

## A Content Analysis of the “International Journal on Marine Navigation and Safety of Sea Transportation” from 2007 to 2012

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**ABSTRACT:** This study examined the content analysis of the articles published in International Journal on Marine Navigation and Safety of Sea Transportation (TransNav). A content analysis was conducted for a 6-year period from 2007 to 2012. The journal published 6 volumes, 24 issues and 401 articles since 2007. The articles were submitted by 637 authors from 49 different countries. A total of 401 research papers were analyzed in the sense of the author's score, country and institution ranks of articles published in the TransNav Journal. In this study, no attempt was made to distinguish between departments, research centers, and agencies within an institution. The analyses were found that the authors from Poland made the most contribution to the journal. This shows that the journal should be more attractive for authors from other countries to enhance sending their scientific studies. This study also found that the journal mostly attends safety and security in sea transportation. Algorithms and methods are also widely included in the journal as a topic chapter.

### 1 INTRODUCTION

It is always significant and one of the major tasks for all scientists, educators, academicians and researchers to publish their studies as an article in a journal to be recognized in the academic and scientific community on the large scale. On the other hand, it is helpful to them to advance their own careers for promotion and scholar awards. In parallel with, it is also important for all institutions and countries to get reputation in scientific area. Science researchers often view the publication of research findings in academic or referred journals as an important task for their profession. For new researchers, being aware of some important academic journals helps them to understand the field of science more broadly. Therefore, having a systematic analysis of articles published in academic journals may assist researchers to explore the current status and future trends of research (Tsai and Wen, 2005). Publishing an article in

a journal is so crucial for researchers and academicians, yet there are some difficulties and a kind of challenge for them. It is not easy to design and plan research questions and hypotheses to make a remarkable and impressive study which is worthy to publish. In this respect, this study aims to reveal authors, institutions and countries contribution to TransNav Journal. It aims to conduct content analysis of the articles published in TransNav Journal, as well. The reason of choosing this journal to conduct content and contribution analysis is that the “TransNav publishes innovative, interdisciplinary and multidisciplinary research on marine navigation subjects and is set to become the leading international scholarly journal specializing in debate and discussion on maritime subject. Transnav journal also concerned to set maritime studies in a broad international and comparative context” (<http://www.transnav.eu>, Accessed 29<sup>th</sup> Dec 2012).

The purpose of the study is to define changes and trends in time and to analyze author's, country and institution contribution to articles published in the TransNav journal. A content analysis was conducted for a 6 year period from 2007 to 2012. A total of 401 research papers were analyzed.

## 2 LITERATURE REVIEW

Scanning of literature revealed that there have been lots of research papers which were used content analysis method. In this study, relevant studies were utilized to compile of data, to create of categories, to code and analysis of data. Some researchers have conducted several content analyses so as various journals. Many of these analyses were designed for authors and institutional contribution and productivity by giving score to them (Tsai & Wen, 2005; Cavas et al., 2012; Howard, Cole & Maxwell, 1987) and many others designed to characterize the scientific output of a researchers such as h-index (Al 2008, Hirsch 2005, Chua et al. 2002, Feeser 2008). In some cases, studies were designed to comparison and categorization of data for researchers who wants to glimpse lots of articles (Mulenga et al. 2006, Haddock 2002, Dönmez et al. 2010, Bliss et al., 2008, Parker et al. 2010, Brown 2007).

The major reviews recently published in terms of authors and institutional contribution and productivity were mentioned below;

