

Mobile Advertising and Attitudes of Consumers : A Bibliometric Analysis

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Abstract

Bibliometric analysis approach has gained prominence to analyze the literature in recent times. Adopting this approach this study gives an overview of the field of mobile advertising. There has been a shift in the way consumers respond to advertisements targeting them through mobile phones as an advertising channel. Mobile advertising provides flexibility for customers to receive advertisements without time and geographical constraints. Innovations in smartphone technology are providing new avenues to marketers and business organizations. The present study reviews the publication trend in the field of mobile advertising. SCOPUS database was used to extract 200 articles on mobile advertising from the year 2005 to 2021 and VOS viewer software version 1.6.17 was utilized by the researchers to visualize the scientific landscape of mobile advertising research. The researchers found that Ajen, Fishbein, Barnes, Okazaki, Davis Karjaluo are the most cited authors in the field of mobile advertising & attitudes of consumers. Journal of Advertising Research, International Journal of Mobile Marketing, Journal of Interactive Marketing, and Journal of Marketing Research are prominent journals in the field of mobile advertising. The network maps prepared by using co-citation analysis and bibliographic coupling revealed the trends and patterns in the field of mobile advertising and provided directions for future research.

INTRODUCTION

The innovations in the field of smart phone technology have revolutionized the field of advertising and business communications (Newell & Meier, 2007). With the advancement in technology and the COVID-19 pandemic, there is a behavioural shift in consumer attitude towards mobile advertising and communications. In this transition phase, business organizations are coming up with new techniques and methods to target consumers (Kim, 2020). The field of mobile advertising is not new. Over the last two decades, business organizations have made use of mobile advertising as an advertising channel. Marketers are now trying to find new avenues in this growing mobile phone market (Tapanainen et. al., 2020). Mobile phones help marketers to advertise without the time and geographical limitations. This rapid growth of mobile advertising has attracted the attention of researchers. An average Indian consumed 14.6 GB of data per smartphone per month and this is expected to triple in the next five years. Not only in India but the world over there has been an upsurge in use of smart phone by the people (Ericsson¹ Mobility Report 2021).

Keywords:

mobile advertising, attitude, consumer, sms advertising, mobile commerce.

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¹<https://www.ericsson.com/en/reports-and-papers/mobility-report/reports/november-2021>

REVIEW OF LITERATURE

Attitude is a person's learned predisposition driving that person to respond (Fishbein & Ajen, 1975). Attitude comprises of favourable and unfavourable feelings towards marketing and advertising (Zaremohzzabieh et al., 2020). Attitude helps to explain an individual's behavior (Richard & Chandra, 2005). Intention to perform a behaviour is determined by a person's attitude (Xu, 2006). Factors such as perceived entertainment, credibility and information improve consumers' attitude towards in-app/mobile advertisements (Sigurdsson et al.) Informativeness and irritation have greater impact on prevention-focused consumers than on promotion focused consumers. But entertainment and social norms have more effect on promotion-focused consumers (Kim, 2020). A mobile advertising is entertaining, informative, reliable, personalized and sent with permission so it has positive effect on creating attitudes towards it. (Unal et al., 2011). Product involvement, appeal & entertainment have a positive impact on attitude towards mobile advertising. Permission and monetary benefits were found to have significant impact on attitudes of consumers (Aslam et al., 2016). The attributes of mobile marketing, the nature of information, excitement and attractiveness and credibility have effect on consumer attitudes towards mobile marketing (Yousif, 2012). Purchase intention is affected by the perceived ease of use of the app by mobile phone users (Fard et al., 2019). Mobile phone users' attitudes are influenced by infotainment, irritation and subjective norms and the impact of these factors on the intention to purchase is mediated by attitudes (Hongyan & Zhankui, 2017). Localization and perceived enjoyment influence mobile phone users' intention to watch in-app app advertisements (Tapanainen et al., 2020). The consumers' perception of a brand's ethical value is influenced by their attitude towards mobile behavioural advertising of that brand (Mpinganjira & Maduku, 2018). Individual differences are stronger determinants of response to mobile advertising as compared to permission and incentive (Varnali et al., 2012). The three important variables that may influence consumers' acceptance of mobile advertising are user permission, wireless service provider control, and brand trust. User permission was believed to be the most important variable, as consumers were seen to be fearful of SMS advertising and fearful of high levels of spam, as with email marketing. Permission marketing is the opposite of traditional interruption marketing. Permission marketing is about building an ongoing relationship of increasing depth with customers by obtaining customer consent to receive information

from a company. Permitted messages can be modified as per time, location, and personal characteristics to get closer to the user (Barnes & Scornavacca, 2004). Location-based mobile advertising is creating 5-10 times higher click rates in comparison to traditional mobile advertising messages (Ververidis & Polyzos, 2002). Mobile advertising campaigns can generate responses that are as high as 40% in comparison to a 3% response rate via direct mail and 1% via internet banner ads (Jelassi & Enders, 2004).

