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An International Journal on Grey Literature

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'THE INFLUENCE OF GREY LITERATURE IN PUBLISHING'

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The Grey Journal

An International Journal on Grey Literature

COLOPHON

About TGJ

The Grey Journal is a flagship journal for the international grey literature community. It crosses continents, disciplines, and sectors both public and private.
The Grey Journal not only deals with the topic of grey literature but is itself a document type classified as grey literature. It is akin to other grey serial publications, such as conference proceedings, reports, working papers, etc.

The Grey Journal is geared to Colleges and Schools of Library and Information Studies, as well as, information professionals, who produce, publish, process, manage, disseminate, and use grey literature e.g. researchers, editors, librarians, documentalists, archivists, journalists, intermediaries, etc.

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The Grey Literature Network Services was established in order to facilitate dialog, research, and communication between persons and organizations in the field of grey literature. GreyNet further seeks to identify and distribute information on and about grey literature in networked environments. Its main activities include the International Conference Series on Grey Literature, the creation and maintenance of web-based resources, a Global Distribution List and Social Media, and The Grey Journal. GreyNet is also engaged in the development of distance learning courses for graduate and post-graduate students, as well as workshops and seminars for practitioners.

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NUSL is

a digital repository for grey literature

Free

online access

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- Central access to grey literature and the results of research and development in the Czech Republic
- Support of science, research and education
- Systematic collection of metadata and digital documents
- Long-term archiving and preservation
- Cooperation with foreign repositories

Features

Provider:
National Library of Technology
Prague, Czech Republic

Records:
over 500,000 records

Collection provenance:
Czech Republic

Partners:
over 150 organizations (Academy of Science, Public Research Institutions, Universities, State Offices, Libraries, NGOs etc.)

International Cooperation:
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Conference on Grey Literature and Repositories
https://nusl.techlib.cz/en/conference

Informative Webpages
https://nusl.techlib.cz/en/

www.nusl.cz

NTK
Národní technická knihovna
National Library of Technology

NUSL
czech national repository of grey literature

EDITOR'S NOTE

Call for Tenders
GreyNet International 1992-2022

After 30 years of service to communities of practice in the field of grey literature worldwide, GreyNet seeks to secure and sustain its work under new management. Since the relaunch of GreyNet in 2003, TextRelease an independent information bureau registered in the Netherlands powers GreyNet International. Under its leadership and direction, GreyNet has established a professional membership base and partnerships worldwide. It has also developed and sustained a host of information products and services in the expanding field of grey literature. TextRelease, however, now seeks to transfer and/or merge the work of GreyNet to an infrastructure commensurate to its potential growth.

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Burning Grey: The Worldwide influence of a Locally Published Grey Literature*

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Joy Geromiano and Daryl Superio, Aquaculture Department, Southeast Asian Fisheries Development Center, Philippines

Abstract:
Rice is a major staple crop in the Philippines, which produces a large amount of rice each year. On the other hand, rice production generates biomass waste in the form of rice husks. In consideration of the rice husks' potential as a biomass energy source and support the development of the rice husk gas stove technology in the Philippines, Engineer Alexis T. Belonio had published a grey literature (GL) entitled "Rice Husk Gas Stove Handbook." Hence, to fully understand the impact of the technology, a citation analysis was conducted. The works that cited the GL were retrieved from Google Scholar using Harzing's Publish or Perish software. The complete title of the GL was used as keywords for the search string. Results revealed that the GL was cited by 155 literatures written by 398 authors from 31 countries. Seventy-five (48.4%) of the 155 literatures were cited 797 times. The results showed the wide utilization and the impact of locally-published GL, thereby confirming GL's value in research and development.

Introduction

Rice production is one of the most essential economic activities in the world (GRiSP, 2013). It is the staple food of more than 50% of the world's population, with more than 700 million tons produced annually (CGIAR, 2019). Rice is primarily a foodstuff and continues to be a major food staple in Asia, Latin America, the Caribbean, and increasingly in Africa, and the global rice production is expected to grow by 58 mt to reach 567 mt by 2030 (OECD/FAO, 2021). In the Philippines, rice is the staple food and is one of the most important staple crops in the country. As a matter of fact, Philippines ranks as the world's eighth-largest producer of rice (GRiSP, 2013). In 2020 alone, a total of 19.44 million metric tons (MT) of rice was produced (Agoot, 2020), which also made a significant amount of agricultural waste, such as rice husks. Rice husks or rice hulls are the hard protective covering of rice grains and are the by-product of rice production during the milling process. An estimated 2 million tons of rice husk are produced annually in the Philippines (Fung and Jenkins, 2003; Belonio, 2005). Rice husk is considered as the most abundant agricultural by-product in the country (Vinluan, 2002), and it holds a great potential to be a biomass energy source that could help address the population's increasing fuel needs according to Philippine Rice Research Institute as stated in the paper of Simeon (2016).

According to Lim et al. (2012), huge dependence on conventional and fossil fuels pose a significant problem in fossil fuel depletion, climate change, and environmental protection. Additionally, though fossil fuel is predicted to remain the dominant energy source by 2030 (Lim et al., 2012), Mofijur et al. (2019) argued that it would be incapable of supporting the global energy demand in the future due to its limited reserves. Many developing countries generally use Liquefied Petroleum Gas (LPG) as conventional fuel source for cooking (Punin, 2020). In the Philippines, conventional source of fuel such as the LPG is commonly used by many households (Belonio, 2005). However, the volatile oil price and growing emphasis on environmental conservation has led to the development, seeking, and utilization of alternative energy sources (Lim et al., 2005). Thus, the Department of Agriculture in the Philippines and the International Rice Research Institute developed the rice husk gas stove technology in 1986. Aside from its financial viability, utilization of rice husks as a biomass energy source through this technology also offers environmental sustainability by reducing the rice husk disposal problem (Belonio, 2005; Kumar, 2013). Also, it has less carbon dioxide emission than traditional fuel sources in cooking, therefore "contributing to carbon sequestration for greenhouse gas mitigation" (Simeon, 2016).

* First published in the GL2021 Conference Proceedings, February 2022. - https://doi.org/10.26069/greynet-2022-000.471-gg

Hence, to contribute to the development of the technology, Central Philippine University in Iloilo City, Philippines, through the leadership of its faculty member Engineer Alexis T. Belonio, developed a rice husk gas stove in 2003 (Strauss, 2016). Furthermore, to fully disseminate the technology, the University published in 2005 the "Rice Husk Gas Stove Handbook," a grey literature (GL) that is being used as one of the prime references in sustainable energy sources research.

Grey literatures are information produced in print and electronic formats not controlled by commercial publishing, where publishing is not the primary activity of the producing body (Tillett & Newhold, 2006). Grey literature is usually produced by associations, academic institutions, research institutions, libraries, societies, etc. common types are theses, unpublished documents, conference proceedings, datasets, reports, working papers, etc. (Mason, 2012; Schopfel & Farace, 2009).

GL's value in bringing unnoticed, unexplored, and difficult to acquire information from different facets of society contributes to the development of a nation through its literary output (Gul, Shah, Ahmad, Gulzar, & Shabir, 2021). However, GL's usability and utilization are faced with issues of discoverability due to the locality and indigenousness of the information; accessibility due to GL's uniqueness and challenge in its inclusion in indexing and citation database; and content reliability and validity due to the often lack of peer-review process (Shrivastava, & Mahajan, 2021; Gul at al., 2021, Bickley, Kousa, & Thelwall, 2020). Hence, it is useful to discover and understand the influence of a locally published GL, thereby confirming GL's value in research and development.

