primary and middle school. According to Table 4,, the least number of studies were conducted with academicians (f: 3), followed by graduate students (f: 12) and administrator representing educational policy makers and bureaucrats (f: 20).

When the distribution of the features study group/sample was examined based on the journals, it was determined that papers published in JEP were often conducted with elementary students, whereas the sample of the papers published in EP consisted of documents frequently. Since papers published in EP focused on discussion of the literature, theories and practices, they did not need to be conducted with a sample /study group. It was confirmed that the features of sample/study group used frequently regarding the years in ER, preschool students and teachers were participated in 2009, high school students in 2010, 2012, and 2013, elemantary students in 2011 and 2014. Besides, the papers publish in AERJ were conducted often with teachers in 2009, 2010 and 2012, elemantary students in 2011 and 2013. Moreover, the heterogeneous sample/study groups participated in studies publish in AERJ most frequently.

To sum up, studies were generally conducted with elementary students. Samples consisting of elementary and secondary school students did not display a linear trend.

Data Collection Tools

The distribution of data collection tools used in the papers is presented in Table 5.

Table 5. The Distribution of Data Collection Tools by Years and Journals

Data Collection Tools		Achievement Test	Questionnaire	Scale and Inventory	Observation	Document	Interview	Intelligence and ability test	Coding Form
2009	JEP	31	24	17	6	9	3	9	1
	EP	-	-	-	-	-	-	-	-
	ER	-	1	-	1	3	1	-	-
	AERJ	10	8	2	11	3	14	-	4
Total		41	33	19	18	15	18	9	5
2010	JEP	41	17	23	2	7	1	6	1
	EP	-	-	-	-	-	-	-	-
	ER	1	2	1	-	5	-	-	-
	AERJ	16	15	12	7	3	15	-	-
Total		58	34	36	9	15	16	6	1
2011	JEP	35	19	12	1	6	3	11	1
	EP	-	-	-	-	-	-	-	-
	ER	3	3	1	-	3	-	-	-
	AERJ	18	23	15	12	8	14	-	-
Total		56	45	28	13	17	17	11	1
2012	JEP	37	24	32	8	6	2	18	5
	EP	1	1	-	-	-	-	-	-
	ER	5	9	1	1	3	-	-	-
	AERJ	11	25	5	13	10	16	-	2
Total		54	59	38	22	19	18	18	7
2013	JEP	28	19	29	4	10	-	4	4
	EP	1	-	-	-	-	-	-	-
	ER	6	8	-	3	9	3	-	-
	AERJ	19	24	9	10	3	6	6	-
Total		54	51	38	17	22	9	10	4

Table 5. Continue

Data Collection Tools		Achievement Test	Questionnaire	Scale and Inventory	Observation	Document	Interview	Intelligence and ability test	Coding Form
2014	JEP	26	24	22	5	3	4	12	3
	EP	-	-	-	-	-	-	-	-
	ER	9	11	-	1	1	1	1	5
	AERJ	10	7	7	10	-	7	2	2
Total		45	42	29	16	4	12	15	10
Sum		308	264	188	95	92	90	69	28

As clearly seen in Table 5, the most frequently used data collection tool was the achievement test (f:308). The least used data collection tool was coding form (f: 28), followed by intelligence and ability tests (f: 69).

When the distribution of data collection tools was examined based on the journals, it was revealed that achievement tests were used most frequently in all years but 2013 in JEP. It was confirmed that scales and inventories were often used in papers published in JEP in 2013. Documents were top data collection tool in papers published in ER whereas the top data collection tool was questionnaires in recent years. It was determined that data collection tools used frequently regarding the years in AERJ was interview method in 2009, achievement tests in 2010, questionnaires in 2011, 2012 and 2013, both achievement tests and observation method in 2014. In all years, the variety of data collection tools were in the papers published in JEP. Furthermore, interview and observation methods were often used in papers published in AERJ in all years.

From findings, generally papers used achievement test, after that the use of questionnaires and scales were took part in the studies as data collection tools. Besides, , the use of data collection tools did not display a linear trend over the six years.

Data Analysis Methods

Table 6 presents the distribution of data analysis methods used in the papers by years and journals.

Table 6. The Distribution of Data Analysis Methods by Years and Journals

Data Analysis		Variance A.	Multilevel M.	Regression A.	SEM	CFA	Correlation A.	t-test	EFA	Content A.	Meta A.	Descriptive A.	Discourse A.	Cultural A.	Cluster A.	Other *
2009	JEP	16	4	2	9	6	-	6	2	-	1	-	-	-	1	-
	EP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ER	-	1	-	-	-	-	-	-	-	-	-	3	-	-	1
	AERJ	12	6	3	2	-	-	4	2	2	1	-	-	-	-	4
Total		28	11	5	11	6	-	10	4	2	2	-	3	-	1	5
2010	JEP	24	24	15	14	6	19	6	3	1	1	-	-	-	1	2
	EP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ER	-	-	2	-	-	-	2	2	1	-	2	-	-	-	-
	AERJ	1	5	6	3	-	2	2	-	3	-	1	1	-	-	1
Total		25	29	23	17	6	21	10	5	5	1	3	1	-	1	3

Table 6. Continue

Data Analysis		Variance A.	Multilevel M.	Regression A.	SEM	CFA	Correlation A.	t-test	EFA	Content A.	Meta A.	Descriptive A.	Discourse A.	Cultural A.	Cluster A.	Other *
2011	JEP	29	18	10	9	11	10	3	2	-	1	-	-	-	-	-
	EP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ER	1	2	1	-	-	1	-	-	1	-	-	-	2	-	-
	AERJ	2	9	9	2	-	1	2	1	2	-	1	1	-	1	3
Total		32	29	20	11	11	12	5	3	3	1	1	1	2	1	3
2012	JEP	33	20	11	18	14	-	-	5	-	5	-	-	-	1	2
	EP	-	1	-	2	1	-	-	-	-	1	-	-	-	-	-
	ER	2	1	7	2	-	2	-	-	1	-	4	-	1	-	4
	AERJ	2	5	8	2	-	-	1	-	1	-	1	1	1	-	-
Total		37	27	26	24	15	2	1	5	2	6	5	1	2	1	6
2013	JEP	33	12	9	17	11	-	5	1	1	2	-	-	-	-	-
	EP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ER	1	-	9	-	-	-	1	-	1	1	2	1	3	-	4
	AERJ	5	10	4	3	-	-	-	-	-	-	-	1	-	1	-
Total		39	22	22	20	11	-	6	1	2	3	2	2	3	1	4
2014	JEP	20	16	10	12	5	1	3	1	-	2	-	-	-	-	1
	EP	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ER	-	5	4	-	-	-	-	-	1	-	-	-	-	1	2
	AERJ	8	7	5	4	3	3	1	1	-	-	1	-	-	-	-
Total		28	28	19	16	8	4	4	2	1	2	1	-	-	1	3
Sum		189	146	115	99	57	39	36	20	15	15	12	8	7	6	24

***** Chi Square, Canonical, Textual Analysis etc.

Table 6 shows that the most frequently used analysis was the variance analysis (f:189) and the least used analysis was cluster analysis (f: 6), followed by cultural analysis (f: 7).