PURPOSE OF STUDY

The basic purpose of present study is to comprehensively study the field of mobile advertising by using a bibliometric analysis approach. The objectives are :

1. To identify the most prolific and influential authors in the field of study.
2. To identify the most influential work in the field of study.
3. To identify the patterns of co-operation and collaboration among authors and countries.

RESEARCH METHODOLOGY

The present study used Bibliometric analysis as the research methodology. The data was accessed from Scopus database. The keywords put in Scopus search box are mobile, advertising, and attitude. Scopus is the largest abstract and citation database of peer-reviewed literature and includes more than 22,700 journals from international publishers. Scopus is a broader database in comparison to Web of Science (WOS). 200 articles pertaining to mobile advertising and the attitude of consumers were extracted from Scopus database from the year 2005-2021. To achieve the objectives of the study VOS viewer software version 1.6.17 was used to visualise the scientific landscape of the field of mobile advertising. The major advantage of using this software is the easy visualization of networks. There are various options in VOS viewer software like zoom in, zoom out, scrolling, and searching which help in a detailed analysis of a pattern or map. Extracted data from Scopus was saved as .csv format so that it could be used later for bibliometric analysis.

Inclusion-Exclusion criteria

The present research reviewed articles published in journals from the year 2005-2021 and were extracted using Scopus database. We have included articles published in the English language from the following subject areas:- Business, Management, Commerce, Accounting, Decision

Sciences, Psychology, and Economics. We have excluded the conference papers, conference reviews, book chapters, and reviews.

RESULTS AND DISCUSSIONS

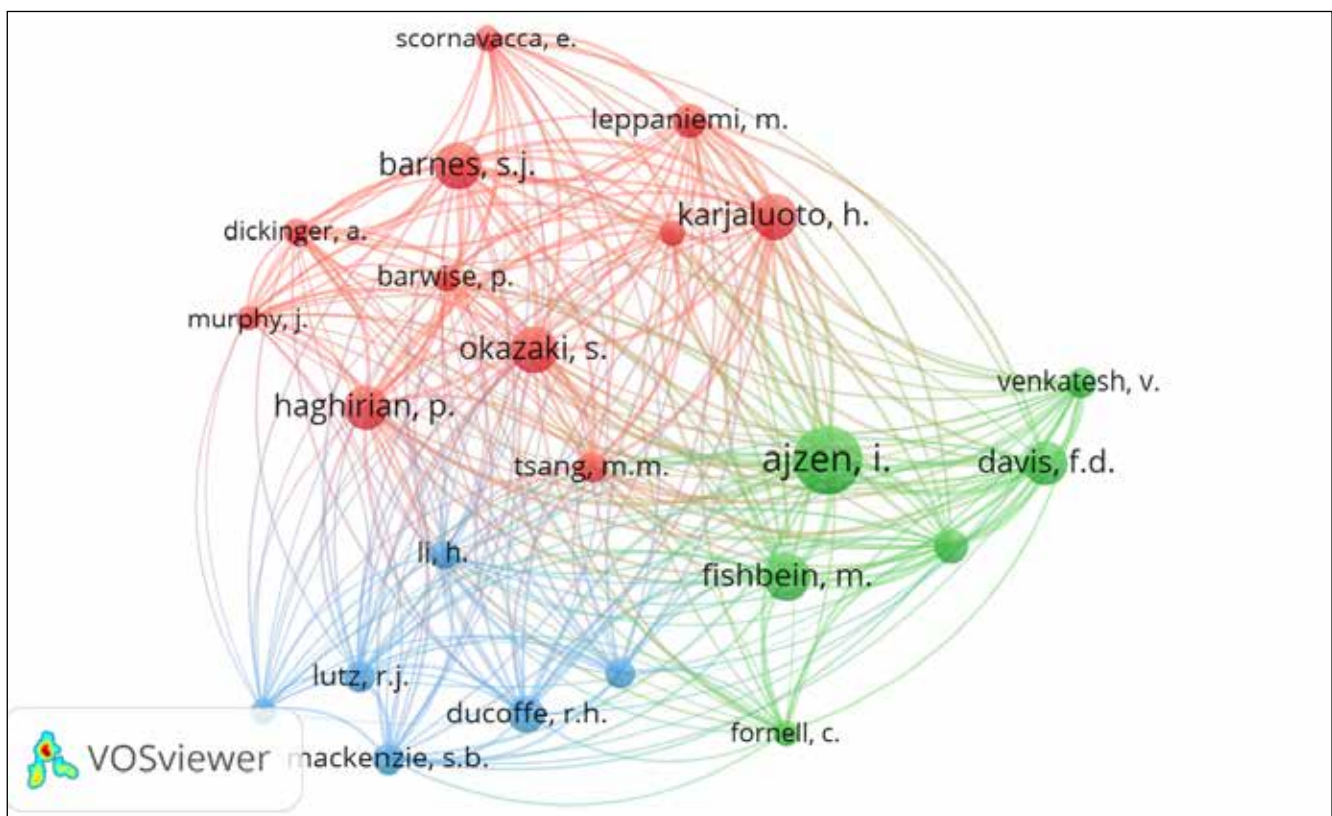
Cited Authors Co-citation Analysis

According to Kumar (2015), co-citation is said to occur when the referred article refers to two papers simultaneously. In other words, co-citation analysis involves tracking pairs of papers that are cited together in source articles. When the same pairs of papers are co-

cited by many authors, clusters are formed. Co-citation analysis is used to study the intellectual structure of research from the perspective of cited authors or sources.