The paper aimed to determine the impact of the technology developed by Engr. Alexis Belonio through the GL "Rice husk gas stove handbook". Specifically, it aimed to determine the impact of GL by: 1) identifying the nationality of the authors who cited it; 2) determining the most common publishers of the citing work; 3) identifying the publication type of the citing works; 4) determining the number of citations of every citing works, and; 5) identifying the disciplines where the GL was being used and defused.

Methodology

The study included 155 literatures that cited the GL Rice Husk Gas Stove Handbook by Engr. Alexis Belonio. The data were identified and extracted from Google Scholar using Harzing's Publish or Perish software. The search string used to retrieve the data was the complete title of the GL "Rice husk gas stove handbook". To verify that the GL was cited in the retrieved literatures, the in-text citations and reference list of each title were checked manually.

Citation analysis was used to determine the influence of the GL. The analysis covers the nationalities and the collaborative activities of the authors who cited the GL; publisher; and publication type. To further see the influence, the analysis will also include the number of citations generated by the citing article and the discipline where the GL is prominently being used and being diffused. Frequency counts, percentages, and mean were used to describe the results.

Results

The GL written by Belonio was cited by 155 literatures which was written by 398 authors from 31 countries. Seventy-five (48.4%) of the 155 literatures were cited 797 times. This reflects the wide extent that the GL was used directly and indirectly.

Table 1 shows the number of authors per continent, where Asia leads with 274 authors (68.84 %), followed by Africa with 69 authors (17.34 %) and Europe with 8.79 % (35 authors).

Continent	No. of authors (f)	Percentage (%)
Asia	274	68.84
Africa	69	17.34
Europe	35	8.79
North America	15	3.77
South America	3	0.75
Australia	2	0.5
TOTAL	398	100

Table 1. Number of authors per continent

Moreover, the table below (Table 2) reflects the number of countries per continent where the nationality of the citing authors belongs. Asia included 10 countries (32.3%), followed by Africa and Europe, with eight (25.8%) countries each. North and South America consist of two (6.5%) countries each, and Australia only has one (3.2%).

Continent	No. of countries (f)	Percentage (%)
Asia	10	32.3
Africa	8	25.8
Europe	8	25.8
North America	2	6.5
South America	2	6.5
Australia	1	3.2
TOTAL	31	100

Table 2. Number of countries per continent

It can be assumed that since Asia dominates the rice production and consumption around the globe (Rice Alamac, 2013) and where more than 90% of rice is produced and consumed in the continent (CGIAR, 2019), many researchers notice the potential of the by-products of rice production.

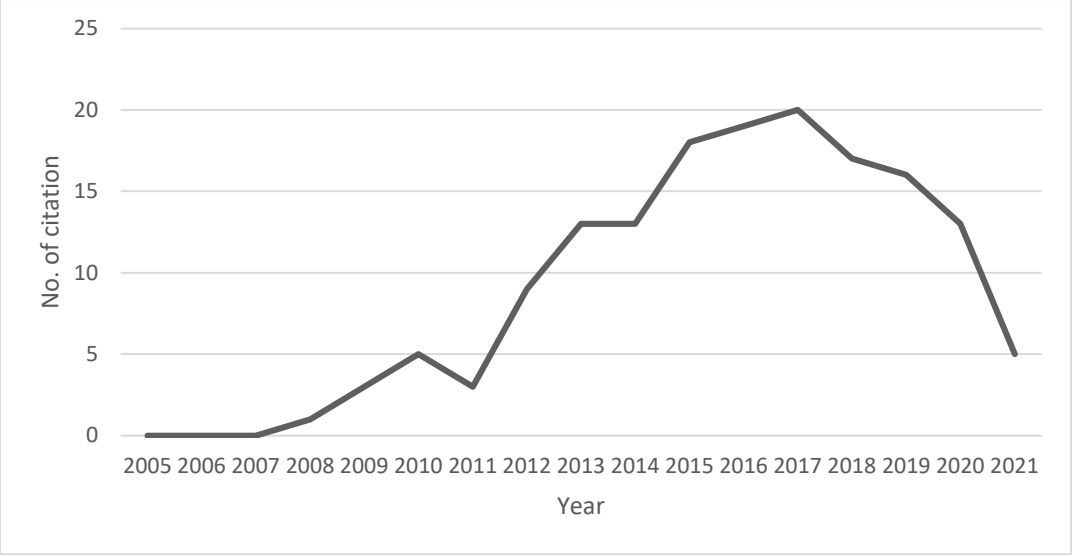

Figure 1. Number of citations per year

Since its publication in 2005, the GL has been cited 155 times. The work was cited at its highest in 2017, with 20 citations, as shown in Figure 1. On average, the work was cited 11 times a year

in the course of 17 years. The peak was within 2015-2017, and in those years, Indonesia was the country with the highest number of citations. According to Faizah and Husaeni's (2018) work about the development of consumption and supplying energy in Indonesia's economy, the energy consumption from 2007 to 2017 fluctuated. Specifically, the energy consumption in households increased during the said years. The energy used by households includes biomass, gas, kerosene, LPG, and electricity. The types of biomass energy consumed by households are firewood, charcoal, and others used for cooking. Increased consumption in this sector is due to an increase in the number of family members and households in Indonesia. It can be assumed that this might be why researchers have ventured into researching the potential of rice husk as an alternative biomass energy source.

The result of the citation analysis also revealed that almost half of the first authors (49.03%) were Indonesian. It is also the same for the number of co-authors, where 98 (40.33%) of them are Indonesian out of 243 co-authors. The majority (90 %) of the first authors were affiliated with Academic Institutions, and the remaining proportions were connected with Government institutions (Figure 2).

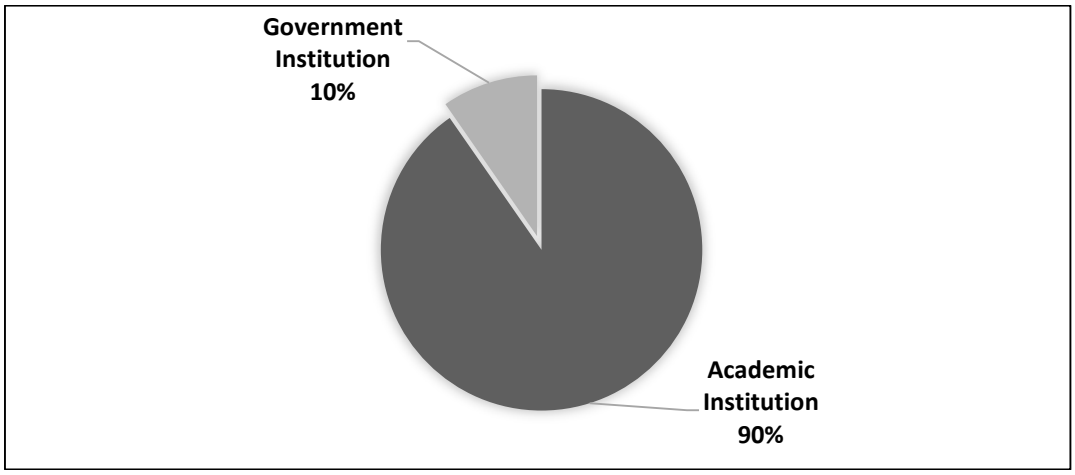

Figure 2. First author affiliation

Institution	f	%
Universitas Muhammadiyah Surakarta, Indonesia	19	11.45
Universitas Sriwijaya, Indonesia	5	3.01
Maharana Pratap University of Agriculture and Technology, India	4	2.41
Nong Lam University, Vietnam	4	2.41
Universitas Gadjah Mada, Indonesia	4	2.41
Universitas Jember, Indonesia	4	2.41
Universitas Sultan Ageng Tirtayasa (UNTIRTA), Indonesia	4	2.41
Bahir Dar Institue of Technology, Ethiopia	3	1.81
Indian Institute of Technology, India	3	1.81
McGill University, Canada	3	1.81

Table 3. Authors' affiliated institutions

Out of 101 institutions identified, the top 10 institutions with the greatest number of frequencies are all academic institutions (Table 3). Five of them come from Indonesia, two from India, and one from Vietnam, Ethiopia, and Canada, respectively. Universitas Muhammadiyah Surakarta, Indonesia ranks first with 11.4% followed by Universitas Sriwijaya, Indonesia with 3%.