When the distribution of data analyses was investigated based on the journals, variance analysis was the most frequently used data analysis technique in all years in JEP journal. It was determined that multilevel modelling was used as frequent as the variance analysis in 2010. Discourse analysis was the mostly used analysis in 2009 in ER journal while t test, regression and descriptive statistics were among the frequently used analysis in 2010. Moreover, multilevel modelling was often used in 2011 and 2014 whereas regression analysis was preferred in 2012 and 2013. It was confirmed that the analysis techniques used frequently regarding the years in AERJ journal was variance analysis in 2009, regression analysis in 2010, both regression analysis and multilevel modelling in 2011 and 2012, multilevel modelling in 2013 and 2014 and variance analysis in 2014 as well as multilevel modelling. Table 6 demonstrate that researchers used variance analysis, multilevel modelling and structural equation modelling (SEM) more frequently than other methods.

Software

The distribution of software by years and journals is given in Table 7.

Table 7. The Distribution of Software by Years and Journals

Software		Mplus	SPSS	SAS	HLM	AMOS	LISREL	MLwiN	Nvivo	STATA	R	EQS	ATLAS.ti	Hyper RESERACH	Other
2009	JEP	5	6	3	8	5	4	1	1	-	-	2	-	-	2
	EP	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ER	-	1	1	-	-	-	-	-	-	-	-	-	-	1
	AERJ	1	2	-	3	-	-	-	1	2	-	-	2	1	1
Total		6	9	4	11	5	4	1	2	2	-	2	2	1	4
2010	JEP	9	3	7	4	1	-	1	-	-	-	1	-	-	1
	EP	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ER	-	1	-	-	-	-	-	-	-	-	-	-	-	-
	AERJ	2	-	1	-	-	-	1	-	2	-	-	-	1	-
Total		11	4	8	4	1	-	2	-	2	-	1	-	1	1
2011	JEP	10	4	4	3	2	1	1	-	-	1	-	-	-	1
	EP	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ER	-	-	1	-	-	-	-	-	-	-	-	-	-	1
	AERJ	4	1	2	1	-	-	-	-	2	-	-	2	1	3
Total		14	5	7	4	2	1	1	-	2	1	-	2	1	5
2012	JEP	12	9	9	11	5	4	2	1	-	1	3	-	-	4
	EP	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	ER	1	1	1	1	-	-	-	-	-	-	-	-	-	-
	AERJ	-	2	2	-	-	-	-	1	2	-	-	-	-	-
Total		14	12	12	12	5	4	2	2	2	1	3	-	-	4
2013	JEP	15	6	3	1	2	2	2	2	-	-	-	-	-	3
	EP	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	ER	-	-	-	-	-	-	-	1	-	-	-	-	-	1
	AERJ	3	-	1	1	1	-	1	2	-	-	-	1	-	-
Total		18	6	4	2	3	2	3	5	-	-	-	1	-	6
2014	JEP	13	6	4	6	-	1	2	-	-	2	1	-	-	3
	EP	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	ER	-	-	2	-	-	-	-	1	-	2	-	-	-	1
	AERJ	5	2	-	2	-	-	-	-	1	1	-	1	-	3
Total		18	8	6	8	-	1	2	1	1	5	1	1	-	7
Sum		144	53	45	52	21	16	12	12	11	7	9	8	4	31

Table 7 illustrates that the mostly used software was Mplus (f: 144) and the least popular software was Hyper Research (f: 4), followed by ATLAS.ti (f: 8).

When the use of software were examined based on the journals, the most frequently used software was Mplus in all years except 2009, HLM was used at most in papers published in JEP in 2009. It was determined that the use of software was few in ER whereas SPSS and SAS were among the frequently used software in ER. Moreoever, HLM was often used in 2009, whereas Mplus was preferred in 2010, 2011, 2013 and 2014 , SPSS, SAS and Nvivo in 2012 in AERJ.

As clearly shown in Table 7, Mplus, SPSS, SAS and HLM were commonly used software applications. Moreover, the use of software did not display a linear trend over the five years.

Discussion, Conclusion and Suggestions

When the papers published in journals with high five-year impact factors were examined in terms of the field of study, the trends of the most frequently field of study of the journals ER and AERJ were found to be changed across the years. While education and academic achievemet were the most commonly studied field of the journal ER, educational psychology is the most commonly studied one in AERJ. It was concluded that in the journal ER, the trends in the field of study is similar throughout the years. Specifically, educational psychology is the most frequently field of study in all years. In JEP, while language skills were the most commonly studied field in the first three years, educational psychology is the most frequently studied one in the last three years. When all research papers were examined, it was concluded that the most frequently studied field were educational psychology, language skills, mathematics education and measurement, assessment and evaluation in the papers. Considering the the most frequently field of the studies in all years, education/academic success is not the most frequently field of study although it is the most frequently one in ER. This results from the fact that number of papers published in ER is limited and education/academic success did not take first places in the most frequently stuied field in the other journals in which a high number of articles were published. Similarly, Hsu (2005) examined papers published in AERJ, Journal of Experimental Education (JEE) and Journal of Educational Research (JER) from 1971 to 1998 and reported similar findings obtained from examination of all journals and indicated that the mostly studied fields were educational psychology, teaching, teachers, and measurement and assessment in these three journals. It is noticed that the journal AERJ is incommon for both the current study and the one conducted by Hsu (2005) and the mostly studied areas are educational psychology and measurement and evaluation in both studies. Similarly, in a research study conducted by Selçuk et al. (2014), who examined papers published in the journal Education and Science in 2007-2013, it was pointed out that some of the most frequently researched field of study were educational psychology, mathematics education and measurement and assessment. In addition, this finding of the current study is also supported with that of the study of Göktaş, Hasançebi, Varışoğlu, Akçay, Bayrak, Baran and Sözbilir (2012). The reason for being frequenly studied fields is due to the significant role of educational psychology and measurement and assessment in the educational system as supplementary components. Also, educational psychology encompasses all sub-areas of educational sciences since it focuses on students' behavior in learning process, class and school environment. Similarly, measurement and assessment is also vital for all these subareas. That's why, these are some of the most frequently researched areas. The reason for the high number of research studies on mathematics education is related to its practical, discipliner and cultural value (Legner, 2013) and its important place in both daily life and school life. Furthermore, although there is a high number of the resarch studies focusing on language skills in these selected journals, the researches (Göktaş, Hasançebi, Varışoğlu, Akçay, Bayrak, Baran and Sözbilir, 2012; Selçuk et al., 2014) indicated that there are only a limited number of studies on language skills such as reading, writing, speaking and listening in Turkey. In the countries where the studies were conducted, multiculturalism and bilingualism were predominant issues and students may have a difficulties in these issues. Thus, language skills are frequently studied. This can be explained by the fact that in Turkey, while reading comprehension is considered to be an important language skill, listening and speaking skills are not given enough emphasis (Emiroğlu & Pınar, 2013). Considering the importance of language skills, it can be recommended that there is a need to conduct further research focusing on this particular area.