Co-citation analysis using the author as the unit of analysis by VOS viewer software was performed. All the authors having a minimum number of citations 50 and minimum total link strength (TLS) of 400 were included out of a total of 11,675 authors cited in 200 documents. For details see Table I - Cited Authors Co-citation in Appendix. 23 authors met the threshold criteria of minimum of 50 citations and a minimum 400 TLS as shown in figure I.

Figure I. Cited Authors Co-citation network



In the figure each node represented an author and its size indicated the number of times the author had been referenced or cited in 200 documents. A link between two nodes indicated a co-citation relationship. The higher the strength of the link, the greater the thickness in the figure. The VOS viewer software identified 3 clusters. The nodes with the same color belong to a cluster.

Cluster 1 in red color had the highest number of authors. Out of the 11 authors in cluster 1, Barnes was the most important in terms of the highest number of 114 citations followed by Okazaki (112 citations), Karjaluoto (107 citations) and Haghirian (103 citations). Of all the authors in this cluster, Karjaluoto had the highest total link strength of 1891 followed by 1719 of Barnes. The authors included in this cluster have predominantly worked on the effectiveness of mobile advertising.

Cluster 2 in green color includes 6 authors. Out of the 6 authors, Ajen's work done in collaboration with Fishbein titled "Belief, attitude, intention and behaviour: An introduction to theory & research" emerged as the highly cited work

(179 citations) in mobile advertising. It was followed by the works of Fishbein (113) and Davis (105). In fact Ajen's Theory of Planned behaviour is the most widely accepted theory to understand attitude and intention of consumers.

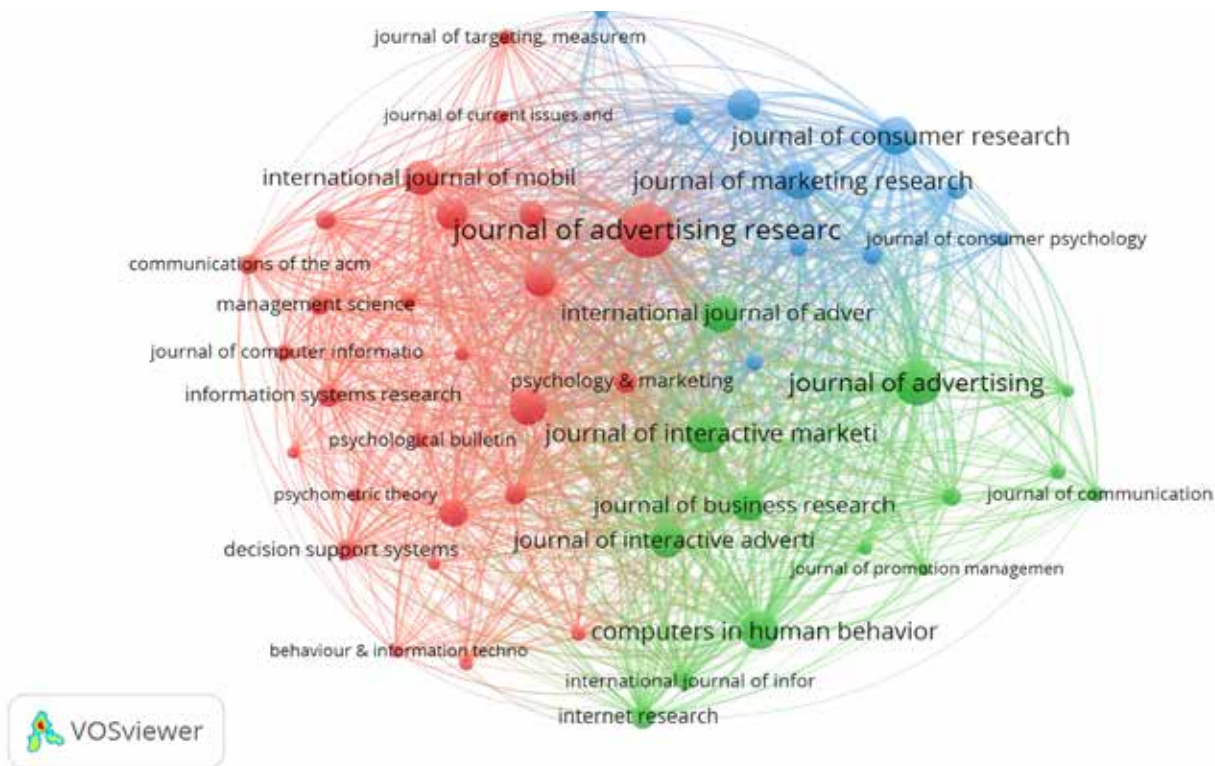
Cluster 3 in blue color is comprised of authors like Ducoffe (82 citations), who has emerged as having the highest citations in cluster 3. Ducoffe is followed by Lutz (70 citations) and Mackenzie (70 citations). The authors in this cluster have worked on how consumers perceive mobile advertising and which factors affect their attitude.