Only a few (9%) of the citing literatures have a foreign collaboration in their work. 91% of the authors did their work without collaboration from other countries or nationalities. Most of the literatures that have been extracted were Journal Articles with 54.19% or 84 citing literatures. There were also Theses/Dissertations with 27.10% (42 citing literatures) followed by Conference

Proceedings with 13.55% (21 citing literatures). Research Documents (including Research Articles, Projects, and Reports), Monographs, Technical Documents, and Bulletins were also identified and analyzed, as shown in Table 4. Moreover, most of the citing literatures (64%) are Open Access (Figure 3).

Type of Publication	f	%
Journal articles	84	54.19
Theses/Dissertations	42	27.1
Conference Proceedings	21	13.55
Research Documents	3	1.94
Monographs	2	1.29
Technical Documents	2	1.29
Bulletins	1	0.65
TOTAL	155	100

Table 4. Type of Publication of the citing literatures

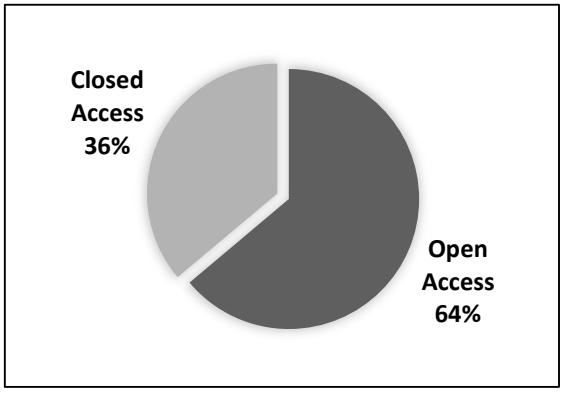

Figure 3. Type of access

The result of the analysis has identified 125 journals. Reflected in Table 5 are the journals with the most number of citing literature. Universitas Muhammadiyah Surakarta leads with 10.97%, followed by Renewable and Sustainable Energy Reviews (2.58 %) and Universitas Jember with 1.94%. Seven of the 10 (italicized) are Open Access journals.

Journal	f	%
Universitas Muhammadiyah Surakarta	17	10.97
Renewable and Sustainable Energy Reviews	4	2.58
Universitas Jember	3	1.94
Berkala Fisika	2	1.29
Berkalan Ilmiah Teknologi Pertanian	2	1.29
EPD Congress	2	1.29
International Letters of Chemistry, Physics and Astronomy	2	1.29
IOSR Journal of Applied Chemistry (IOSR-JAC)	2	1.29
Journal of Sustainable Bioenergy Systems	2	1.29
Jurnal Teknik Kimia Indonesia	2	1.29

Tables 5. Journals with the most number of citing literature

Publisher	f	%
Universitas Muhammadiyah Surakarta	15	9.6
Springer	9	5.8
Elsevier	6	3.8
IOP Publishing	4	2.6
Taylor & Francis	4	2.6
UMS Institutional Repository	3	1.9
Universitas Jember	3	1.9
Universitas Sriwijaya	3	1.9
Digital Repository Universitas Jember	2	1.3
FLUIDAS Asociatia Nationala Profesionala De Hidraulica Si Pneumatica	2	1.3

Table 6. Publishers with most number of citing literature published

Out of 106 publishers identified, Universitas Muhammadiyah Surakarta is the highest with 9.6%. Springer follows with 5.8 %, and Elsevier falls third with 3.8%. Table 6 shows the publishers with the most number of published citing literature. Only three commercial publishers (italicized) are included on the publishers with the most number of published citing literature, which includes Springer, Elsevier, and Taylor & Francis.

The GL was mainly used in the field of Mechanical Engineering (40.65%) followed by Agricultural Engineering (39.35%) and Industrial Engineering (11.61%), as shown in Table 7. It can be assumed that Mechanical Engineering ranked first because authors or researchers are using Belonio's work to create their own modified or specific version of the invention. Also, they referred to the GL for more information regarding the use of rice husk as biomass energy.

Discipline	f	%
Mechanical Engineering	63	40.65
Agricultural Engineering	61	39.35
Industrial Engineering	18	11.61
Agriculture	11	7.10
Chemical Engineering	1	0.65
Electrical Engineering	1	0.65
TOTAL	155	100

Table 7. Disciplines where the GL was diffused

Also, in analyzing the literatures, the words used by the authors in the title were counted. More than 600 words were identified using the titles of the literatures. MAXQDA was used in generating this word cloud data visualization (Figure 4) and word frequency table (Table 8). The most used word was "Biomass" and "Gasifikasi" (Indo: gasification) tied with the frequency of 33 (4.89%), followed by "gasifier" with 4.44 % (30 times) and "rice" with 3.70% (25 times). We did not translate the words or the title in the process of extracting the word frequency to show the diversity of the words.

Figure 4. Word frequency

Word	f	%
biomass	33	4.89
gasifikasi (Ind./gasification)	33	4.89
gasifier	30	4.44
rice	25	3.7
sekam (Ind./husk)	24	3.56
udara (Ind./air)	22	3.26
design	21	3.11
gasification	21	3.11
husk	19	2.81
padi (Ind./paddy)	19	2.81
pengaruh (Ind./influence)	16	2.37
stove	15	2.22
variasi (Ind./variation)	15	2.22
biomassa (Ind./biomass)	14	2.07
energy	14	2.07
gas	14	2.07
kompor (Ind./stove)	13	1.93
bakar (Ind./burn)	12	1.78
downdraft	12	1.78
performance	12	1.78
tungku (Ind./furnice)	12	1.78
limbah (Ind./waste)	11	1.63
updraft	11	1.63
cookstove	10	1.48
evaluation	10	1.48

Table 8. Word frequency

Discussion

Energy's role in social and economic development is vital and acknowledged worldwide (Pode, Diouf, & Pode, 2015). However, the global demand for energy and resources is increasing continuously due to industrialization, rapid population growth, and consumption of goods and services (Lim et al., 2012; Quispe, Navia, & Khhat, 2016). The increasing demand affects both the energy resources and food supply, hence the production of agricultural products, such as rice, is moving in parallel. Rice is being grown in many countries worldwide (CGIAR, 2019) where most of it was produced and consumed in Asia (GRiSP, 2013; OECD/FAO, 2021). This production growth also constitutes equivalent agricultural residues such as rice husks. The crisis presented by the finite energy resources and huge production of agricultural residues paved the way for the governments to utilize the potential of rice husks as an alternative and renewable biomass energy (Quispe, Navia, & Khhat, 2016; Kate & Chaurasia, 2018).

We can assume that majority of the authors that cited the GL were from Asia because of the potential and abundance of rice husks, an agricultural waste that can be utilized for alternative biomass energy since the region is also leading in rice production (GRiSP, 2013). This is supported by Pode, Diouf, & Pode's (2015) statement that biomass energy was being developed and widely used in Asian countries. Moreover, Quispe, Navia, and Kahhat (2017) discussed in their paper the energy potential from rice husk per year per region, where Asia leads, followed by America, Africa, and Europe.