When the distribution of the rationale for the studies were examined based on the journals, it was determined that papers in EP were often conducted with the rationale of discussion of literature, theories and practices in all years. To be more precise, reviews and paper which are suitable to the theoretical nature of the problem were published in this journal. However, it was determined that the rationale for the studies was most frequently related to the gap in the literature in JEP and AERJ. It was revealed that the rationale for the studies in ER was often discussion of literature, theories and practices

in 2009 and 2010, whereas the gap in the literature is mostly stated in 2011, 2012, 2013, and 2014. In all years, papers whose rationales was related to proposing new model/method were often published in ER.

Related examinations showed that most researches which were published in the journals having the highest impact factor of five years were aimed to compensate for the gap in the literature. It is also conferred that researchers try to contribute to their field by having theoretic discussions and proposing new models. Number of studies proposing new models or methods in education sciences are far more limited than those in physical sciences because the nature of the education sciences depend on the indirect observation methods in order to produce scientific knowledge. Therefore, researchers from education science field tend to compensate this gap in the literature. On the other hand, the literature reveals that researchers sometimes fail to emphasize enough the reasons why they stand to do the research.For example, Tavşancıl et al. (2010), who examined theses and dissertations in educational sciences in Turkey reported that the rationale for most was not explicitly given. Therefore, it is recommended for future researchers to clearly explain their reasons for conducting their study so that they provide precise information.

It was concluded from the current study that most of the selected studies were conducted with large samples (more than 10,000). This situation demonstrates that large sample or study groups are much more preferred than small sample or study groups. ER was the journal which has the lowest average of population-sample/study group while AERJ was the journal having the highest average. Willson (1980) pointed out that the mean sample size of papers published in AERJ in 1969-1978 ranged from 310 to 4251. On the other hand, a smaller sample size has been reported for studies conducted in Turkey (Arık & Türkmen, 2009; Çiltaş, 2012; Göktaş, Hasançebi, Varışoğlu, Akçay, Bayrak, Baran and Sözbilir, 2012; Selçuk et al., 2014). Göktaş, Hasançebi, Varışoğlu, Akçay, Bayrak, Baran and Sözbilir (2012), who examined the papers published in the journals indexed in SSCI and ULAKBILIM database between 2005 and 2009 found that the sample size ranged from 31 to 1000. Similarly, Selçuk et al. (2014) investigated the papers published in the journal "Education and Science" and found the sample size to be from 31 to 1000. Reasons of using small groups for studies can be listed as the time spent gathering data is relatively short and money and effort spent are more affordable. This can be due to the fact that the studies conducted in Turkey are done in one city or specific schools (Akaydın & Çeçen, 2015). However, the reason why researches from abroad prefer large sample might be because that large sample increases the generalizability of data. Furthermore, other several reasons can be listed for the large sample size in the selected papers. First, most of the studies conducted abroad are longitudinal studies. Secondly, these studies were conducted with various samples such as family, teachers and students. Lastly, in most of the countries where studies were conducted, it is easier to access the national data sets. In this context, it is recommended for institutions that are responsible for the assessment of student achievements to provide access to their related data and to utilize these results.

The content analysis showed that almost half of the studies were conducted with elementary (1^{th}-8^{th}) and secondary students (9^{th}-12^{th}), followed by teachers and undergraduate students. Investigated upon the journals, JEP is the journal which focuses on the researches sampled from elementary education student in all years whereas AERJ is noted as the journal which has the most heterogeneous group used for sampling. Willson (1980) also indicated that the samples of papers published in AERJ mostly consisted of undergraduate students, followed by the 5^{th} and 8^{th} grade students. Similarly, this finding was supported with that of the study of Arık and Türkmen (2009), who examined papers published in four journals indexed in SSCI in 2008, found that most of the studies were conducted with undergraduate students. Göktaş, Hasançebi, Varışoğlu, Akçay, Bayrak, Baran and Sözbilir (2012), who examined papers published in the educational journals indexed by SSCI nd ULAKBIM in 2005-2009 reported that studies were mostly conducted with undergraduate students, especially those who were enrolled in teacher education programs. Besides, in their study, Selçuk et al. (2014), who examined papers published in Education and Science in 2007-2013 concluded that mostly undergraduate students and then teachers were selected as the sample of the studies. The reasons why

university students are commonly used in researches in Turkey may be justified as the easy access for academicians, easy application of forms without any permisssion or bureaucratic process as they lead the course, the possibility of increasing the students' motivation as they know the students and the size of the group. Additionally, academicians may prefer the university students' problems topics to study as they have a constant interaction with them. In this context, it is suggested for researchers in educational sciences that more emphasis should be given to the elementary and secondary students in the studies conducted in Turkey. Also, this study also suggests that researchers should select heterogeneous samples by considering the existence of the interaction amaong family, teacher, peers and others.