Howard, Cole & Maxwell (1987), in their study, analyzed thirteen *American Psychological Association (APA)* journals for the years 1976-1985 to make a comparison with previous reputational ratings of institutions in psychology which were analyzed former researchers. Williams et al. (1999) and Blancher et al. (2010) examined the content of articles published in *Journal of Counseling & Development* (vol. 67-74 & 74-84 respectively). Rankings of contributing authors and institutional productivity were analyzed and results were compared with an earlier content analysis. Davis et al. (2001) conducted a content analysis of articles that were published in the *Journal of Multicultural Counseling and Development (JMCD)* for 15 year-period. The analysis identified the leading contributors (i.e., authors, institutions) to JMCD, evaluated the content of the articles, examined the type of articles, and highlighted the particular cultural groups that were studied most frequently. English et al. (2005) conducted a content analysis of *the Journal of Religious Education* for a 10-year period from 1993-2002 in terms of author institutional affiliation, religion identity, geographic location, and number of contributions. Sam (2008) aimed to conduct content analysis of articles published in *the Ghana Library Journal* over a seven year period from 2000-2006 in terms of authors contribution, the most studied topics, the distribution of the articles are published by institutions. Dönmez et al. (2010) subjected to a comparative content analysis of articles published in accounting education journals aspect of topics, number of authors, countries contribution. Cavas et al. (2012) investigated the content analysis of *the Journal of Baltic Science Education* in terms of authors' nationality, research topics and includes

some statistical analysis of the articles published from 2002 to 2011. The analysis method developed by Howard et al. (1987) was selected by the authors to figure out contribution ranks. Tsai & Wen (2005) conducted a series of content analyses of the articles published in selected journals (*International Journal of Science Education, Science Education, and Journal of Research in Science Teaching*) from 1998 to 2002. A total of 802 research papers were analyzed in respect of the authors' nationality, research types and topics. The analysis method developed by Howard et al. (1987) was selected to assess the score of a specific author. Mulenga et al. (2006) conducted a comparative content analysis of some major adult education journals from 1990 to 2004 in terms of country ranks and authors' productivity.

## 3 RESEARCH METHOD

This study used all of the research papers published in TransNav Journal for 5 year-period as the research sample to investigate the research and trends in marine education. A total of 401 research papers were analyzed. Contribution for each country and authors was analyzed quantitatively and ranked for TransNav Journal within five years. The formula had been created by Howard et al. (1987) was used to calculate the score of a specific author in a multi-author paper. A single-authored article netted that author's institution a single unit of credit. In multi-authored articles, credit was assigned to institutions proportionately:

$$\text{Score} = \frac{(1.5^{n-1})}{\sum_{i=1}^n 1.5^{n-1}}$$

where  $n$  is the total number of authors and  $i$  is the particular author's ordinal position. Hence, second authorship in a co-authored article was given 0.40 credit unit; third authorship in a three-author article, 0.21, and so forth. By this method, the accumulated score for each country was calculated and compared by year and by journal (Howard et al., 1987).

Table 1. Author's score allocation for multi-author research papers.

Number of Authors	Order of Specific Author				
	1	2	3	4	5
1	1				
2	0.60	0.40			
3	0.47	0.32	0.21		
4	0.42	0.28	0.18	0.12	
5	0.38	0.26	0.17	0.11	
0.08					

Note: The value in each cell indicates a specific author's score in a multi-author paper when a paper is counted as one point (Tsai & Wen, 2005).

In this study, no attempt was made to distinguish between departments, research centers, and agencies within an institution. Thus, the estimation represents the productivity of entire institutions. But, separation of credit was not assigned to different faculty or department of a university and institution.

#### 4 FINDINGS

Table 2 presents information about the number of articles, authors and countries according to year.

Table 2. The number of articles, authors and countries.

Year	Number of Articles	Number of Authors	Number of Countries
2007	64	122	19
2008	64	122	18
2009	65	130	23
2010	66	126	21
2011	68	160	24
2012	74	155	31
Total	401	637	49

Totally 401 articles were published; 637 authors from 49 different countries were contributed to the journal in past six year from 2007 to 2012.

So as to analyze the research contribution by country, each paper published in TransNav Journal during 2007-2012 was given one point. The paper with multiple authors from different countries was scored by the formula which is shown above. Table 3 and Table 4 show country scores between 2007-2012. As shown in Table 3, in the first three years of the journal, authors from Poland were primarily most contributed to TransNav Journal. China, Turkey, Norway, Philippines and UK also have higher scores from 2007 to 2009.

Table 3. Country rank of articles published in TransNav Journal from 2007 to 2009.