Co-citation Analysis of journals

Co-citation analysis was performed with journal as the unit of analysis. This analysis was performed using VOS viewer software and was analysed with the full counting method. For generating a meaningful co-citation network, threshold criteria of 24 minimum citations was used by the researcher. This resulted in a total of 50 cited journals/sources. Out of 4271 journals, 50 journals met the threshold criteria of 24 minimum citations. For details see Table II - Co-citation of Journals in the Appendix.

Figure II shows the co-citation pattern of 50 sources cited at least 24 times by studies in our sample.

Figure II. Journals Co-citation network



Cluster 1 in red color contains 26 journals and consists of wide variety of journals which include the Journal of Advertising Research (404 citations, TLS =11,414). This journal was most important in terms of the number of citations. This was followed by the International Journal of Mobile marketing (162 citations, TLS = 5074), Psychology and Marketing (66 citations, TLS =2390) and Management Science (62 citations, TLS =1816). Almost all journals are high-impact factor journals.

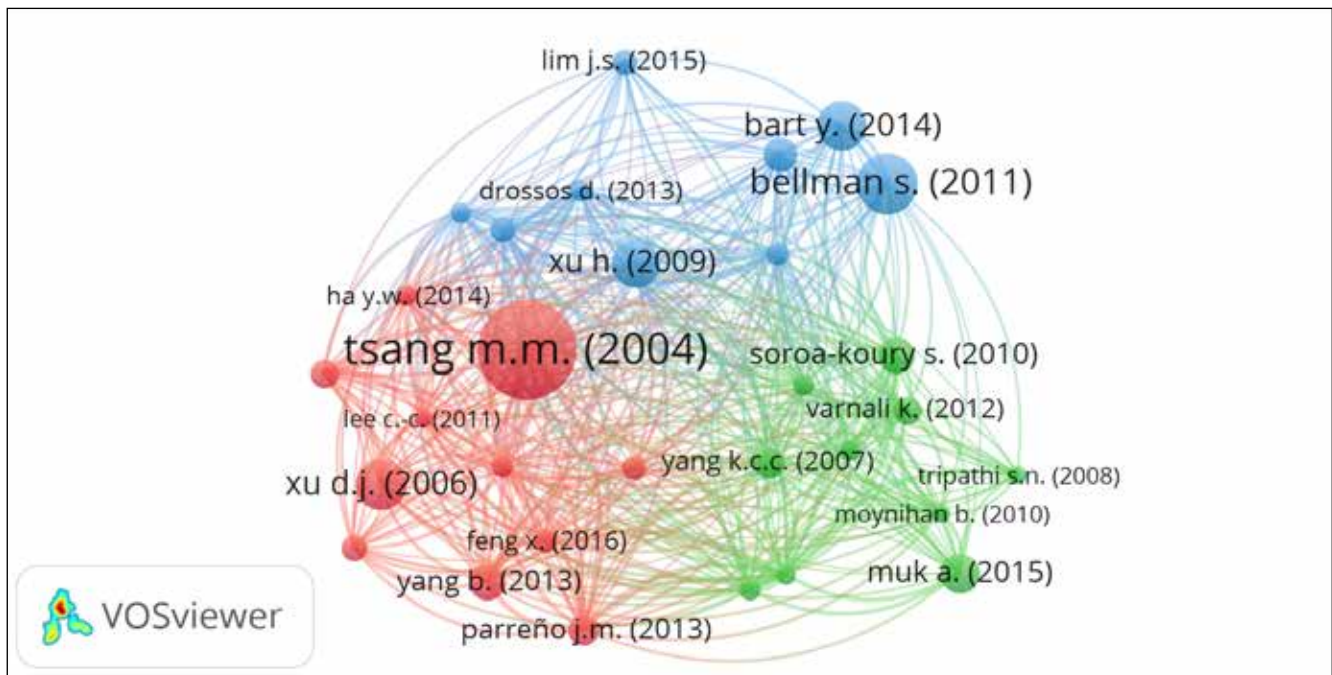
Cluster 2 in green color contains 14 journals. In this cluster, the most important journal is the Journal of Advertising (286 citations, TLS =9426). The others are the Journal of Interactive Marketing (citations = 217, TLS = 6888), followed by Computers in Human Behaviour (194 citations, TLS = 7099), International Journal of Advertising (179 citations, TLS =5869) and Journal of Business Research (143 citations, TLS = 5262).