It was concluded that schievement tests, questionnaires and scales were commonly used in half of the research papers. This situation reveals that written data collection techniques are used commonly while qualitative data collection techniques (observation, interview etc) are not preferred as much as the written ones. When investigated based on the journals, in all years, JEP has the widest range of data collection tools used whereas AERJ is the journal in which observation and interview techniques are mostly used. In their study, Tavşancıl et al. (2010), who examined theses and dissertations found the similar results. Similarly, Erdem (2011), who analyzed papers on educational sciences published in 2005 and 2006, reported the similar results with the current study and further indicated that the use of scales and questionnaires was common. In addition, Göktaş, Hasançebi, Varışoğlu, Akçay, Bayrak, Baran and Sözbilir (2012), who reviewed the educational papers published in journals indexed by SSCI and ULAKBIM database between 2005 and 2009, concluded that questionnaires, interest, attitude scales, and personality inventories were frequently used as data collection tools. Similarly, Selçuk et al. (2014) found the most popular data collection tools to be attitude scales, personality inventories, perception tests, questionnaires and observation to be the least favored. This finding also supports the results obtained from the current study. The reasons why questionnare and scales are commonly used in studies may be because the low cost, easy application and usefulness regarding effort and time spent (Baş, 2005). Why observation and interview have a lower range of usage may be that it takes plenty of time. Besides, the necessity to train the observer and the interviewer, the requirement to obtain the legal permissions in order to store the observation or interview and the possibility to contain subjective judgements of researcher are considered as the reasons of less usage as well. On the other hand, achievement tests are one of the mostly used data collection tool. In addition, the reasons why achievement tests are used widely can be summarized as the focus of education journals on students' achievement and the importance of achievement tests to determine the students' success levels.

It was concluded from the content analysis of the papers from the selected journals that variance analysis was the mostly used data analysis method in JEP journal for all years while regression and multilevel modelling are also used often in ER and AERJ journals. Besides, it was determined that the most frequently used data analysis methods/techniques were variance analysis, multilevel modelling, regression analysis and SEM for all the journals. The reasons why these methods are commonly employed can be that in the social sciences, variables are hierarchically nested; for example, students are nested within classes, which are nested within teachers/schools. Therefore, a multilevel modelling analysis was required. Furthermore, the frequent use of SEM analysis is considered to be due the fact that SEM allows the researcher to analyze complex relationships between variables and model these relationships. These findings are also supported by the study of Willson (1980), who demonstrated that ANOVA, ANCOVA, correlation, multiple regression, discriminant analysis, and MANOVA were frequently used data analysis methods in the papers published in AERJ in 1969-1978. Similarly, Goodwin and Goodwin (1985a, 1985b) stated that the most commonly used data collection methods/techniques in the papers published in AERJ in 1979-1983 were ANOVA, multiple regression, covariance analysis and correlation. Elmore and Woehlke (1998), who examined the papers published in AERJ, ER and Review of Educational (RE) in terms of statistical techniques also found the consistent

results with the current study and determined that variance analysis and regression analysis were mostly used. In addition, Kieffer et al. (2001), who examined 756 papers published in Journal of Counseling Psychology (JCP) and AERJ in 1988- 1997 also reported that variance-covariance, regression and correlation analysis were frequently used methods. Hsu (2005) who examined the papers published in the AERJ, JEE and JER in the years between 1971 and 1998 also stated that one of the most commonly used data analysis methods was variance analysis, which is paralell to the findings of the present study.

AERJ is one of the most investigated journals in international studies (Elmore & Woehlke, 1998; Goodwin and Goodwin, 1985a; Hsu, 2005; Kieffer et al., 2001; Willson, 1980). This allows the researchers to identify the trends of data analysis methods. In this context, the trends in research methods are similar from 1970s to 2000s. Different from the literature, in the current study, it was also found that SEM and multilevel modelling analysis were also frequently employed. Furthermore, basic data analysis methods (such as variance analysis, t-test, regression, etc.) were found to be commonly used while it is expected that the use of multilevel modelling is getting increase when applicable to the data structure. On the other hand, studies conducted in Turkey pointed out that descriptive analysis, and analysis focusing on differences and correlation analysis were frequently used (Arık & Türkmen, 2009; Erdem, 2011; Selçuk et al., 2014). The content analysis of the selected papers in the current study showed that studies in Tukey focused on the relationship between a limited number of dependent and independent variables. Probable reasons of this situation may be because that these analysis methods take relatively less time, limited relationship between the variables are handled and interpretation of the features of the variables used in these analysis is easy. In this regard, researchers are recommended to use multilevel modelling and multivariate modelling data analysis methods aiming to reveal more detailed relationships among variables when it is applicable to the nestes data structure

The most commonly used software applications were Mplus, SPSS, SAS and HLM. Analyzed upon the journals, Mplus was noted as the most commonly used programme. While the HLM software has increased its popularity over the years (Onwuegbuzie, 2002), the number of authors using this tool is still very limited due to its difficulty (Onwuegbuzie & Daniel, 2003). On the other hand, in Turkey the most frequently used software applications were reported to be SPSS and LISREL (Arık & Türkmen, 2009; Doğan & Uluman, 2015). Some programmes (for example; Mplus and LISREL) serve the identical purposes; yet, researches prefer one over another. This choice process effecting the users' preference can be explained by friendly-user package programmes, easy access, sensitivity to different criteria (tenderness to capital letter in process of code writing), having a detailed manual and similar factors. Relatively easy use of the steps of the analysis and the high number of the statistics provided by the package programme are other factors effecting the researchers' choice of these packages. The reasons for this frequent use could be that they are easy to access and use, consist of many data analyses/techniques within themselves. Other software may not be so popular since it is expensive and the application is complex. Additionally, the reasons why less frequently used software/package are not chosen so much may cause from the fact that they are not able to carry out so many analyses or they have been developed recently.

It can be suggested to the researchers who want to publish their studies to the journals examined in the context of this study that it is wise to investigate the tendency of journals regarding the field of studies, features and size of population-sample, data collection tool etc. For example, journal EP focuses on the theoretical discussion of educational psychology. It will benefical to all stake holders in education to work with the appropriate sample regarding the necessity of the field rather than the sample sample which is easy to access. To be more precise, it is suggested that using observation and interviews to obtain deeper information regarding the problems of teachers and students is more useful in order to solve the issues rather than using the written data colection tools (scales, questionnares, etc.) and university students just because of the easy application. This situation ensures both a solution to

the problems of students and teachers and diminishment of the boredom of students who are crushed with filling the scales and questionnaries. As a result, it can be a positive effect to the quality of the researchers' publications from education science if the reviewers of the journals prefer the studies which are constructed with different samples, large groups, various analysis and different data collection tools.