The majority of the literature was open access journal articles, mostly published in academic institutions through their repositories. This result is in line with the statement of Gul et al. (2020) in their paper that the role of Open Access Repositories (OAR) in disseminating grey literatures are evident. Grey literature continues to play an essential part in the research endeavor of researchers (Palcullo, Geromiano, & Superio, 2021). Predominantly, repositories are institutional, disciplinary, aggregating, or governmental. Specifically, Institutional Repositories (IR) are managed by academic or research institutions (Gul et al., 2021). Tsunoda, Sun, Nishizawa, & Liu (2017) stated that IRs "aim to provide open access to institutional research output, to create global visibility for institutions' research, and to store and preserve other institutional digital assets, including unpublished or otherwise easily lost grey literature such as theses, working papers or technical reports."

Conclusions and Recommendations

This study exhibited that the role of Grey Literature as a source of information stays essential, especially for researchers. The top users of the GL came from the countries which are also considered leading countries in rice production and consumption. The GL was used in different disciplines, mainly in Mechanical Engineering and Agricultural Engineering, and most of the literature that used the GL was available as Open Access.

The study shows that even locally-published grey literature could be of value to the international community; thus, publishers must ensure that the distribution of these resources must not be limited to the local community only.

Furthermore, Institutional repositories play important roles in disseminating and preserving these publications; thus, whenever possible, the establishment of such is recommended.

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Deepfakes: A Digital Transformation Leads to Misinformation*

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Abstract

Deepfakes are a product of artificial intelligence (AI) and software applications used to create convincing falsified audiovisual content. Linguistically, a portmanteau combines deep learning aspects of AI with the doctored or falsified enhancements that deem the content fake and now deepfake or misinformation results. A variety of sophisticated software programs' exacting algorithms create high-quality videos and manipulated audio of people who may not exist, twisting others who do exist, creating the potential for leading to the spread of serious misinformation often with serious consequences. The rate of detection of this digital emergence is proliferating exponentially and the sourcing is challenging to verify, causing alarms. Examples of this pervasive information warfare are is associated with deepfakes that range from identity theft, discrediting public figures and celebrities, cyberbullying, blackmail, threats to national security, personal privacy, intensifying pornography and sexual exploitation, cybersecurity, baiting hate crimes, abusing social media platforms and manipulating metadata.

Deepfakes that are difficult to cite, acquire, or track have some parallel attributes to grey literature by that definition. Often detectable, yet problematic, activities such as phishing and robocalling may be common attempts of deepfake activities that threaten and interrupt rhythms of daily life. The increasing online personas that many people create or assume contribute to this fake content and potential for escalated exploitation due to technical abilities to copy and reimagine details that are not true. AI image generators create completely false images of people that simply don't exist within seconds and are nearly impossible to track. While AI is perceived as a positive benefit for science and policy, it can have negative roles in this new AI threatened environment. Deepfakes have cross-over targets in common business applications and society at large. Examples of this blur are targeted advertising, undetected security cameras in public spaces, blockchain, tabloid press/paparazzi, entertainment, computer games, online publishing, data and privacy, courtroom testimony, public opinion, scientific evidence, political campaigns, and rhetoric.

This paper explores the impact and intersections of these behaviors and activities, products of AI, and emerging technologies with how digital grey and the optics of grey expose the dangers of deepfakes on everyday life. Applying a security and privacy lens, we offer insights of extending libel and slander into more serious criminal behavior as deepfakes become more pervasive, construing reality, endangering personal, social, and global safety nets adding to the new normal we assume today. How we became more sensitized to misinformation and fake news tells the story about deepfakes.

Introduction

Grey Literature (GL) has a history and nomenclature that includes a definition that suggests it is a "relatively recent collective noun" for "information produced on all levels of government, academia, business and industry in electronic and print formats not controlled by commercial publishing where publishing is not the primary activity of the producing body" (Farace and Frantzen 2005). Traditional scholarly literature is defined by having its submissions go through peer review. Often, grey literature is not peer-reviewed as it is not usually published in journal literature or monographs released by commercial or scholarly imprints. This suggests the parallels we see with some deepfake strategies and products since they too may not be the primary output of their sources and certainly are not peer-reviewed.

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Other critical intersections include how findings from the 'Project Overview of the Grey Literature Strategies' concluded best practice guidelines for producing and managing grey literature in Australia to transform access to public interest research for various communities (Aloia and Naughton, 2017). Considering the news trajectories of the past few years and the political and social climate we are currently experiencing, this is a very timely assessment. Part of the Australian research and its outcomes demonstrated that "finding better ways to access, control, evaluate, collect and preserve grey literature is an important national and international issue" (Houghton, 2011) in our current environment, much as it was leading up to today. Publishing strategies have changed as electronic publishing and preservation options have widely expanded the creation and dissemination of information linking different formats such as text, video, data, imagery, and other content into single outputs. Five years ago, it was reported that "Australia produces $30 billion worth of 'grey literature' that we can't read" (McCallum, 2016), suggesting how government, academe, corporate entities, and other information providers issue content that is not well cited nor curated. The value of these resources is understated due to poor discovery and application. Some examples of new databases containing content from many different repositories and sources are now practicing commendable stewardship, safeguarding, indexing, and curation to protect "endangered" or lost content that is getting recognition and inclusion in contemporary research. One such example is Policy Commons, launched in 2020 by Coherent Digital to be recognized for its aggregation of premium full-text content, subject neutral but research-intensive and described by co-founder Toby Green as "Essential research done by IGOs, NGOs, think tanks and research centers simply doesn't get the attention it deserves. It's hard to find, it disappears when funding is lost, it lacks persistent identifiers, and Policy Commons fixes these issues" (Green, 2020). That is the difference in what defines something as grey.

The study of grey literature has matured over the last couple of decades as its importance has been applied to new fields, disciplines, technologies, products, and outcomes. With that has come the refinements of how specialized content that forms the nexus of grey literature has shown the importance of its applications in many fields such as sciences, technology, health, government operations, public policy, and even arts and visual studies (Pappas and Williams, 2011). The linking factor of communications, and perhaps the intersection of information, communication, and technology best described by ICTs has shown how specialized content of working papers, technical reports, illustrations, images, spatial and quantitative data, legislation, thesis/dissertations, lyrics, product descriptions, plans, blogs, tweets, and hosts of other information outputs has had a dizzying effect on the publishing landscape as each has become increasingly valuable to communicate with readers and informants about certain observations, opinions, conclusions, and other outputs challenging to find, source, cite and share in the everyday lexicon of use. This challenged how it was collected, described, transmitted, and used.

During the Coronavirus/COVID 19 pandemic, the health sciences, and government agencies, in particular, were faced with trying to convey the medical consequences of the pandemic and direct citizens to act responsibly and rationally in responding to this worldwide crisis. However, efforts at communicating how best to practice recommendations and guidelines were met with resistance. For instance, the public questioned mandates and practices to honor social distancing, personal hygiene practices, engage in tracing and testing, and be vaccinated once shots became available (Brennan, 2020). The effort to focus on scientific evidence rather than conspiracy theories and opinions that lacked medical data has been challenging, framing one of the best examples of how misinformation has flourished by different media establishments and outlets over the past two years testing credibility and legitimacy at every turn. One of the most prominent examples of COVID-19 misinformation is the long list, known as a factsheet compiled by Brennen et al. where this team analyzed a sample of 225 pieces of misinformation rated false or misleading by fact-checkers and published in English between

January through March 2020, drawn from a collection of fact checks maintained by the British First Draft News (Brennen et al., 2020). Social media has contributed to both the good and negative information sharing that defines our knowledge base today.