Cluster - 3 in blue comprises of 10 journals. The most impactful among them being Journal of Marketing Research (199 citations, TLS =6697). This is followed by Journal of Consumer Research (197 citations, TLS=6187) and Journal of Consumer Psychology (31 citations, TLS = 1124).

Bibliographic coupling with documents as unit of analysis

The concept of bibliographic coupling was given by Kessler in 1963. Two articles are considered to be bibliographically coupled when they refer to a common third article in their reference list. The strength of bibliographic coupling increases if there is an increase in the number of references that two articles commonly refer to in their reference list. Threshold limit was taken as minimum 20 citations. Out of 200 documents, 46 met the threshold. Documents having TLS more than 40 were taken. For details see Table III- Bibliographic Coupling with documents in Appendix. So total documents included in analysis was 30 as shown in Figure III.

Figure III. Documents Bibliographic coupling network



Cluster 1 (in red color) is the largest cluster having 11 documents. The most cited articles in this cluster are Xu, D.J., (2006) cited 220 times followed by Parreno (2013) cited 93 times. This cluster predominantly comprises articles on consumer attitudes toward mobile advertising.

Cluster 2 (in green color) was having 10 documents. The most cited articles in this cluster are Muk (2015) cited 70 times followed by Soroa-Koury (2010) cited 61 times. This cluster predominantly comprises articles on factors affecting mobile advertising.

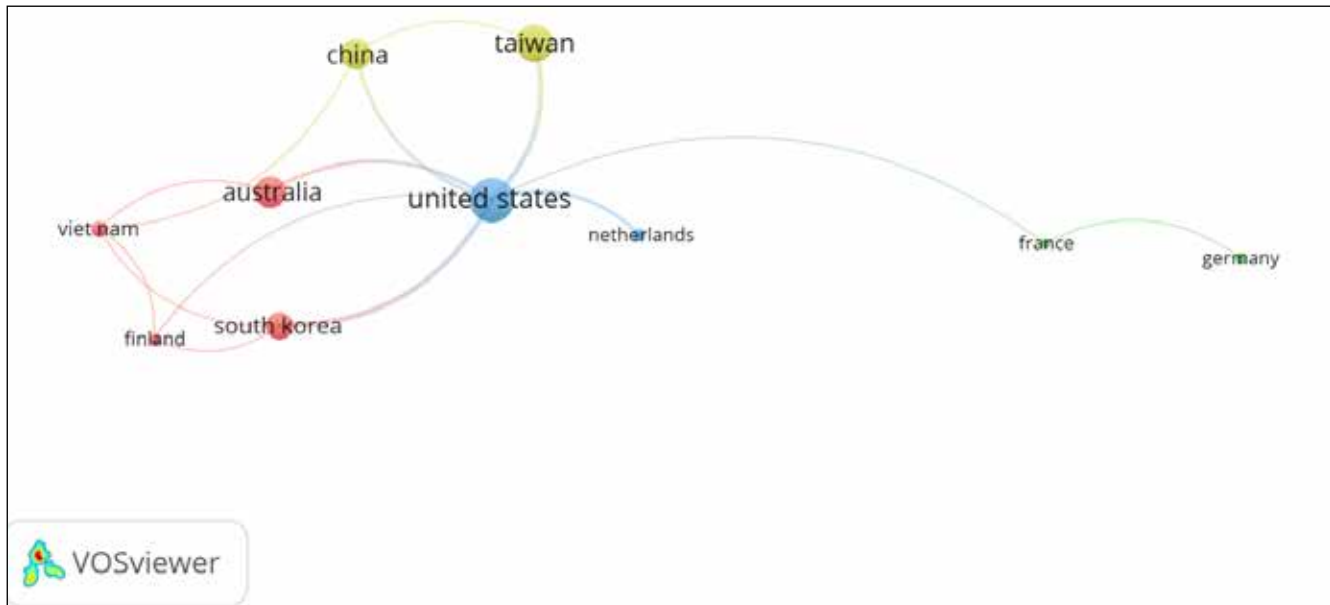
Cluster 3 (in blue color) had 9 documents. The most cited articles in this cluster are Bellman (2011) cited 148 times followed by Bart (2014) cited 34 times. This cluster predominantly comprises articles on the effectiveness of mobile advertising.

Country Co-Authorship network analysis

This network helps us to study the amount of collaboration between authors, organizations, and countries. Co-authorship is a type of synergy effect in the field of research. Figure 4 shows the co-authorship network of author-affiliated countries having at least 1 citation and at least 3 documents as the threshold limit. Out of 56 countries, 20 met the threshold but countries having TLS = 0 were not taken. So, figure 4 shows a total of 10 countries. VOS viewer software clustered the 10 countries into 4 clusters using the modularity method. For details see Table IV - Country Co-Authorship in Appendix.

Figure IV shows that USA was having the highest total link strength (TLS) among all the countries.

Figure IV. Country Co-Authorship network



Cluster 1 comprises of Australia, Finland, South Korea, and Vietnam shown with red color. These countries had a strong collaboration network in the field of mobile advertising. Australia had the highest number of citations in this cluster (431 citations).