In the process of the examination of the papers, the accuracy of the methods used or the appropriateness of their methodology were not addressed since papers published in these selected journals were considered to be good examples and to have higher standards in terms of publications in their corresponding fields. Therefore,it is assumed that there is no methodological problem. In this regard, a further study is recommended to focus on these aspects. In addition, the investigation of a possible relationship between the criteria used in the current study can be undertaken. In addition to this, there happened no effort in this study regarding the discussions, conclusions and suggestions parts of the articles. Thereby, a further study can be conducted focusing on these sections. Also, this study is limited to the articles from 2009 to 2014 in order to identify the current tendency. It can be suggested to other researchers to conduct studies by extending the time period.

An Evaluation of this Study Regarding Education for Future

In the new millennium, workforce which is rapidly changing continuously and global challenges require education for future (Higgs et al., 2010). As it was the case in this study and stated by Higgs et al. (2010), focusing on the current practices and studies in education enables researchers to reveal the main aspects of the education related to determining trends that are likely to endure or lose their significance in future education. In the field, there is abundant data and opportunities available to do high-quality researches and make such determination. Researches which benefit from these opportunities make a fruitful research ground regarding economic and social effects of the studies in education (Dearden, Machin, & Vignoles, 2011). In this context, since this study reveals the trends of the studies published in journals with high impact factors , it is considered that this study will point the way for research who engaged in the area of education and create awareness. The present study also enables researcher to raise their standards and made a contribution to knowledge about which subjects are mostly studied. Furthermore, this study provides guiding information to researchers who are intended to publish their research papers in journals with high impact factors on subject areas and method. Thereby, thanks to this study researchers who are informed about the point of views of these journal can achieve high-qualified studies which are needed. As a result, because of these reasons, it can be concluded that the current study have important indicators about the special issue "education for future" for "International Congress on Education for Future".

References

Akaydın, Ş., & Çeçen, M. A. (2015). A content analysis on articles related to reading skills. *Education and Science*, *40*(178), 183-198.

Alkan, C. (1989). Eğitim bilimlerinde araştırma. *Ankara Üniversitesi Eğitim Bilimleri Fakültesi Dergisi*. *22*(1), 23-27.

Alper, A., & Gülbahar, Y. (2009). Trends and issues in educational technologies: A review of recent research in TOJET. *The Turkish Online Journal of Educational Technology*, *8*(2), 124-135.

Archambault, E., & Lariviere, V. (2009). History of the journal impact factor: Contingencies and consequences. *Scientometrics, 79*(3), 635-649.

Arık, R. S., & Türkmen, M. (2009). Eğitim bilimleri alanında yayınlanan bilimsel dergilerde yer alan makalelerin incelenmesi. Retrieved from http://www.eab.org.tr/eab/2009/pdf/488.pdf

Asan, A. (2005). SCI-EXPANDED, SSCI, AHCI ve etki faktörü (= impact factor). In O. Yılmaz (Ed.), *Sağlık Bilimlerinde Süreli Yayıncılık – 2005: 3. Ulusal Sempozyum* (pp. 221-263). Ankara: TÜBİTAK.

Asan, A. (2010). Web of Science kapsamındaki Türk dergilerinin etki faktörü (impact factor) değerleri. In O. Yılmaz (Ed.), *Sağlık Bilimlerinde Süreli Yayıncılık* (pp. 49-58).

Aydın, A. Erdağ, C., & Sarıer, Y. (2010). A comparison of articles published in the field of educational administration in terms of topics, methodologies and results. *Eurasian Journal of Educational Research*, (39), 37-58.

Aypay, A., Çoruk, A., Yazgan, A. D., Kartal, O. Y., Tunçer, B., Attila, S. M., & Emran, B. (2010). The status of research in educational administration: An analysis of educational administration journals, 1999-2007. *Eurasian Journal of Educational Research*, (39), 59-70.

Baki, A., Karataş, I., Akkan, Y., & Çakıroğlu, U. (2011). Trends in Turkish mathematics education research: From 1998-2007. *Hacettepe University Journal of Education*, (40), 57-68.

Baş, T. (2005). *Anket: nasıl hazırlanır, uygulanır, değerlendirilir?* (3. bs.). Ankara: Seçkin Yayıncılık.

Bilgin, N. (2006). *Sosyal bilimlerde içerik analizi: Teknikler ve örnek çalışmalar* (2nd ed.). Ankara: Siyasal Kitabevi.

Chang, Y. H., Chang, C. Y., & Tseng, Y. H. (2010). Trends of science education research: An automatic content analysis. *Journal of Science Educational Technology*, (19), 315-331. doi:10.1007/s10956-009-9202-2.

Cohen, R. J., & Swerdlik, M. E. (2013). *Psikolojik test ve değerleme. Testlere ve ölçmeye giriş* (E. Tavşancıl, Trans.). Ankara: Nobel Akademik Yayıncılık.

Çalık, M., & Sözbilir, M. (2014). Parameters of content analysis. *Education and Science*, *39*(174), 33-38. doi:10.15390/EB.2014.3412

Çiltaş, A. (2012). Content analysis of the graduate thesis and dissertations in mathematics education in turkey between 2005-2010. *The Journal of Academic Social Science Studies*, *5*(7), 211-228.

Dearden, L., Machin, S., & Vignoles, A. (2011). The contribution of the economics of education to education. In J. Furlong and M. Lawn, (Ed.), *Disciplines of education. Their role in the future of education research* (pp. 85-102). London/New York: Routledge.

Doğan, D., & Uluman, M. (2015, 13-15 May). *Using R software for data analysis in social and educational sciences*. Paper presented at The International Congress on Education for the Future: Issues and Challenges, Ankara.

Elmore, P. B. & Woehlke, P. L. (1998). *Twenty years of research methods employed in American Educational Research Journal, Educational Researcher, and Review of Educational Research*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Emiroğlu, S., & Pınar, F. N. (2013). Relationship between listening and other skill types, *Turkish Studies*, *8*(4), 769-782.

Erdem, D. (2011). Türkiye'de 2005–2006 yılları arasında yayımlanan eğitim bilimleri dergilerindeki makalelerin bazı özellikler açısından incelenmesi: Betimsel bir analiz. *Eğitimde ve Psikolojide Ölçme ve Değerlendirme Dergisi*, *2*(1), 140-147.