Understanding Misinformation

We have adopted the following definitions by Wardle and Derakhshan and share their sentiments that "it's important to distinguish true and false messages, as well as messages that are and are not created, produced or distributed with intent" (Wardle and Derakhshan, 2019).

- Misinformation - false information shared by someone who believes to be true
- Disinformation - by contrast, is false information shared with knowledge of its falsity and thus intention to deceive or otherwise do harm. It is a deliberate, intentional lie.
- Malinformation - information based on a reality that is shared to harm a person, organization, or country. This term can refer to instances where private information is made public or genuine imagery is reshared in the wrong context.
- Information disorder - an umbrella term encompassing all forms of the above

Grey Literature has not been accused of serving up misinformation or fake news; however, it has been aligned with questions about why this sourcing is so fragile and why such valuable content has fallen through the cracks in what is considered a sophisticated publishing network. Several reasons begin to tell this tale. Local, federal, and international government agencies and nonprofit organizations have been forced to make critical decisions about what to archive and how to safeguard and distribute it (Langa, 2021). The financial side of the publishing enterprise is increasingly volatile as the call for open access has been made loud and clear in academic and broader circles (Fraga-Lamas and Fernandez-Carames, 2020). As "born digital" became more common, the release and citation of this material became less structured, and copyright protections were reduced. According to Suzanne Smalley, Roger Schonfeld speculates "how misinformation, politicization and other problems embedded in the open-access movement stem from a "mismatch" between the incentives in science and how 'openness and politicization are bringing science into the public discourse" (Schonfeld, 2021).

The Good, The Bad and the Future of both Grey Literature and Deepfakes

As Richard Van Hooijdonk states in his blog, "The competition between the creation and elimination of deepfakes will become increasingly fierce in the future, with deepfake technology not only becoming easier to access but its content easier to create and harder to distinguish from real" (Van Hooijdonk, R, 2021). This is not the case with grey literature as it more uniformly has reduced the gap between traditional commercial publishing and other new forms of expression and types of content, extending the open access movement. It can be perceived as Van Hooijdonk suggests that "the ability to use artificial intelligence to create realistic simulations might even be a positive thing for humanity" (2021).

Grey literature has been deeply seeded in medical and scientific areas from its inception. This transfer can also be seen in the correlated history of the open access movement when the demand for access to medical information was made by patients who had no systematic access to information about medical conditions, diagnoses, and treatments their physicians and healthcare providers were recommending as most of the information was published in subscription-based journals held by special libraries to which the unaffiliated public was not allowed.

Wardle and Derakhshan's "Misinformation and Disinformation Framework" when applied to documentary films and media and what challenges they pose to audiences and perhaps readers is yet another example of what they offer as a new lexicon to help to distinguish "between media commentary, misinterpreted material, playful content and media created to deliberately mislead" (Hight, 2021). Summarized below are several examples of different forms

captured by Hight from Wardle's framework that we find insightful when describing how misinformation is created:

- Fabricated content – deliberately designed to deceive, completely false
- Manipulated content – where there has been a manipulation of genuine material;
- Imposter content – when genuine sources are impersonated;
- False content – genuine content mixed with false contextual information;
- Misleading content – misleading use of information to frame an issue or individual;
- False connection – when headlines, visuals, or captions don't support the content;
- Satire of parody – fake content intended for social commentary

In addition, Claire Wardle has extended content in her created definitional toolbox, offering a glossary. She maps the landscape and describes graphically more about Information Disorders indicating how these tools will help contextualize and categorize how we can more appropriately address issues of trust and truth in the digital age (Wardle, 2018). She contributes a bright assessment about how these categories should be used in parallel and should be commended for the work that she has contributed to *First Draft*, where she has created a collaboration to "stand up for truth in a polarized world" (Wardle, 2018).

Another lesson about misinformation relevant to grey literature is how Nossel addresses disinformation containment strategies. She says "the originators of disinformation – not just foreign governments but conspiracists, provocateurs, and paid propagandists – are too diffuse to be shut down; even trying to shut them down would unavoidably impinge on expressive rights." She continues her drift with "Stopping disinformation will also require a more refined understanding of who consumes it and why" and concludes that information consumers can be divided into the anchored, the adrift and the marooned." (Nossel, 2021). This suggests our agreement that it is the middle group, the "informationally adrift," as Nossel refers to them, who are most challenging to educate or inform because of their over exposure to content, they are "prone to perpetual doubt" and are part of growing communities of disbelief and denial. This means that they can't distinguish sourcing and determine what is rightful or credible. The challenge is to urge this diverse body to do their research in trusted sources building media literacy and grey literature when made available, archived and heavily cited contributes to that slow fix while parsing misinformation and disinformation.

With the quickly changing media landscape and generations of users relying on multiple social media platforms, findings from Aswani and colleagues are equally alarming and support that misinformation is created by misinformation propagators, and how it is being shared. Their Twitter analysis found that "misinformation was 43% of tweets were works of fiction, 27% were rumors and 22% was from vested interests of organizations and individuals for the purpose of content promotion and advertising with only 8& from government, politicians and media sources combined." (Aswani, et al, 2019).

Misinformation Leading to Deepfakes

Even though artificial intelligence and online misinformation consistently make headlines, minimal research exists on digitally-altered visual content such as AI-generated deepfake videos. This paper focuses on video experience with deepfakes rather than covering the entire spectrum of deepfake creation. Using deep learning algorithms, "deepfake" videos (or colloquially, just "deepfakes") typically substitute one person's visual and acoustic likeness for another, presenting viewers with compelling videos of individuals doing and saying things they never did or said (Vaccari et al., 2020). In addition, many politicians and media pundits believe that deepfake videos can influence elections, instigate violence, and destroy claims to the truth (Paris et al., 2010). Although verifying online content and imagery is not a new phenomenon—in fact, the entire field of image forensics exists for this purpose—academic research exploring this topic is only recently emerging. However, due to the rising prevalence of

deepfake videos and their ability to promulgate violence and mistrust, it is increasingly vital for academics to deploy their technical and theoretical expertise in combating misinformation online.

What makes deepfake videos especially worrisome is the relative ease and accessibility with which adverse actors can manipulate moving images. With virtually no technical expertise, individuals can produce untraceable, deceptive videos and distribute them online from almost anywhere in the world. Altered videos have the power to propel a terrorist group's agenda or reword a politician's speech. The critical factors for assessing non-textual media distribution are the rapid pace of technology, the recent growth in digitally altered content, and users' varying levels of trust in visual imagery. While algorithmic detection for deepfake videos exists, these technologies' access and deployment remain uneven, and artificial intelligence blockers have struggled to eliminate harmful online posts and publications (Delort and Paris, 2011). Historically, this type of conduct has led to name-calling tactics, releasing personally identifiable information (doxxing), and similar intentions to create reputational harm. Deepfake videos, armed with the rhetorical persuasiveness of the moving image, represent a significant jump in the ability to inflict social damage.

Acknowledging that the algorithmic detection of deepfake videos is mired in its troubles of reliability, accessibility, and credulity, there is a robust, practical impetus to evaluate—and, where necessary—cultivate the human capacity for discerning between legitimate and deepfake manipulated videos (Biometric, 2019). In this paper, we document the process of creating deepfake videos as research instruments to test the ability of individuals to detect deepfakes in a controlled setting, outlining both the steps taken and the methodological motivations for them. We also draw comparisons to other information outputs. Finally, our documentation suggests that multiple considerations must be taken into account when creating altered content for research purposes, particularly for the sake of generalizability, concerning how individuals encounter altered content online.

