

**Content analysis of high circulation Persian  
Newspapers published in Iran from 2009 to 2012  
Popularization of science**

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**abstract**

**Purpose:** *The aim of this research is to study of analyzing the content of high circulation Persian newspapers published in Iran from 2009 to 2012 with approach to science popularization.*

**Methodology:** *The research method is a quantitative content analysis. Checklist data collection is based on the Dewey classification. The statistical population consists of the high circulation Persian newspapers published in Iran. (Daily Jame jam, Hamshari, Resalate, Eteleate, Kyhan, Sharg, Iran) .The sample size is 8627 articles of 720 newspapers numbers that are selected through using coincidental cluster sampling.*

**Findings:** *The articles research have proven that the total number of articles from 2009 to 2012 were 8627 cases which have allocated numerous of Technology and Applied Sciences with 2708 title as the most published the first rank .The least rank was dedicate to literature and language category with only 11 cases. It ranks number 258 on the prevalent religion, . Furthermore, the most frequent subject was published 56 times in Resalat newspaper (The most frequent subject was related to the religion category 1-5 times)and the last frequent one was published 28 times in Sharg newspaper in geography related sciences category and (1-5 times).*

**Conclusion:** *The results show the newspapers are published in Iran the most subjects were discussed are: technology, literature, geography, science and religion. They haven't noticed to the other subjects. It is recommended to authorities pay attention to other issues in order they can attract more readers.*

**Keywords:** *Science popularization, Content analysis, Newspapers, Iran*

**Introduction**

*The publication of science has been numerously improved throughout history. From verbal to written expression then to the information explosion in 21th century, through time the promotion of science has been the subject of many ups and downs due to various factors . The development and publication of science is a defining factor of a nation's prosperity and development (Hassanzadehe. 2008).*

*Science popularization helps development and restrains and reduces superstition. Youngsters should be the subject of integrated planning in order to become the science producers of the future because science production is not a linear but cycle process (Horri, 2005).*

*Science is essentially a product of the human mind that should be properly illustrated in order to be useful for others. This is where Science popularization comes in.(paya, 2008)*

*News media such as newspaper, magazine, book, radio, television, and internet create specific political and social reality for the people as one of the most important institutions of the society through affecting on attitude, thinking, opinions, and other aspects of human life. These communications determine our prospect from the world. Denis Mc Quell has described the role of media as follow: “the media cause to change in practice, make changes undesirably, and provide the field of changing by establishing formal changes (form or intensity), it fortifies what is existed and sometimes prevent from changing” (Rogers ,2001).*

*Promotion and generalization of science is the shortest way allows us to access scientific results, and also improve our understanding from present realities. At the first phase, science promotion aims to evoke the attention of human and also supplying important scientific findings simply and actually to the human.*

*Generalization and promotion of science, if it can be continuous and fundamental, can spread scientific thought and rationalism into the society, and pave the way to advance sciences and its institutionalization and eventually development and welfare of the society (Ghadimi, 2009).*

*Promotion and development of science requires a national inclusive determination, and newspapers can play important role in this realm. By content analysis of news and article of widely circulated newspapers, it can be suggested from proposed subjects and indexes by journalists that science promotion means to convert specialized science to general science which is one of the most important tasks of an expert done in newspapers as articles and news. Media and journalists have been aware that should be responsible for a mission in science promotion.*

*Izaskun and Ovidi (2009) in a study entitled "Promotion of cultural practices: Results of a scientific report by the newspaper El Paes and Guardian 'in England Spain were studied. The results were published in the Journal of E-Plus Van. Methods in cross-cultural research in newspapers in both countries have been compared with two different language cultures.*

*Zhang and Gu (2010) in their study entitled "Thought for the convention to promote industrial culture of science" to outline a national plan for scientific literacy years (2006-2010-2020), and the proposed resolution to promote the fdevelopment and expansion of the culture industry.*

*Motta-Roth and Dos Santos Lovato in a research “The hegemonic power of science in the scientific c popularization discourse”(2011) Science popularization in contemporary French media mobilizes enunciatively positions (public, industry or government) in a public debate about science (Beacco et al., 2002).*