2007		2008		2009	
Country	Score	Country	Score	Country	Score
Poland	28.21	Poland	32.60	Poland	28.00
China	5.79	China	6.00	Norway	4.64
Turkey	5.30	Turkey	4.00	Philippine	4.00
UK	4.37	Romania	3.00	Germany	2.66
Norway	3.00	Vietnam	2.40	UK	2.40
Sweden	2.00	UK	2.00	China	2.00
Others	15.33	Others	14.00	Others	21.30

Table 4 shows that in the last three years of the journal, authors from Poland were still most contributed to the journal. The authors from Russia, Germany and Japan also published many papers between 2010-2012. Especially, Germany and Japan increased numbers of contribution in 2011 and 2012 respectively.

Table 4. Country ranks of articles published in TransNav Journal from 2010 to 2012.

2010		2011		2012	
Country	Score	Country	Score	Country	Score
Poland	30.21	Poland	26.90	Poland	26.99
Russia	4.00	Germany	6.05	Japan	5.00
Philippine	4.00	Ukraine	3.00	Finland	4.86
China	4.00	Spain	3.00	Russia	4.00
Turkey	3.00	China	3.00	China	3.00
Norway	3.00	Japan	2.72	UK	3.00
Others	17.79	Others	23.33	Others	27.15

So as to make a comparison related papers published in the journal concerning authors'

nationality, papers were categorized in two groups: from 2007 to 2009 and from 2010 to 2012. With respect to this, Table 5 shows country ranks of publications as regards related years.

As illustrated in Table 5, Poland, China and Turkey were top three countries during 2007-2009. In the last three years, authors from Poland and China made the most contribution to the journal as they did in the first three years of the journal. Additionally, authors from Japan made a three rank of contribution to journal instead of authors from Turkey. Especially, Germany, Japan and Finland enhanced their contribution to journal in the last three years of the journal.

Table 5. Country rank of publications between 2007-2009 and 2010-2012.

2007-2009 (N=193)			2010-2012 (N=208)		
Country	Score	Rank	Country	Score	Rank
Poland	88.81	1	Poland	84.10	1
China	13.79	2	China	10.00	2
Turkey	11.00	3	Japan	9.72	3
UK	8.77	4	Russia	8.00	4
Norway	8.12	5	Germany	7.05	5
Philippines	8.00	6	Norway	7.03	6
Germany	5.30	7	Finland	6.75	7
Japan	5.06	8	Philippines	5.00	8
Romania	5.00	9	UK	4.68	9
Sweden	4.54	10	Turkey	4.00	10

The result of the total scores from 2007 to 2012 shows that Poland is at first rank with the score of 172.91. China is the second with the score of 23.79. Norway is the third with the score of 15.15.

Top fifteen authors are included in the Table 6 which shows the author ranks of publication published in the journal. As shown in related table, the most contribution came from M. Magramo from John B. Lacson Foundation Maritime University, Philippines with the score of 3.63. J. Kornacki from Maritime University of Szczecin, Poland and R. Szlapczynski from Gdansk University of Technology, Poland, published four articles, follow M. Magramo with the score of 3.60. It is also seen in Table 6, the authors from Poland made most contribution to the journal last six year.

Table 6. Author ranks of publication published in the journal

Authors	Country	Score	#Articles
M. Magramo	Philippines	3.63	7
J. Kornacki	Poland	3.60	4
R. Szlapczynski	Poland	3.60	4
L. Gucma	Poland	3.58	7
E. Doyle	Ireland	3.00	3
E.M. Lushnikov	Poland	3.00	3
H. Yousefi	Iran	3.00	3
J. Januszewski	Poland	3.00	3
J. Lisowski	Poland	3.00	3
K. Korcz	Poland	3.00	3
M. Lacki	Poland	3.00	5
A. Weintrit	Poland	2.93	7
D. Duda	Poland	2.52	5
E. Barsan	Romania	2.07	3
J. Montewka	Finland	1.91	7

The study also asked which institutions were supporting to journal, and which scholars are trying to keep the journal developing. The Table 7 shows top contributing institutions based on primary author's affiliation. Gdynia Maritime University, Poland made most contribution to the journal with the number of 69 (%17.2). Szczecin Maritime University, Poland and Istanbul Technical University, Turkey follow it with the number of 41 (%10.2) and 14 (3.5), respectively.