Cluster 2 comprised of France and Germany showed in green color.

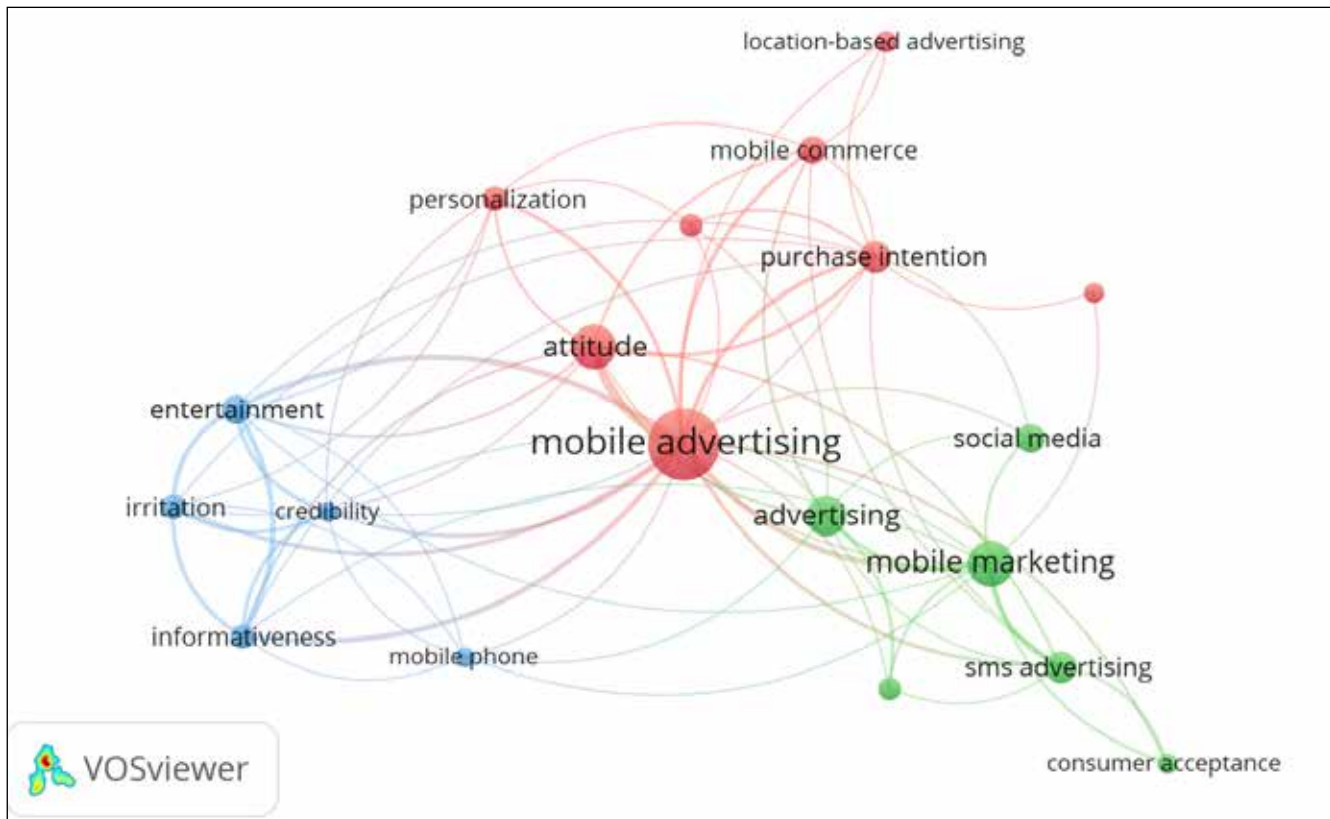
Cluster 3 comprised of USA and Netherlands showed in blue color. The USA (43 documents and 265 citations) was followed by Netherlands (89 citations).

Cluster 4 comprised of China and Taiwan shown in yellow color. China (14 documents and 406 citations) Taiwan (18 documents and 38 citations).

Keyword co-occurrence network analysis

Author keyword co-occurrence analysis helps to understand the thematic knowledge of a research field. In other words, it helps us to understand the research trend. VOS viewer software was used to generate a keyword co-occurrence network. A total of 672 keywords were extracted using software and the threshold limit was taken as 5. Out of 672 keywords, 22 met the threshold limit. The method adopted was association strength. The keyword which was a repetition (like the plural of a keyword) was not included in the network. For details see Table V- Keyword Co-occurrence in Appendix. So finally, 19 keywords were selected using VOS viewer software which generated a co-occurrence network as shown in figure V.

Figure V. Keyword co-occurrence network



Cluster 1 in red color had 8 keywords out of which mobile advertising is at the centre stage of the map or network with 64 occurrences and highest total link strength of 73. This shows that mobile advertising concept is largely studied concept by researchers followed by attitude (24 occurrences), purchase intention (12 occurrences), mobile commerce (9 occurrences).