*However, previous analyses of science popularization news texts in English and Portuguese (Motta-Roth and Lovato, 2009; Lovato, 2010; Marcuzzo, 2011) demonstrate an almost exclusive insertion of science-related social actors' voices. This preponderance suggests that these voices are used as an authority resource with an effect of monologist, which in turn produces a "monologue interest" centered around science (Moirand, 2003, p. 179): strictly speaking, there is no interaction between equipollent consciousnesses or equivalent voices (Bakhtin, 2008, p. 4-5). Based on Critical Discourse Analysis (Fairclough, 2003) and the Appraisal System (Martin, White, 2005), in this paper we analyze the extent to which this effect can be verify in a corpus of 30 science popularization news texts recently published in*

two Brazilian publications, *Ciência Hoje* and *Galileu*. The results indicate the predominance of the linguistic exponents of dialogic expansion. The constant use of moralization, citation and report shows that journalists construct the topic of these texts as an open question, inviting alternative points of view.

Zhang and Sheng (2011) Promotion of Science Research Institute of China, in his study entitled "Assessment of thinking in promoting science", the importance of promoting international science community for his community work

Pérez-Benítez (2011) challenges, motivated and experienced popularizes of science, entitled "Science Promotion in Mexico" is studied. Scientific knowledge at different levels of education is discussed. With over twenty years of experience in this field, the Mexican government on science and technology prize author Drmkzyk won in 2010.

Shank and Loyang study (2012), entitled "Policy approaches to promote science in China" Researchers believe that it is important to promote science in China. The term public understanding of science concepts or public communication of science and technology is now dominant worldwide. Promoting science in China in a special way, as part of the efforts described above, motivated to be organized. In this study, researchers investigated the extension of the approach to pay policy.

Sung kuym cho and ock tae kim study (2012) Most Koreans agree that science and technology are critically necessary for national development and individual welfare, and that scientist are important people who work hard to develop science and technology as a foundation of the country's economic growth. However technological and scientific skills were not always respected in traditional Korean society. The modernization of science and technology was neglected due to successive historical incidents that occurred in Korea. However, science communication has played a role in changing sociocultural attitudes toward science and technology. Despite considerable success in diffusing knowledge to the public, Korea is still experiencing.

present study tries to comprehensively investigate science promotion articles published in Persian daily newspapers through science promotion approach.

#### **Research question :**

- 1- What is the total number of existing articles in surveyed daily newspapers during 2009 to 2011?
- 2- How is the rate of science promotion in surveyed newspapers according to the Dewey classification?
- 3- How is the subject frequency distribution of articles in surveyed newspapers?
- 4- Which newspaper has paid the most attention to science promotion and which one has the least?

#### **Research Methodology:**

The present research is a quantitative content analysis. The analyze and file units are editorial and news articles from the circulated newspapers *Keyhan*, *Hamshahri*, *Shargh*, *Resalate*, *Iran*, *Etelaate*, *Jam-e-Jam* about science popularization in a time period between 2009 and 2012 using the Dewey Decimal

*Classification Method. The sample quantity is 720 daily numbers that were determined using random cluster sampling. The research results were analyzed using Excel and Spss softwares.*

**Data analysis**

**Table 1-** Dewey classification components in surveyed samples during 2009 to 2011, in Hamshahri Newspaper

<i>Dewey classes</i>	<i>1 to 5</i>		<i>6 to 10</i>		<i>11 to 15</i>		<i>Over 16</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
<i>Generalities</i>	32	11.76	1	1.47	0	0.00	0	0.00
<i>Philosophy &amp; Psychology</i>	25	9.19	5	7.35	1	4.76	0	0.00
<i>Religion</i>	51	18.75	2	2.94	0	0.00	0	0.00
<i>Social Sciences</i>	35	12.87	20	29.41	8	38.10	2	28.57
<i>Language</i>	1	0.37	0	0.00	0	0.00	0	0.00
<i>Natural Sciences &amp; Mathematics</i>	21	7.72	1	1.47	2	9.52	0	0.00
<i>Technology (Applied Sciences)</i>	46	16.91	31	45.59	9	42.86	4	57.14
<i>The Arts</i>	18	6.62	1	1.47	0	0.00	0	0.00
<i>Literature &amp; Rhetoric</i>	28	10.29	6	8.82	0	0.00	0	0.00
<i>Geography &amp; History</i>	15	5.51	1	1.47	1	4.76	1	14.29
<b>Total</b>	272	100	68	100	21	100	7	100.00