The Rise and Ethics of Deepfakes

Manipulating visual media is becoming widely accessible, inexpensive, and easier to accomplish (Wade, et al, 2002). With software becoming more user-friendly, cell phone cameras increasing in quality, and the rise of technology literacy, most people have the opportunity to doctor media, an option once reserved for video editing professionals and filmmakers. Fake news and artificial intelligence consistently make headlines in today's media market; however, there is minimal research on digitally altered, visual content, specifically deepfake videos. As deepfakes rise in prevalence, there are concerns about the medium's ability to influence critical societal functions and political outcomes. Even memory researchers are studying how falsified videos can plant memories through familiarity, imagery, and credibility in how these manipulated content pieces are presented (Nash, Wade, and Brewmann, 2009). Without developing detection strategies, deepfakes can invoke personal and societal harm, threatening the foundations of trust and society. As the internet user's confidence in content fades and false information is presented as accurate, society becomes more susceptible to information warfare.

Algorithmic Detection

While some scholarly reviews of deepfake algorithms like FakeApp, Adobe VoCo, Lyrebird, and Face2Face have tended towards the ethically agnostic (Gardiner 2019), other recent research has shifted towards the creation of methods to detect deepfake manipulations, with both the explicit and implicit standpoints that deepfake videos pose social and moral dangers to the general public. Deep learning and machine learning feature prominently in the production of algorithmic attempts to detect deepfakes and—by extension of their detection—to impune on their persuasiveness of deepfake videos distributed online.

Image forensics research in the area of deepfake videos has focused on the use of neural networks (Güera and Delp, 2018; Amerini et al., 2019; Guarnera et al., 2020), classical frequency domain analysis (Durall et al., 2019), facial recognition (Korshunov and Marcel, 2019), and the algorithmic detection of visual artifacts that emerge during deepfake manipulation (Marra et al., 2018; Li et al., 2019). Problematically, as observed by Nguyen et al. (2019), the very technologies used to detect deepfake videos are the same as those used to create deepfake videos, thus perpetuating an arms race hinged on the co-advancement of shared algorithms.

Human Detection

Research on human (as opposed to machine) deepfake detection has more strongly figured around issues of literacy (Nightingale et al., 2017; Schetinger et al., 2017) and the social outcomes of deepfake circulation across social media platforms (Vaccari et al., 2020). Given that the creation of deepfake forensic algorithms consequently advances the ability of deepfake video creators to evade algorithmic detection further, there is an urgent need to cultivate and advance the human detection of deepfake manipulations. Moreover, the circumstances in which individuals encounter deepfake videos unwittingly differ dramatically from the large, high-resolution datasets that algorithmic detection models learn from. For instance, in Durall et al,'s work, as image resolution for deepfake videos fell, so too did their algorithm's predictive accuracy, suggesting that we cannot entirely rely on machines to detect manipulations in low-resolution videos correctly (2019). When coupled with Marra et al.'s observations on how the circulation of deepfake videos occurs primarily via social media channels that compress images and videos—and in doing so, obfuscate algorithmic detection "signals" with low-resolution, artifactual "noise"— it becomes increasingly evident that the need for human detection further increases (particularly when access to algorithmic detection models is uneven, impractical, and inequitable (2018).

Additional Applications

Other related technologies like drones that follow and track individuals give the public some of the same insecurity since they have not authorized or given permission to be followed or tracked. However, we can't forget how through the 2020 U.S. Presidential Election news outlets provided fact-checking after nearly every presidential debate and large campaign rally trying to force candidates to substantiate their claims with accurate history, chronology, and sourcing, rather than high-risk cases of any of the above forms of misinformation.

Data as an example of grey literature is reflected by Polonetsky, Tene, and Finch in their article, "Shades of Gray: Seeing the Full Spectrum of Practical Data De-Identification" (2016). They propose "parameters for calibrating legal rules to data depending on multiple graduations of identifiability, while also assessing other factors such as an organization's safeguards and controls, as well as the data's sensitivity, accessibility, and permanence" (Polonetsky et al., 2016). "It builds on emerging scholarship that suggests that rather than treat data as a black or white dichotomy, policymakers should view data in various shades of gray; and provides guidance on where to place important legal and technical boundaries between categories of identifiability." (Polenetsky et al., 2016, 595). They go on to create a data spectrum of key inflection points that include:

- Explicitly Personal Data
- Potentially Identifiable & Not Readily Identifiable Data
- Key-coded Data
- Pseudonymous and Protected Pseudonymous Data
- De-Identified and protected De-Identified Data
- Anonymous and Aggregated Anonymous Data

Their work continues to justify how important it is to separate between the sensitivity of a data item and its degree of identifiability and concludes with “New uses of data and technology have the potential to bring humanity a wide range of benefits, but at the same time to generate new and serious harms'' while advancing “an approach that supports benefit and deters risk by providing a practical framework for policymakers to analyze various data sets based on their degree of identifiability” (Polenetsky et al., 2016, 623).

Reflections of Technology

The Evolution of Media Manipulation

Manipulating photos and videos isn’t a new concept. Instead, an early example of media manipulation includes a portrait of Abraham Lincoln in 1860. Though the image seemed real, it was actually multiple photographs of Lincoln’s head and John Calhoun’s body stitched together into one portrait (Caldera, 2020). As image and photo manipulation became more common, video editing and manipulated also took hold as early as the 1970s where computer animation and visual effects became a widely adopted technique in the entertainment industry (Caldera, 2020). However, the rise of hyper-realistic simulations and media have far surpassed the simple edits made to videos and photos and taken a much more nefarious turn in recent years. As media technologies advance and develop synthetic results, falsified audiovisual content is appearing and sounding more realistic (Johnson and Diakopoulos, 2021). Examples of the deepfake phenomenon include videos celebrities doctored into movie clips they never performed to Mark Zuckerberg stating that he was going to delete Facebook (Kietzmann et al., 2019). Though falsifying images, audio, and video content isn’t a new concept, the phenomenon of deepfakes led to a boom of this new type of false media when an anonymous Reddit user shared the computer code to place famous personalities into pornographic clips (Kietzmann et al., 2019). The accessibility and feasibility of deepfakes have also rapidly evolved. Today’s deepfakes are made with minimal coding knowledge and require no elaborate hardware. Advanced computer algorithms and apps can quickly generate, produce, and edit videos that are difficult to tell apart from the original content (Skibba, 2020). As deepfakes become more prevalent on social media platforms and mobile networks, generated adversarial networks (GANs) allow for faster dissemination and create vulnerabilities for face recognition software (Korshunov and Marcel, 2018). With facial recognition becoming less reliable in these circumstances, this technology poses a new threat to the foundation of trust online as people may be unable to detect or determine whether or not these videos are real. While some of the existing deepfake videos seem harmless, the potential consequences of this technology can impact citizenry, social welfare, business, and life in general.

The Consequences of Deepfakes in Everyday Life

As fake content becomes more prolific in the digital age, we must understand the current and potential societal impact of deepfakes on the citizenry, education, social welfare, politics, media, business, and family life. The creation of deepfake videos is becoming easier and more accessible for unskilled end-users through programs such as FakeApp, a face-swapping program, Zao, a Chinese mobile app using movie clips, and Apple’s text-to-speech (TTS) editing system (Kietzmann, 2019).