Table 7. Top contributing institutions based on primary author's affiliation

Institution	Country	#Article	%
Gdynia Maritime Uni.	Poland	69	17.2
Szczecin Maritime Uni.	Poland	41	10.2
Istanbul Technical Uni.	Turkey	14	3.5
Shanghai Maritime Uni.	China	12	3.0
Constanta Maritime Uni.	Romania	10	2.5
Dalian Maritime Uni.	China	10	2.5
Polish Naval Academy	Poland	9	2.2
J.B.L. Foundation M. Uni	Philippines	9	2.2
Gdansk Uni. Of Tech.	Poland	7	1.7
Aalto Uni.	Finland	6	1.5

Table 8 reveals that rating of the articles published in journal were written by collaborative work. It is found that 36.9% of the work published in this journal is single authored with the number of 148. Articles were studied by collaborative work is higher than single authored.

Table 8. Number of authors by each article

Num. of Author	Number	%
Single	148	36.9
2	114	28.4
3	68	17.0
4	48	12.0
5	14	3.5
6	7	1.7
9	1	0.2
12	1	0.2
Total	401	100.0

The distribution of the articles according the journal chapters is shown in Table 9 so as to find out the top six mention chapter which was subject to articles published in journal. As shown in Table 9, Safety and Security in Sea Transportation was primarily mentioned chapter with the number of 29 (%7.2). Maritime Education and Training and also Methods and Algorithms were the most mentioned chapter with the same number of 24(%6.0).

Table 9. Distribution of the articles according the journal chapter.

Topic	Number	%
Safety and Security in Sea Transportation	29	7.2
Methods and Algorithms	24	6.0
Maritime Education and Training	24	6.0
Global Navigation Satellite System	24	6.0
Human Factor and CRM	21	5.2
Maneuvering and Pilot Navigation	18	4.5

## 5 SUMMARY AND CONCLUSION

A series of content analyses of articles published in TransNav Journal from 2007 to 2012 was examined to reveal author's score, country and institution ranks. As a result of this research, many findings are revealed and major findings are submitted in the study. Totally 401 articles were published; 637 authors from 49 different countries were contributed to the journal in past six year from 2007 to 2012. The TransNav Journal primarily has submissions from Poland which made the highest contribution to the journal. Russia, Germany, Japan, Turkey and China is following Poland in terms of total published papers during related years. The total number of articles prepared by these countries is not equal to total number of articles written by authors from Poland. In this respect, it is thought that TransNav Journal ought to enhance the contribution of foreign countries to be recognized on the large scale.

When we examine the findings in terms of the authors' contribution, the most contribution came from Polish authors but, surprisingly, the first rank is got by M. Magramo from Philippines with the score of 3.63. There are number of ten polish authors within the top fifteen authors. We think that, it should be more foreign authors take part in the table.

Findings about institutions contribution revealed that Gdynia Maritime University and Szczecin Maritime University with the number of 69 and 41, respectively. Although there are no authors from Turkey in top fifteen authors, Istanbul Technical University, Turkey take part in top ten contributing countries. The university is on third rank with the total of 14 articles based on primary author's affiliation. The other finding about TransNav Journal is number of authors for each article. In this regard, the rate of the collaborative work is more than single-authored work with the number of 253. The last finding about journal is distribution of the articles according chapters. The journal mostly attends safety and security in sea transportation. Algorithms and methods is widely included in the journal as a chapter. The journal is also interested in Human resources and factors as a fantastic construction and design contributing to greater quality of life that makes our lives on earth both safer and more positive (Fahlgren G. K., 2007). The journal deals with education and training, crucial for sea transportation safely, as well.

Finally, it is obvious that, writing for publication is substantial task for researchers and academicians to make contribution to science, to get reputation and promotion, to be recognized in the academic community and to develop themselves. In this regard, it is wondered about articles published in TransNav journal and related study has been done to reveal author's score, country and institution ranks.