The data of table1 shows that during years (2009 to 2011), and separately in the numbers of selected sample newspapers from Hamshahri, totally 23 cases (from 1 to 5 times) have been the most frequency related to Technology in 2009.

**Table2-** Dewey classification components in surveyed samples during 2009 to 2011, in Iran Newspaper

Dewey classes	1 to 5		6 to 10		11 to 15		Over 16	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Generalities	23	9.16	6	4.58	0	0.00	0	0.00
Philosophy & Psychology	22	8.76	26	16.79	5	9.43	2	5.56
Religion	52	20.72	9	6.87	0	0.00	0	0.00
Social Sciences	28	11.16	19	14.50	16	30.19	15	41.67
Language	2	0.80	0	0.00	0	0.00	0	0.00
Natural Sciences & Mathematics	24	9.56	13	9.92	5	9.43	0	0.00
Technology (Applied Sciences)	20	7.97	29	22.14	23	43.40	18	50.00
The Arts	21	8.37	4	3.05	0	0.00	0	0.00
Literature & Rhetoric	35	13.94	21	16.03	2	3.77	0	0.00
Geography & History	24	9.56	8	6.11	2	3.77	1	2.78
<b>Total</b>	251	100	131	100	53	100	36	100.00

The data of table2 shows that during years (2009 to 2011), and separately in the numbers of selected sample newspapers from Iran, totally 23 cases have been the most frequency related to Technology in 2009.

**Table3-** Dewey classification components in surveyed samples during 2009 to 2011, in Kayhan Newspaper

<i>Dewey classes</i>	<i>1 to 5</i>		<i>6 to 10</i>		<i>11 to 15</i>		<i>Over 16</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
<i>Generalities</i>	13	6.40	0	0	0	0	0	0
<i>Philosophy &amp; Psychology</i>	14	6.90	3	3.16	0	0	0	0
<i>Religion</i>	49	24.14	24	25.26	2	18.18	0	0
<i>Social Sciences</i>	39	19.21	19	20	6	54.55	4	80
<i>Language</i>	1	.49	0	0	0	0	0	0
<i>Natural Sciences &amp; Mathematics</i>	4	1.97	4	4.21	1	9.09	0	0
<i>Technology (Applied Sciences)</i>	29	14.29	29	30.53	2	18.18	1	20
<i>The Arts</i>	9	4.43	0	0	0	0	0	0
<i>Literature &amp; Rhetoric</i>	25	12.32	6	6.32	0	0	0	0
<i>Geography &amp; History</i>	20	9.85	10	10.53	0	0	0	0
<b>Total</b>	203	100	95	100	11	100	5	100

The data of table 3 shows that during years (2009 to 2011), and separately in the numbers of selected sample newspapers from Kayhan, totally 49 cases have been the most frequency related to Religion and from 1 to 5 times