Accessibility and new technologies suggest how much deepfakes are increasingly grey. Superimposing and swapping faces of individuals into movies and television clips can be an entertaining example of deepfake videos. For instance, in 2019, a clickbait video entitled “Keanu Reeves Stop A ROBBERY '' included a stuntman and voice actor with his face replaced with celebrity actor Keanu Reeves (Bode, 2021). The video was shared across multiple social media platforms, but the content was falsified, and Keanu Reeves was never involved. Though this type of content can be amusing, the ease of deepfake content creation means accountability is

lacking, and entertainment becomes nefarious information dissemination. The fact that such changes are not chronicled provides no record of artifacts or tracing available. Anyone, anywhere, at any time, can create these doctored videos to convince the general public that they are real. However, the ability to track, hold accountable, or impose regulations on these perpetrators are practically nonexistent or require legal and financial resources often dismissed. For instance, with limited oversight, deepfakes can undermine trust in the news and elections, resulting in ethical implications (Diakopoulos and Johnson, 2019). In 2017, researchers successfully created deepfake stills of former President Barack Obama saying things that he never actually said but were voiced by actor, Jordan Peele (Citron and Chesney, 2019). The same technology can create false videos inciting plans to carry out political assassinations, seemingly private conversations featuring elected leaders (Citron and Chesney, 2019), or Speaker Nancy Pelosi slurring her speech (Denham, 2020). With deepfakes being the next frontier for fraud, companies like Recorded Future found multiple examples on the dark web of criminal activity using deepfakes to blackmail, create pornographic videos, and execute identity theft (Security Firm, 2021). Society and government entities need appropriate countermeasures when such actions impact personal liabilities such as non-consenting individuals, government officials, and organizations (Kietzmann et al., 2019).

Conclusions

Our exploration of this topic moves us to share the conclusion stated by Vizoso, et al, that deep fakes are highly understudied and how they will continue contributing to more misinformation will only proliferate. We speculate that there are many new research paths that can emerge as we observe how journalists, media creators, information analysts and others respond to the damage that deep fakes can cause to society and how technology and media literacy can potentially change that course. (Vizoso et al, 2021).

Grey literature may be reduced as more outputs become discoverable. As search, meta-data, and analytics become more embedded in digital materials, deepfakes are newer, multi-formatted, and potentially more prolific. With terrorism, privacy, distribution channels, relationships to blockchain, and cryptocurrency, information warfare is regularly redefined and more concerning. This leads to an unstable digital marketplace where even the definition of grey is evolving. These global concerns come with implications as stakeholders and authorities enter the wild west of policy and legal oversight. These unknown territories will only expand and cross digital borders as deepfake creators become more aggressive and confident in their abilities to create harm. The scale at which these moving targets are changing will dictate how regulatory bodies respond and develop legal frameworks in this grey area of policing the digital arena. Digital transformation is an ongoing process, especially in the space where deepfakes are proprietary but not identifiable, definable, or attributable. As society learns to govern and respond to the new grey, individuals must take it upon themselves to build media literacy and resiliency when faced with all forms of information disorder.

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Grey Literature citation and inclusion rates in gambling review articles: Opportunities for improvement*

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Abstract

Commercial gambling is expanding in many countries worldwide, and researchers and governments are increasingly approaching gambling as a public health issue. Grey literature is a popular avenue for disseminating findings from gambling studies, accounting for over 20% of gambling research publications. As evidence-based policy decisions increasingly rely on systematic and scoping reviews, it is important that grey literature evidence is included in these reviews. To date, two umbrella review has assessed systematic reviews for gambling-related interventions, and using the AMSTAR 2 critical appraisal tool, both found the overall quality of the reviews to be low. One of the AMSTAR 2 criteria is "a comprehensive literature search strategy", which includes grey literature where relevant. The goal of this study is to assess the extent to which grey literature is cited in gambling related review articles, how often grey literature searches are included in reviews with systematized search strategies, and how grey literature is discussed (or not).

Using the multidisciplinary scholarly database Web of Science, a broad keyword search for "gambl" was performed, limited to documents of type "Review" published from 2016 to 2020. After screening for articles unrelated to gambling, 174 reviews were included. The references section of each article was reviewed and all grey references were catalogued. For articles with a formal search strategy, the proportion of grey items included in the systematic search results was also recorded. To determine if and how grey literature is discussed, the full text was searched for grey literature related terms.*

Of the 174 included studies, 100 had systematized search strategies and 74 did not. In systematized reviews, grey literature sources were included in just over half of reviews (n=54). Of the 46 systematized reviews that excluded grey literature, only one provided a methodologically sound reason for doing so and only eight acknowledged grey literature exclusion as a limitation of the review, while many did not mention grey literature at all. Across all review types, grey literature represented an average of 9.2% of works cited. Compared to similar reviews in other domains, it appears that grey literature is underutilized in gambling reviews. Efforts to improve grey literature uptake in gambling reviews may be most effective if focused on increasing awareness of grey literature and providing information or training resources to gambling researchers, peer reviewers and journal editors.

> *"One of the problems with systematic reviews is to get it published in a regular gambling journal, you'll get reviewers like me who know the psychology but don't really know... What is there to actually critique in a systematic review? It kind of is what it is. […] Maybe that's my naive take on something that I do very little in research. Maybe I just don't understand the nuances."* - Aaron, Male researcher based in Canada who studies gambling from a psychological perspective

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Introduction

Gambling as a growing public health issue

Gambling is a quickly expanding multinational industry. The global gambling industry grew from $250 billion USD in 2003 to $450 billion in 2013 (The Economist, 2014), to a projected $635 billion by 2022 (Morgan Stanley 2015, as cited in Cassidy, 2020).

Commercial gambling is heavily marketed as a legitimate and harmless leisure activity, but has been called a "dangerous commodity" similar to tobacco and alcohol because of the addiction and other social harms is presents (Markham & Young, 2015). Many people who gamble do not experience harm from gambling; clinically diagnosed problem gambling affects around 2-3% of the global population and has even decreased to 0.6% in Canada (Williams et al., 2020; Williams, Volberg, et al., 2012), but governments and gambling researchers are increasingly approaching gambling as a public health issue as problem gambling is only a small part of the picture.

Firstly, for each person with problem gambling, an average of six other people are harmed by that person's gambling, usually their closest family and friends (Goodwin et al., 2017). Secondly, although few people gamble at a level that qualifies as clinical problem gambling, many more gamble at what is called a low- or moderate-risk level and still experience harms from that (Browne et al., 2016; Langham et al., 2016).

Thirdly, harms from gambling disproportionately fall onto people in poorer and racialized communities (Abbott et al., 2004), thus the harms from gambling pose an equity issue related to social determinants of health, although the gambling industry's conflict with public health has been implicated as a "commercial determinant of health" (Ndebele et al., 2020). Finally, there is evidence for a "total consumption model" of gambling harm, meaning there is a strong positive association between the total gambling in a population and harmful gambling in that population (Rossow, 2019; Sulkunen et al., 2019). In light of the gambling industry's growth over the past 20 years, this means we can expect there has been a concomitant growth in overall gambling-related harms.

Gambling research and the public interest

Governments can use gambling research to inform gambling policies to reduce gambling harm, but there are some limitations to the gambling evidence base. The gambling research funded and conducted in any given country will be shaped by that country's existing gambling policies. For example, countries that have a history of approaching gambling as a public health issue (e.g., New Zealand) or strong public health research programmes generally (e.g., Nordic countries) produce more public health research on gambling harm prevention, whereas nations like Canada that have a history of viewing gambling as an individual addiction primarily produce research focused on individuals who have gambling problems and how to treat them (Baxter et al., 2019; Nordmyr & Forsman, 2018). Overall, research on the characteristics of individual gamblers is much more common than research on the broader social, cultural, and economic aspects of gambling (Baxter et al., 2019; Hilbrecht & Baxter, 2021).