Cluster 2 in green color had 6 keywords out of which mobile marketing had the maximum occurrences (26 occurrences). It was followed by advertising (20 occurrences), sms advertising (12 occurrences) and social media (10 occurrences).

Cluster-3 in blue color had 5 keywords out of which entertainment (10 occurrences), informativeness (8 occurrences), irritation (8 occurrences) credibility (5 occurrences) were depicted by VOS viewer software.

LIMITATIONS

Bibliometric analysis tells us that the researchers have investigated mobile advertising using quantitative data and there is a lack of qualitative studies. The present study is restricted to Scopus database only. Future researchers

should expand the scope of the present study by using databases also. The present study has used only VOS viewer as the bibliometric tool. Future researchers can expand the scope by using other bibliometric tools like Gephi, Histcite, Bibexel etc. Despite the above limitations, this study provides a comprehensive analysis of research on mobile advertising which would be beneficial to both academicians and practitioners.

CONCLUSION, RESEARCH GAPS AND FUTURE RESEARCH DIRECTIONS

Ajzen, Fishbein, Barnes, Okazaki and Karjaluoto are the most cited authors in the field of mobile advertising & attitudes of consumers. Ajzen has the highest citations in authors' co-citation analysis. His theory which he developed in collaboration with Fishbein popularly known Theory of Planned Behaviour (TPB) is the most cited theory by researchers in the field of mobile advertising's influence on the attitude of consumers. The following references have used TPB in their research: Lee et al. (2017), Lin & Chen (2015), Persaud & Azhar (2012), Rohm et al. (2012), Karjaluoto & Leppaniemi (2005), Xu (2006). Theory of planned Behaviour is the most widely

accepted theory in the field of consumer behaviour and marketing. This theory says 'attitude', 'subjective norms', and 'perceived behavioural control' together shape an individual's intention to buy.

Fishbein's theory of Reasoned Action is the next important theory quoted by researchers in field of mobile advertising research. This theory has been widely used to explain the use of mobile advertising by corporates. Researchers who have used TPB in their research are as follows: Gao et al. (2013), Rohm et al. (2012), Muk (2007), and Wang et al. (2019). Theory of Reasoned Action helps to predict how an individual behaves based on pre-existing attitude and intentions.

Barnes & Scornavacca have also been cited by a large number of researchers. Their paper titled 'Mobile marketing: The role of permission and acceptance' has highlighted the core issues in mobile advertising. As per them the most important aspect of mobile advertising is obtaining permission from the users to send information to them.

Technology Acceptance Model (TAM) given by Davis (1989) has also been used by a considerable number of researchers in the field of mobile advertising. This model/theory explains how perceived ease of use, perceived usefulness, and perceived risk play important roles in mobile advertising. Some researchers who have used Technology Acceptance Model are: Xu (2006), Persaud & Azhar (2012), Yang & Zhou (2011), Yang et al. (2013), Karjaluto (2008).

Okazaki has been cited 112 times in co-citation analysis. Okazaki along with his colleague Barwise wrote an article in the Journal of Advertising Research in 2011. The title of the article is 'Has the time finally come for the medium of the future?' In this article, the researchers discussed 'push' mobile advertising and 'pull' mobile advertising. Journal of advertising research has emerged as having the highest number of citations (404) in co-citation analysis of journals.

Journal of Interactive Marketing has received 217 citations in the co-citation analysis of journals. A notable article in this journal is by Barwise and Strong (2002), Barwise and Strong's work is focussed on permission based

advertising via mobile phones. Also, Grewal et al.(2016) did a review article on mobile advertising from 2002 to 2016 which is an important work.

Bellman et al. (2011) in his paper 'Effectiveness of branded mobile phone apps' found that mobile phone apps have a positive persuasive impact which can increase consumers' interest in the brand. In bibliographic coupling analysis Bellman et al. have 148 citations.

Xu (2006) has 220 citations in bibliographic coupling analysis. In his article 'The influence of personalization in affecting consumer attitudes towards mobile advertising in China' which was published in Journal of Computer Information Systems, the researcher found that personalization is the most important factor affecting consumers' attitude towards mobile advertising, particularly for female users.

In-app mobile advertising is on the rise. Mobile advertising has moved from being sms based to in-app internet-based advertising. The users are required to install apps first on their mobile phones due to which there is a rise in privacy concerns. Future researchers can focus on this unexplored area of mobile advertising research. The lack of legislation to deal effectively with consumer's privacy and personal data theft is a research gap that has a huge potential to be tapped by researchers.

Another research gap is in the area of how the negative attitude of consumers influences mobile advertising. Only a few research articles are available which have used Behavioural Constraint theory like Andrews et al. (2015). This theory can be used by future researchers to explore how negative attitude of consumers influence mobile advertising.

Majority of the studies in field of mobile advertising have focussed on influence on young users. Lack of research studies on how older generation responds to mobile advertising is another research gap.

Last but not the least, majority of research on mobile advertising is quantitative research. Future researchers should use qualitative and mixed method research to find new factors and constructs which can affect mobile advertising.