**Table4-** Dewey classification components in surveyed samples during 2009 to 2011, in Shargh Newspaper

<i>Dewey classes</i>	<i>1 to 5</i>		<i>6 to 10</i>		<i>11 to 15</i>		<i>Over 16</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
<i>Generalities</i>	23	14.11	4	5.26	0	0	0	0
<i>Philosophy &amp; Psychology</i>	15	9.20	7	9.21	9	31.3	1	3.70
<i>Religion</i>	9	5.52	0	0	0	0	0	0
<i>Social Sciences</i>	17	10.43	9	11.84	7	24.14	20	74.7
<i>Language</i>	1	.61	1	1.32	0	0	0	0
<i>Natural Sciences &amp; Mathematics</i>	9	5.52	6	7.89	1	3.45	1	3.70
<i>Technology (Applied Sciences)</i>	23	14.11	13	17.11	7	24.14	4	14.81
<i>The Arts</i>	16	9.82	8	10.53	1	3.45	0	0
<i>Literature &amp; Rhetoric</i>	22	13.50	22	28.95	2	6.90	0	0
<i>Geography &amp; History</i>	28	17.18	6	7.89	2	6.90	1	3.70
<i>Total</i>	163	100	76	100	29	100	27	100

The data of table4 shows that during years (2009 to 2011), and separately in the numbers of selected sample newspapers from Shargh, totally 28 cases have been the most frequency related to Geography & History and from 1 to 5 times.

**Table5-** Dewey classification components in surveyed samples during 2009 to 2011, in Etelaate Newspaper

<i>Dewey classes</i>	<i>1 to 5</i>		<i>6 to 10</i>		<i>11 to 15</i>		<i>Over 16</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
<i>Generalities</i>	21	8.79	2	2.63	0	0	0	0
<i>Philosophy &amp; Psychology</i>	17	7.11	3	3.95	0	0	1	7.69
<i>Religion</i>	50	20.92	11	14.47	0	0	0	0
<i>Social Sciences</i>	27	11.30	31	40.79	13	25.81	12	92.31
<i>Language</i>	1	0.42	0	0	0	0	0	0
<i>Natural Sciences &amp; Mathematics</i>	22	9.21	4	5.26	0	0	0	0
<i>Technology (Applied Sciences)</i>	33	13.81	18	23.68	1	6.25	0	0
<i>The Arts</i>	14	5.86	2	2.63	0	0	0	0
<i>Literature &amp; Rhetoric</i>	30	12.55	1	1.32	0	0	0	0
<i>Geography &amp; History</i>	24	10.04	4	5.26	2	12.5	0	0
<b>Total</b>	239	100	76	100	16	100	13	100



The data of table5 shows that during surveyed years (2009 to 2011), and separately in the numbers of selected sample newspapers from Etelaat, totally 50 cases have been the most frequency related to Religion and from 1 to 5 times .

**Table6-** Dewey classification components in surveyed samples during 2009 to 2011, in Resalat Newspaper

<i>Dewey classes</i>	<i>1 to 5</i>		<i>6 to 10</i>		<i>11 to 15</i>		<i>Over 16</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
<i>Generalities</i>	32	12.21	6	7.14	0	0	0	0
<i>Philosophy &amp; Psychology</i>	35	13.36	17	20.24	8	0.21	2	9.52
<i>Religion</i>	56	21.37	12	14.29	2	0.50	0	0
<i>Social Sciences</i>	28	10.69	23	27.38	21	0.24	15	71.43
<i>Language</i>	1	0.38	0	0	0	0	0	0
<i>Natural Sciences &amp; Mathematics</i>	14	5.34	1	1.19	1	0.03	0	0
<i>Technology (Applied Sciences)</i>	34	12.98	7	8.33	6	0.15	2	9.52
<i>The Arts</i>	3	1.15	1	1.19	1	0.03	0	0
<i>Literature &amp; Rhetoric</i>	32	12.21	10	11.90	0	0	0	0
<i>Geography &amp; History</i>	27	10.31	7	8.33	0	0	2	9.52
<b>Total</b>	262	100	84	100	39	100	21	100

The data of table 6 shows that during surveyed years (2009 to 2011), and separately in the numbers of selected sample newspapers from Resalat, totally 56 cases have been the most frequency related to Religion's subjects and from 1 to 5 times .