Erkuş, A. (2011). *Davranış bilimleri için bilimsel araştırma süreci*. (3rd ed.). Ankara: Seçkin Yayıncılık.

Garfield, E. (2006). The history and meaning of the journal impact factor. *JAMA*, *295*(1), 90-93. doi:10.1001/jama.295.1.90

Goodwin, L. D., & Goodwin, W. L. (1985a). An analysis of statistical techniques used in the Journal of Educational Psychology, 1979-1983. *Educational Psychologist*, *20*(1), 13-21.

Goodwin, L. D. & Goodwin, W. L. (1985b). Statistical techniques in AERJ articles, 1979-1983: The preparation of graduate students to read educational research literature. *Educational Researcher*, *14*(2), 5-11.

Göktaş, Y., Hasançebi, F., Varışoğlu, B., Akçay, A., Bayrak, N., Baran, M., & Sözbilir, M. (2012). Trends in educational research in Turkey: A content analysis. *Educational Sciences: Theory & Practice*, *12*(1), 443-460.

Göktaş, Y., Küçük, S., Aydemir, M., Telli, E., Arpacık, Ö., Yıldırım, G., & Reisoğlu, I. (2012).Educational technology research trends in Turkey: A content analysis of the 2000-2009 decade. *Educational Sciences: Theory & Practice*, *12*(1), 177-199.

Hart, L. C., Smith, S. Z., Swars, S. L., & Smith, M. E. (2009). An examination of research methods in mathematics education: 1995–2005. *Journal of Mixed Methods Research*, *3*(1) 26–41.

Higgs, J., Fish, D., Goulter, I., Loftus, S., Reid, J., & Trede, F. (2010). Education for future practice. In J. Higgs, D. Fish, I. Goulter, S. Loftus, J-A Reid, & F.Trede (Ed.). *Education for future practice* (pp. 3-13). Rotterdam, The Netherlands: Sense Publishers.

Hoeffel, C. (1998). Journal impact factors. *Allergy*, *53*(12), 1225.

Hsu, T. (2005). Research methods and data analysis procedures used by educational researchers. *International Journal of Research & Method in Education*, *28*(2), 109–133.

Karadağ, E. (2009). A thematic analysis on doctoral dissertations made in the area of education sciences. *Journal of Kırşehir Education Faculty*, *10*(3), 75-87.

Kieffer, K. M., Reese, R. J., & Thompson, B. (2001). Statistical techniques employed in AERJ and JCP articles from 1988 to 1997: A methodological review. *Journal of Experimental Education*, *69*(3), 280-309.

Kleinsasser, R. C. (2014). Teacher efficacy in teaching and teacher education. *Teaching and Teacher Education*, 44, 168-179.

Lee, M., H., Wu, Y., T., & Tsai, C. C. (2009). Research trends in science education from 2003 to 2007: A content analysis of publications in selected journals. *International Journal of Science Education*, *31*(15), 1999–2020.

Legner, P. (2013). *The value of teaching mathematics*. Retrieved from http://mathigon.org/resources/value-of-mathematics.pdf

Mortimore, P. (2000). Does educational research matter? *British Educational Research Journal, 26*(1), 5-24.

Onwuegbuzie, A. J. (2002). Common analytical and interpretational errors in educational research: An analysis of the 1998 volume of the British Journal of Educational Psychology. *Educational Research Quarterly*, 26, 11-22.

Onwuegbuzie, A. J., & Daniel, L. G. (2003). Typology of analytical and interpretational errors in quantitative and qualitative educational research. *Current Issues in Education*, *6*(2).

Selçuk, Z., Palancı, M., Kandemir, M., & Dündar, H. (2014). Eğitim ve Bilim dergisinde yayınlanan araştırmaların eğilimleri: İçerik analizi. *Eğitim ve Bilim*, *39*(173), 430-453.

Sözbilir, M., & Kutu, H. (2008). Development and current status of science education research in Turkey [Special Issue]. *Essays in Education*, 1-22.

Strauss, A. C., & Corbin, J. M. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks, CA: Sage Publication.

Tavşancıl, E., & Aslan, E. (2001). *Sözel, yazılı ve diğer materyaller için içerik analizi ve uygulama örnekleri.* Epsilon Yayınları: İstanbul.

Tavşancıl, E., Çokluk, Ö., Çıtak, G., Kezer, F., Yıldırım, Ö., Bilican, … Özmen, T. (2010). *The investigation of theses completed at the institutes of educational sciences (2000-2008).* Ankara: Ankara Üniversitesi.

The PLoS Medicine Editors (2006). The impact factor game. *PLoS Med*, *3*(6), 291.

Thomson Reuters. (2015). Journal Citation Report (JCR) Social Science. Retrieved from http://admin-apps.webofknowledge.com/JCR/JCR

Tsai, C. C., & Wen, L. M. C. (2005). Research and trends in science education from 1998 to 2002: A content analysis of publication in selected journals. *International Journal of Science Education*, *27*(1), 3–14.

Turan, S., Karadağ, E., Bektaş, F., & Yalçın, M. (2014). Knowledge production in educational administration in Turkey: An overview of researches in journal of educational administration: theory and practice -2003 to 2013-. *Educational Administration: Theory and Practice*, *20*(1), 93-119. doi:10.14527/kuey.2014.005.

Willson, V. L. (1980). Research techniques in AERJ articles: 1969 to 1978. *Educational Researcher*, *9*(6), 5-10.

Yıldırım, A., & Şimşek, H. (2011). *Sosyal bilimlerde nitel araştırma yöntemleri* (8th ed.). Ankara: Seçkin Yayıncılık.

Yılmaz, K., & Altınkurt, Y. (2012). An examination of articles published on preschool education in Turkey. *Educational Sciences: Theory & Practice*, *12*(4), 3227-3241.

Zhang, Y., & Wildemuth, B. M. (2009). Qualitative analysis of content. In B. Wildemuth (Ed.), *Applications of social research methods to questions in information and library science* (pp. 308-319). Westport, CT: Libraries Unlimited.