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APPENDIX

Table I - Cited Authors Co-citation

S. No.	Id	Author	Citations	Total Link Strength
1	140	Ajzen, i.	179	2431
2	564	Bagozzi, r.p.	76	1185
3	675	Barnes, s.j.	114	1719
4	704	Barwise, p.	55	844
5	2303	Davis, f.d.	105	1401
6	2517	Dickinger, a.	52	797
7	2684	Ducoffe, r.h.	82	993
8	3075	Fishbein, m.	113	1614
9	3136	Fornell, c.	53	649
10	3829	Haghirian, p.	103	1472
11	3840	Hair, j.f.	64	817
12	5070	Karjaluoto, h.	107	1891
13	5957	Leppaniemi, m.	74	1347
14	6010	Li, h.	60	651
15	6401	Lutz, r.j.	69	881
16	6459	Mackenzie, s.b.	70	856
17	7273	Murphy, j.	50	769
18	7668	Okazaki, s.	112	1519
19	8108	Petty, r.e.	55	400

20	8540	Reichardt, t.	55	911
21	9203	Scornavacca, e.	53	869
22	10376	Tsang, m.m.	70	1040
23	10630	Venkatesh, v.	66	972

Table II - Co-citation Analysis of Journals

S. No.	id	Source / Journal	Citations	Total Link Strength
1	754	Computers in Human Behavior	194	7099
2	895	Decision Support Systems	58	1976
3	1694	International Journal of Advertising	179	5869
4	1797	International Journal of Mobile Marketing	162	5074
5	2141	Journal of Advertising	286	9426
6	2143	Journal of Advertising Research	404	11414
7	2189	Journal of Business Research	143	5262
8	2216	Journal of Consumer Psychology	31	1124
9	2217	Journal of Consumer Research	197	6187
10	2307	Journal of Interactive Advertising	150	5160
11	2309	Journal of Interactive Marketing	217	6888
12	2352	Journal of Marketing Research	199	6697
13	2601	Management Science	62	1816
14	3377	Psychological Bulletin	34	1020
15	3396	Psychology & Marketing	66	2390

Table III - Bibliographic Coupling with documents

S. No.	Id	Document	Citations	Total Link Strength
1	88	lee e.-b. (2017)	21	113
2	98	feng x. (2016)	25	109
3	115	lee s. (2015)	48	78
4	121	gazley a. (2015)	25	113
5	128	lim j.s. (2015)	32	45
6	129	muk a. (2015)	70	60
7	139	le t.d. (2014)	45	89
8	140	ha y.w. (2014)	69	114
9	146	bart y. (2014)	34	59
10	150	drossos d. (2013)	29	115
11	151	yang b. (2013)	41	122
12	153	parreño j.m. (2013)	93	127
13	155	mohd noor m.n. (2013)	38	168
14	156	richard j.e. (2013)	26	140
15	162	okazaki s. (2012)	28	71
16	164	varnali k. (2012)	29	96
17	165	bellman s. (2011)	148	61
18	170	lee c.-c. (2011)	76	110
19	176	rau p.-l.p. (2011)	29	54
20	178	moynihan b. (2010)	83	85
21	181	soroa-koury s. (2010)	61	108

22	184	phau i. (2009)	78	86
23	185	xu h. (2009)	26	126
24	189	tripathi s.n. (2008)	30	41
25	193	yang k.c.c. (2007)	27	81
26	194	okazaki s. (2007b)	37	62
27	196	haghirian p. (2007)	50	96
28	198	xu d.j. (2006)	220	79
29	199	lee s.-f. (2006)	38	80
30	200	tsang m.m. (2004)	20	88

Table IV - Country Co-Authorship

S. No.	Id	Country	Documents	Citations	Total Link Strength
1	2	Australia	14	431	03
2	7	China	14	406	04
3	14	Finland	03	16	03
4	15	France	04	10	02
5	16	Germany	03	17	01
6	32	Netherlands	03	89	02
7	45	South Korea	19	71	05
8	47	Taiwan	18	38	04
9	54	United states	43	265	14
10	55	Vietnam	04	809	04

Table V - Keyword Co-occurrence

S. No.	Id	Keyword	Occurrences	Total Link Strength
1	24	Advertising	20	15
2	53	Attitude	24	31
3	89	Brand Attitude	07	05
4	123	Consumer Acceptance	05	06
5	128	Consumer Behaviour	07	07
6	150	Credibility	05	21
7	209	Entertainment	10	34
8	287	Informativeness	08	29
9	309	Irritation	08	25
10	328	Location-Based Advertising	06	03
11	368	Mobile Advertising	64	73
12	377	Mobile Commerce	09	13
13	388	Mobile Marketing	26	31
14	393	Mobile Phone	05	07
15	471	Personalization	08	11
16	510	Purchase Intention	12	21
17	566	Sms Advertising	12	19
18	582	Social Media	10	05
19	629	Theory of Planned Behavior	05	02