**Table7-** Dewey classification components in surveyed samples during 2009 to 2011, in Jaam-e-Jam Newspaper

<i>Dewey classes</i>	<i>1 to 5</i>		<i>6 to 10</i>		<i>11 to 15</i>		<i>Over 16</i>	
	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>	<i>Number</i>	<i>Percent</i>
<i>Generalities</i>	44	16	12	7.69	1	1.39	0	0
<i>Philosophy &amp; Psychology</i>	34	12.36	9	5.77	4	5.56	0	0
<i>Religion</i>	38	13.81	3	1.92	0	0	0	0
<i>Social Sciences</i>	19	6.90	21	13.46	30	41.67	24	57.14
<i>Language</i>	0	0	0	0	0	0	0	0
<i>Natural Sciences &amp; Mathematics</i>	41	14.90	18	11.54	4	5.56	1	2.38
<i>Technology (Applied Sciences)</i>	20	7.27	39	25	29	40.28	15	35.71
<i>The Arts</i>	21	7.63	6	3.85	2	2.78	0	0
<i>Literature &amp; Rhetoric</i>	38	13.81	35	22.44	1	1.39	0	0
<i>Geography &amp; History</i>	20	7.27	13	8.33	1	1.39	2	4.76
<b>Total</b>	275	100	156	100	72	100	42	100

*The data of table7 shows that during years (2009 to 2011) and separately in the numbers of selected sample newspapers from Jaam-e-Jam, totally 44 cases have been the most frequency related to Generalities and from 1 to 5 times*

### ***Discussion and conclusion***

*Analysis of data shows that, total existed articles in surveyed daily newspapers during 2009 to 2011 have been 8627 cases according to the obtained information. According to the Dewey classification, cases have been 402 of General subjects, 597 of Philosophy and Psychology, 1097 of Religion, 1771 of Social Sciences, 11 of Language, 465 of Science and Mathematics, 2708 of Technology, 219 of Arts and recreation, 851 of Literature, and 533 of Geography and related sciences.*

*Science promotion in surveyed newspapers according to Dewey classification and separation of surveyed newspapers during given years (2009 to 2011) and also separation of selected newspapers numbers, totally in the class of General subjects, the most frequency related to news media, journalism, and publication was for Jaam-e-Jam with 30 cases and then Resalat with 25 cases; in the class of Philosophy and Psychology, the most frequency related to schools and special views of philosophy was for Iran with 24 cases and then related to epistemology with 20 cases; in the class of religion, the most frequency related to religious subjects was for Kayhan with 72 cases and then Resalat with 62 cases; in the class of Social sciences, the most frequency related to political subjects was for Resalat with 66 cases and then Jaam-e-Jam with 53 cases; in the class of Language, the most frequency related to Persian language subjects was for Shargh with 2 cases; in the class of Sciences and Mathematics, the most frequency related to Biology was for Jaam-e-Jam with 34 cases and then Herbal sciences for Jaam-e-Jam with 27 cases; in the class of Technology, the most frequency related to Medical subjects was for Jaam-e-Jam with 94 cases and then Iran with 72 cases; in the class of Arts, the most frequency related to entertainment and performing arts was for Jaam-e-Jam with 54 cases and then Iran with 35 cases; in the class of Literature, the most frequency related to literature of Persian languages was for Jaam-e-Jam with 52 cases and then Iran with 42 cases; in the class of History and Geography, the most frequency related to general history of other places of the world was for Kayhan with 14 cases and then related to general biography and genealogy and official signs was for Kayhan with 13 cases.*

*Subject frequency distribution of articles in surveyed newspapers, regarding to the information recorded in tables 1 to 7 during surveyed years (2009 to 2011) and separately in selected sample newspapers, distribution of articles were as follow:*

*In Hamshahri newspaper, totally 51 cases were the most frequency related to Religion with 1 to 5 times. In Iran newspaper, totally 52 cases were the most frequency related to Religion with 1 to 5 times. In Kayhan newspaper, totally 49 cases were the most frequency related to Religion with 1 to 5 times. In Shargh newspaper, totally 28 cases were the most frequency related to Geography with 1 to 5 times. In Etelaat newspaper, totally 50 cases were the most frequency related to Religion with 1 to 5 times. In Resalat newspaper, totally 56 cases were the most frequency related to Religion with 1 to 5 times. In Jaam-e-Jam newspaper, totally 44 cases were the most frequency related to General subjects with 1 to 5 times.*