Appendix 1. The Codes, Categories And Themes Created Based on the Content Analysis of Keywords

Keywords			2009	2010	2011	2012	2013	2014	Total
		Reading	7	3	13	6	4	8	41
		Reading comprehension	6	5		5	1	2	19
		Vocabulary	5	8	4	1	3	1	22
		Narrative	1		1	3	1		6
		Reading disabilities	1	1		2	1		5
		Reading fluency		2	2		1	1	6
		Reading frequency		3		1			4
		Reading instruction	2	1	1			1	5
		Storybook reading	2	2					4
		Word difficulty	2	1	1				4
	Reading and related concepts (139)	Predictors of reading			1	2			3
		Reading achievement		3					3
		Reading intervention		1		1	1		3
		Oral reading rate		1	1				2
		Reading engagement		1		1			2
		Reading failure		2					2
		Text structure	1	1					2
		Reading development		1					1
		Reading motivation				1		1	2
		Story novelty				1			1
		Reading time components			1				1
Linguistic Concepts		Fifth grade reading			1				1
		Bilingualism	2	3	3	3	3	3	17
		English language learner	3	4	2		2		11
		Language minority		2	1		2		5
		Language acquisition				3			3
		Language learning	1	1		1		3	6
		Language skills			1		1	4	6
		Cross language comparison		2				1	3
		Metalinguistic skills			1		1		2
	Language (66)	Language policy		1		1			2
		Korean language	1						1
		Chinese learning		1	1				2
		Home language			1				1
		Language of instruction					1	1	1
		Language comprehension					1		1
		Language arts				1			1
		Language processes			1				1
		Transparent languages				1			1
		Native language use			1				1

Keywords			2009	2010	2011	2012	2013	2014	Total
Linguistic Concepts	Speaking and related concepts (29)	Phonological awareness		7	2	2		1	11
		Phonological			3				3
		Oral language	1	1	1				3
		Speech rhythm		2					2
		Spelling		1	2			1	4
		Dictation			1				1
		Person word interaction			1				1
		Phonological ability			1				1
		Phonological processing			1				1
		Phonological short term memory				1			1
	Writing and related concepts (30)	Writing	5	2	2	1	1	4	15
		Writing as pedagogical tool	2				1		3
		Writing strategies	1	1	1				3
		Narrative text writing	1		1				2
		Writing development		1			1		2
		Writing instruction			1	1			2
		Mirror writing				1			1
		First name writing				1			1
		Capital letter reversing				1			1
	Listening comprehension			1	1	1			3
		Total	**44**	**66**	**56**	**43**	**26**	**32**	**267**
Personal and affective concepts		Motivation	14	7	7	11	11	6	56
		Self-determination	4	3	2	4	3		16
		Self-concept	2	2	2	4	2	1	13
		Self efficacy	2	4	2	1	3	3	15
		Self regulation	2	3			4	2	11
		Emotion	2	1		5		3	11
		Attitude	1	1	3		2	2	9
		Self-esteem	3				3		6
		Engagement (cognitive, affective, behavioral)	1	1			3	5	10
		Autonomy	2	2				3	7
		Enjoyment/enthusiasm	2			2		2	6
		Adaptivity	1	2					3
		Depression /anxiety	1		1	1		2	5
		Interest				2		2	4
		Self-control				1		1	2
		Total	**37**	**26**	**17**	**31**	**31**	**32**	**174**

Keywords			2009	2010	2011	2012	2013	2014	Total
Culture and race	Race and related concepts (99)	Race	1	2	7	5	5	4	24
		Immigrants	2	1	2	4	2	3	14
		Black students	2	1	2	1	2	1	9
		African American	2	2	2		1		7
		Latino students			1	4	1	7	13
		Racial identity	3				2	1	6
		Hispanic education	2	1			2		5
		Asian American education			1	1	1		3
		Chinese children		1	1				2
		Critical Race Theory				1	1		2
		Race relations	1				1		2
		Historically black colleges			1		1		2
		Korean American				1	1		2
		Chinese American				1			1
		Race sensitive admissions					1		1
		Racial disparities					1		1
		Racial diversity					1		1
		Racism					1		1
		Greek students	1						1
		Hmong families	1						1
		Spanish speakers			1				1
	Culture (61)	Equity / inequality	4	5	2	3	3	6	23
		Diversity	1	3		1	6		11
		Ethnicity	2	4		1	2		9
		Bicultural	1	1			3		5
		Civic				3	1		4
		Identity negotiation				1	2		3
		Multicultural education			2	1		1	3
		Cross cultural studies				1	1		2
		Total	**23**	**21**	**22**	**29**	**42**	**23**	**160**
Mathematics	Mathematics subjects (123)	Mathematics instruction	11	10	4	18	16	7	66
		Arithmetic	4		2	2	5		13
		Problem solving	2	2	2	1		5	12
		Mathematics achievement	1	3		2	1	6	13
		Calculation	1		2	1	1	2	7
		Mathematical difficulties	1	4				1	6
		Algebra	1	1	1		1	2	6

Keywords			2009	2010	2011	2012	2013	2014	Total
	Mathematical concepts (11)	Fractions		2				1	3
		Mathematical equivalence			1	1			2
		Mathematics attitudes			2				2
		Math motivation					2		2
		Math stereotypes		1	1				2
	Mathematical affective concepts (8)	Mathematical word problems			1	3		1	5
		Mathematics cognition		1	1	1			3
		Total	**21**	**24**	**17**	**29**	**26**	**25**	**142**
Scholastic concepts and related levels	**School and its levels (86)**	Preschool	3		4	10	2	7	26
		Elementary school	2	2	8		5	5	17
		High school	3	1	3	4	6	4	21
		School	4	2					6
		Kindergarten	2	1	1				4
		Middle school	1	1				2	4
		Charter school				1			1
		Urban school	1						1
		Monitorial school					1		1
	Scholastic concepts (55)	School climate	1	2	3	1	1	3	8
		School management		1	4	1			6
		School transitions	1	2	1	1	1		6
		School reform	1		1		2	1	4
		School readiness		1		2	1	1	5
		School effects		1			2		3
		School dropout			1	1	1	2	3
		School improvement	1			1	1		3
		School choice				1	1	2	2
		School violence	1				1		2
		School engagement		1					1
		School failure			1				1
		School quality				1		1	1
		School segregation			1				1
		Total	**21**	**15**	**28**	**24**	**25**	**28**	**141**
Achievement and related concepts		Achievement	20	17	12	36	18	14	117
		Achievement gaps	3	2	5		3		13
		Achievement goals			2		2	1	5
		Total	**23**	**19**	**19**	**36**	**23**	**15**	**135**
Teacher and related concepts		Teacher quality	7	6	4	4	8	1	29
		Teachers	9	5	4	5	3	7	33
		Teacher education	4	6	2	4	5	1	21
		Teacher assessment	2		4	1	2	2	9
		Teacher characteristics	2	2		3	1		8
		Teacher expectations	2	2			2		6