## REFERENCES

- Al U. (2008). Evaluation of Scientific Publications: h-index and Performance of Turkey, *Bilgi Dünyası*, 9(2):263-285.  
 Blancher A.T., Buboltz W.C. & Soper B.(2010). Content Analysis of the Journal of Counseling & Development:

- Volumes 74 to 84, *Journal of Counseling & Development*, 88:139-145.
- Bliss S. L. (2008). Articles Published in Four School Psychology Journals from 2000 to 2005: An Analysis of Experimental/Intervention Research, *Psychology in the Schools*, 45(6):483-498.
- Brown C. (2007). The Role of Web-Based Information in the Scholarly Communication of Chemists: Citation and Content Analyses of American Chemical Society Journals, *Journal of the American Society for Information Science and Technology*, 58(13):2055-2065.
- Cavas B., Cavas P., Ozdem Y., Rannikmae M. & Ertepinar H. (2012). Research Trends in Science Education from the Perspective of Journal of Baltic Science Education: A Content Analysis from 2002 to 2011, *Journal of Baltic Science Education*, 11(1):94-102.
- Chua C., Cao L., Cousins K. & Straub D. W. (2002). Measuring Researcher-Production in Information Systems, *Journal of the Association for Information Systems*, 3:145-215.
- Davis D. B. P., Ligiero D.P., Liang C. & Codrington J. (2001). Fifteen Years of the Journal of Multicultural Counseling and Development: A Content Analysis, *Journal of Multicultural Counseling and Development*, 29: 226-238.
- Dönmez A., Ağyar E & Ersoy A. (2009). Uluslararası Dört Muhasebe Eğitimi Dergisi Üzerine Bir Literatür Taraması ve Analizi, *Muhasebe Öğretim Üyeleri Bilim ve Dayanışma Vakfı Dergisi*, 10(1), 25-48.
- English M.L., D'Souza M.O. & Chartrand L. (2005). Analysis of Contents, Contributors and Research Directions from 1993 to 2002: Mapping Publication Routes in The Journal, *Religious Education*, 100(1): 6-19.
- Fahlgren G. K. (2007). What is Human Factors Compared to Crew Resource Management?, *TransNav, International Journal on Marine Navigation and Safety of Sea Transportation*, 1(1):109-112
- Feeser V.R. & Simon J.R. (2008). The Ethical Assignment of Authorship in Scientific Publications: Issues and Guidelines, *Academic Emergency Medicine*, 15: 963-969.
- Haddock S. A. (2002). A Content Analysis of Articles Pertaining to Therapeutic Considerations for Dual-Income Couples from 1979 to 1999, *The American Journal of Family Therapy*, 30: 141-156.
- Hirsch J.E. (2005). An index to quantify an individual's scientific research output, *Proceeding of the National Academy of Science*, 102(46): 16569-16572.
- Howard G.S., Cole D.A. & Maxwell S.E. (1987). Research Productivity in Psychology Based on Publication in the Journals of the American Psychological Association *American Psychologist*, 42: 975-986.
- Mulenga D., Al-Harathi A.S. & Carr-Chellman D. (2006). Comparative and International Adult Education: A Content Analysis of Some Major Adult Education Journals from 1990 to 2004, *International Council for Adult Education*, 39(1): 77-89.
- Parker M.R., Jordan K.R., Kirk E.R., Aspiranti K.B. & Bain S.K. (2010). Publications in Four Gifted Education Journals From 2001 to 2006: An Analysis of Article Types and Authorship Characteristics, *Roeper Review* 32: 207-216.
- Sam J. (2008). An Analysis of Ghana Library Journal: A Bibliometric Study, *African Journal of Library and Information Science*, 18(1): 67-76.
- TransNav, the International Journal on Marine Navigation and Safety of Sea Transportation <http://www.transnav.eu>, Accessed 29<sup>th</sup> Dec 2012.
- Tsai, C.C. ve M. L. Wen (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.
- Williams M.E. & Buboltz W.C. (1999). Content Analysis of the Journal of Counseling & Development: Volumes 67 to 74, *Journal of Counseling & Development*, 77: 344-349.