*Subject frequency distribution of articles in surveyed newspapers indicates that the most frequency was for Resalat newspaper with 56 cases (the most frequency related to Religion with 1 to 5 times), and the least one was for Shargh newspaper with 28 cases related to Geography class with 1 to 5 times.*

*Since the present study was some how unprecedented, the luck of comparing sources was an issue. Nevertheless some comparisons were made with the results of the previous studies related to the research.*

*Vesali ET. Begun their research by studying the science popularization policies in Iran. They proceeded by analyzing the science popularization in the world and gave some recommendation. They suggested that specific institutions concerning science popularization such as scientific publications and scientific centers are needed to help promote science among population. In another study, Vesali ET, Learned that in many countries the process of science popularization started individually but gradually gained the attention of the government officials and got support of the government. Hassanzade has concluded in another research that planning and policy making in the field of science and technology will not have much success without considering the factors which effect all the necessary means and also dedication of the people in charge.*

*The results and findings of the present research are based on the Dewey Decimal Classification Method, analyzing the titles and themes of the published articles during 2009 to 2012. A look at the titles shows that the quantity of the articles about the technology and applied sciences is the highest. This shows that technology and applied science are the journalist's greatest concern and interest.*

*The study proceeds to find that medical science has the greatest percentage of the articles amongst applied sciences.*

*It seems that increasing that public health and disease prevention with the use of public awareness is general policy of the international organizations and many countries in the world. Because many refractory and costly diseases can be easily prevented following correct health principles. Therefore correct and timely increase of the public awareness has undeniable effect. It is necessary to notice the role of all people especially educated ones in this matter.*

*The study showed the social science have the second priority, covering 1771 titles.*

*The study shows that religion's subject is one of the most important factors that affect Iranian society. Because of the strong influence and solidity of the religion. It has deep effect on various fields of Iranian's social life including culture, politics, social relation, family and leisure's. Religion is in fact that most important element of Iranian society's tradition.*

*Pure clarification of the religion's relation with politics, modernity and development is a constant necessity. So the journalists have justifiably paid much attention to this matter.*

*It was also learned that number of articles in the field of language was particularly low, limited to only 11 items.*

*As the world gradually turns into a global village due to media development, English language has become common language for international communication in all aspects. So lack of expertise in the field of language science is a problem in need of serious attention.*

*To explain this part of the research's results it could be indicated that the importance of the social and human science is because of mental, intellectual, physiological and spiritual aspects of human beings. So human science (that could be referred to as cultural science) are important factors of development concerning humanity.*

*It could be suggested that scientific journalists, like other journalists, have to major tasks; first assessment and evaluation of news that are or should be important to the people and converging it properly, unbiased, complete, transparent, meaningful, understandable and of course interesting second supervising their own field of expertly. To do so scientific journalists apply various techniques and methods. To determine credibility and importance of the news they use public and personal sources. Depending on the importance and nature of the news, following formats can be selected; report, interview, short news and editorial. They discuss the matter with their directors and superiors and come to agreement. They also pay special attention to their respecer fields and are critic about the matters.*

### **Recommendations:**

*1-Researchers and writers of promotional scientific articles should pay attention to variety of topics and publishable articles. Newspapers and media are symbols of the society.*

*2-Journalists and correspondents are representation of the society therefore their main mission is to inform public of the latest scientific achievements and publish valuable and updated topics in scientific and social fields.*

*3-Undoubtedly press like other fields requires experts hence their managements should use more professional experts and scholars in the field of writing and especially in popularization science. Authors and responsible writers should pay attention to this delicate point that scientific advancement and its promotion is sign of development of that country.*

*4-Popularization of science will result in science development and will end up in society's access to information and knowledge and will end up in society's access to information and knowledge and will sing prosperity to the society and people.*

*5-A responsible Journalist is obliged to follow news of its own field and pay attention. To other news papers and publications, provide independent sources from scientific society in which are active.*

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