Keywords			2009	2010	2011	2012	2013	2014	Total
		Teacher stress	1	2		1	1	2	7
		Teacher effects		1	3				4
		Teacher child relationships			1	2			3
		Teacher research		1	1	1		1	3
		Teacher beliefs	1		1				2
		Teacher motivation				2			2
		Teacher development	1	1					2
		Total	**29**	**26**	**20**	**23**	**22**	**14**	**134**
Students and related concepts		Elementary students	24		4	1	1	2	32
		Student development	4	2	5	3	1		15
		At risk students		2	3	4	1		10
		Student relationship	1	2	4	2			9
		Student behavior	2	1	1		3		7
		College students	1				1		2
		Student motivation					2	1	3
		Students rights	1			1			2
		Doctoral students					1		1
		Total	**33**	**7**	**17**	**11**	**10**	**3**	**81**
Educational reform and policy		Educational policy	10	4	15	11	18	15	73
		Standards based reform	4	2		2			8
		Total	**14**	**6**	**15**	**13**	**18**	**15**	**81**
Learning	**Learning concepts (47)**	Learning process	5	3	4	6	3	7	28
		Learning environments	1	1	3		1		6
		Learning disabilities			2	1	1		4
		Learning strategies				1	1	3	5
		Learning trajectory					2		2
		Learning interest				1			1
		Learning skills			1				1
	Learning types (28)	Self regulated learning	1		1	3	1	2	8
		Computer based learning		2		1		2	5
		Online learning		1		1		1	3
		Discovery learning	1		1			2	4
		Multimedia learning	1				1		2
		Informal learning	1						1
		Activity based learning					1		1
		Observational learning	1					1	2
		Project based learning					1		1
		Test enhanced learning			1				1
		Total	**11**	**7**	**13**	**14**	**12**	**18**	**75**

Keywords			2009	2010	2011	2012	2013	2014	Total
Social and related concepts		Social context		3	5	4			12
		Sociology	1	3	2	2	2		10
		Social class	1		3	1	3	1	9
		Social skills		1	2	2	1	5	11
		Social studies	2				4		6
		Social comparison	1	1	1		2		5
		Social capital				2	2		4
		Social justice		1	1	1	1		4
		Socialization			2	1			3
		Socioeconomic status		1	1		1		3
		Social resources				1	1		2
		Social development			2				2
		Social support				1			1
		Total	**5**	**10**	**19**	**15**	**17**	**6**	**72**
Cognition	**Cognitive concepts (47)**	Cognitive skills	5	2			3	4	14
		Cognitive process	2	6		2		2	12
		Cognitive development		4	2	1	1	1	9
		Cognitive load	2	1	2	1			6
		Competence beliefs				1	3		4
		Cognitive functions	1	2					3
	Meta (6)	Metacognition				1	2	1	4
		Met comprehension				1	1		2
	Virtual (3)	Spatial cognition	1						1
		Spatial ability	1					1	2
		Total	**12**	**15**	**4**	**7**	**10**	**9**	**57**
Higher education and its types		College	2	3	2	4	9	1	21
		Higher education	2	2	2	4	7	4	21
		Universities	1	1	**5**				7
		Graduate school					1	1	2
		Total	**5**	**6**	**9**	**8**	**17**	**6**	**51**
Teaching and related concepts		Instruction	5	4	5	3	3	7	27
		Instructional practices	2	3	2	2	2		11
		Instruction design		1	1	1	2		5
		Teaching efficacy	3	1		1			5
		Teaching quality				1	1		2
		Total	**10**	**9**	**8**	**8**	**8**	**7**	**50**
Education	**Educational concepts (25)**	Educational research	1	3		2	1	2	9
		Educational economy				2	3		5
		Educational equity	1				1	1	3
		Educational outcomes	2						2
		Educational attainment					2		2
		Educational change	1				1	1	3
		Educational intervention		1					1

Keywords		2009	2010	2011	2012	2013	2014	Total
Types of education (19)	Secondary education	4	2		1			7
	Vocational education	1	4					5
	Comparative education			2				2
	Elementary education				2			2
	Interdisciplinary education				1			1
	International education		1				1	2
	Total	**10**	**11**	**2**	**8**	**8**	**5**	**44**
Technology and its applications	Instructional technology	5	4	4	1	4	5	23
	Computers	1		4	3	3	2	13
	Computer based simulations			1		1	1	3
	Computer intervention				2			2
	Computer mediated communication			1	1			2
	Total	**6**	**4**	**10**	**7**	**8**	**8**	**43**
Assessment and evaluation	Assessment and its types (formative, diagnostic)	3	4	2	6	6	5	21
	Measurement	2	1	3	5		10	21
	Total	**5**	**5**	**5**	**11**	**6**	**15**	**42**
Science	Science education	6	3	2	6	7	8	32
	Science achievement				2	5	1	8
	Total	**6**	**3**	**2**	**8**	**12**	**9**	**40**
Family	Parent support	4		3	7	3		17
	Parent involvement	2	2	1	1	2	2	10
	Parental influences		3			2		5
	Parent empowerment		1	1				2
	Total	**6**	**6**	**5**	**8**	**7**	**2**	**34**
Classroom concepts	Classroom research	4		2	2	2		10
	Classroom climate		1	2	2		2	9
	Classroom quality	1	2			2		5
	Class wide intervention				1	1		2
	Classroom discussion	1			1			2
	Classroom relationship	1			1			2
	Classroom practices		1		1			2
	Classroom behavior				1			1
	Classroom effects		1					1
	Classroom engagement	1						1
	Total	**8**	**5**	**4**	**9**	**5**	**2**	**33**
Gender studies	Gender	1	3	8	2	3	1	18
	LGBT(lesbian, gay, bisexual, transgender)		3	2	1	1	1	8
	Gender differences	1	3			2	1	7
	Total	**2**	**9**	**10**	**3**	**6**	**4**	**33**
Longitudinal studies		3	4	6	4	8	5	30
Literacy		4	7	6	4	4	4	29
Professional development		6	8	3	1	6	1	25
Accountability		2	1	3	3	4	5	18
Curriculum		2	1	2	2	6	1	14