In addition to this, the gambling industry funds a fair amount of the available gambling research, either by sponsoring research directly or through funding "independent" gambling research organizations. Research funding from the gambling industry has risks of conflict of interest in common with funding from tobacco and alcohol industries (P. J. Adams, 2007; Peter J. Adams, 2016). The 2013 report "Fair Game: Producing gambling research" found that gambling research is behind studies of tobacco, alcohol and other drugs in terms of methods used and dealing with conflicts of interest, and funding structures tends to focus on "safe" research questions unlikely to lead to further gambling regulation (Cassidy et al., 2013). Two other studies found industry funding had no biasing effect on gambling research, but these studies were themselves funded

by the gambling industry and must be approached with caution (Ladouceur et al., 2019; Shaffer et al., 2019).

Finally, for governments and policymakers to utilize gambling research to make evidence-informed decisions, the research must also be summarized and brought to their attention. A common method for summarizing research from multiple research articles on a topic are knowledge syntheses such as systematic reviews and scoping reviews. Unfortunately, the results of the two umbrella reviews evaluating gambling review articles are not promising: one found that primary research articles and systematic reviews on gambling were of low methodological quality in general (McMahon et al., 2019), and the other avoided doing a quality assessment altogether as "most of the studies would have been rated of weak quality and eliminated" (Velasco et al., 2021).

Gambling grey literature

The limitations discussed above largely refer to gambling research and reviews published as primary academic literature, but can be addressed in part by gambling grey literature. Gambling has a sizable and unique body of research published as grey literature: a systematic search of gambling grey literature published in Australia, Canada, New Zealand, the United Kingdom and the United States found that grey literature makes up over 26% of gambling research publications (Baxter et al., 2021b), and a thematic analysis of recent gambling research found that studies published as grey literature tended to focus on broader population health and well-being aspects of gambling, whereas studies published as journal articles tended to focus on the individual characteristics of people who gamble (Baxter et al., 2021a).

Grey literature has other general benefits, such as being more up-to-date and detailed than what is available in the primary literature, as well as providing a "unique global perspective" (Bonato, 2018, p. 28). The latter is especially important in gambling with local research being constrained by the existing policies of the jurisdiction, as context-specific research from different jurisdictions with different gambling policies is more likely to be published as grey literature. For example, the Australian Productivity Commission's two inquiry reports on gambling (Productivity Commission, 1999, 2010) are highly regarded and well-cited internationally despite their focus on Australian gambling, as they present highly detailed investigative research and analysis that could not be published in an academic journal or book. Somewhat paradoxically, the academic literature aims to make generalized/universal claims, but in doing so loses attention to specific contexts that may inform policies in other contexts. Grey literature such as the Productivity Commission reports achieves this.

Although much of gambling grey research is government-funded and the resulting reports may be consulted by that funder when it is first completed, reuse of those reports is generally lower due to limited distribution of grey literature. One way to ensure that grey research is considered in more gambling policy decisions is to include it in systematic reviews. There are several arguments in favour of this practice.

Firstly, grey literature is a strong contributor to systematic reviews in other health topics (Farrah & Mierzwinski-Urban, 2019; Severn et al., 2017), and the inclusion of grey literature in systematized review articles is consistently considered a best practice and a measure of quality where applicable in prominent review methodologies (Higgins et al., 2021; Kugley et al., 2017; Shea et al., 2017). Due to its significant body of grey literature, gambling should by default be considered a "where applicable" topic for the inclusion of grey literature in reviews, unless there is an argument for exclusion for a specific gambling topic. Additionally, although grey literature searching is more labour intensive and utilizes more specialized skills, guidelines have been developed for searching health and public health grey literature (Bonato, 2018; Godin et al., 2015) and have been successfully applied to the gambling domain (Baxter et al., 2021b).

Unfortunately, the "grey" of grey literature has been misrepresented as meaning dubious or unpublished in the gambling research community, and excluded from high profile gambling reviews on those grounds (Ladouceur et al., 2017; "Science has a gambling problem," 2018). On the contrary, grey literature should be included in reviews for the methodological reasons stated above, but also as a matter of principle: Most government-sponsored gambling grey research is funded through governments' gambling revenues, meaning the research is effectively paid for by gamblers through their gambling losses. Thus, there is an ethical imperative to heed that research in service of reducing gambling-related harms to those gamblers, their families, and their communities.

The present study

I have outlined several reasons why grey literature ought to be included in systematic reviews, as well as some signs that it may not be included to the extent it ought to be. This study presents a citation analysis of recent gambling review articles to answer the following questions:

- To what extent is grey literature cited in gambling review articles?
- To what extent are grey literature sources included in the search strategies of systematized review articles?
    - When included, what grey literature sources are searched?
    - When included, is relevant grey literature found?
- How is grey literature discussed in these articles, if at all?

Methods

All methods presented below were performed solely by the author.

Data source and search strategy

Bibliographic data were collected from the Web of Science (WoS) scholarly database. Of the large multidisciplinary databases Scopus, WoS, and Google Scholar, WoS was chosen because it was the only one to that included "cited references" in bibliographic downloads, and was thus ideal for data processing, although this option is no longer available at the time of publication.

The topic "gambl*" was searched across all WoS indexes, limited to document type "review" and years 2016 to present. The search is restricted to review articles due to our interest in search methodologies, and is in keeping with previous grey literature citation studies (Farrah & Mierzwinski-Urban, 2019; Severn et al., 2017). The initial search was performed December 9th, 2019 and the follow-up search was performed November 9th, 2021.

Eligibility criteria including selection process

Articles were included if they were review articles that investigated gambling or gambling harm (including problem gambling, gambling disorder, and pathological gambling). Reviews that had a scope of gambling and one other condition or activity (e.g., comparing problem gambling and alcohol use disorder) were also included, but articles with a scope of three or more conditions or a scope of all addictions or addictive behaviours were excluded. Review protocols were included if the full study was not yet published.

Review articles containing the topic keyword "gambl*" were excluded as out of scope if the topic met any of the following criteria:

- Gambling is the method of investigation only. The most common example is the "Iowa Gambling Task", a laboratory task used to assess decision-making ability that does not resemble any real gambling situation.
- Gambling problems as a side effect of treatment for brain disorders such as Parkinson's disease
- Gambling in animal models such as rats

- Otherwise unrelated to gambling (e.g., mentions a person with surname "Gamble", describing a government's decision as "a gamble", etc.)

Coding/data collection process/Data items

A Google Form was created and used to input the following data collected from each article. After screening for eligibility, each article was coded for type of review according to Grant and Booth's (Grant & Booth, 2009) typology of reviews, and divided into systematized reviews (SRs) and non-systematized reviews (NSRs) according to whether or not they employ a systematized search methodology. The most common types of SRs are systematic or scoping reviews, while NSRs are most commonly referred to as literature reviews, narrative reviews, or critical reviews. SRs had additional data collected as described at the end of this section.

To determine whether grey literature is discussed in each review article, the full-text of the article was searched for the following grey literature keywords: *"grey", "gray", "government", "document", "report", "website", "conference", "clinical trial", "unpublished", "peer review", "peer-review", "dissertation", "thesis",* and *"theses"*. The phrase "peer review" is included as it may imply grey literature, based on the misconception that all grey literature is not peer-reviewed. If a keyword match was found, the paragraph was read to confirm that grey literature is referenced, and the text discussing grey literature was copied to the Google Form.

For all articles, the "References" or "Works Cited" section was reviewed by the author to determine how many grey literature works were cited. Greyness was determined in accordance with the Prague Definition of Grey Literature (Schöpfel, 2010), and if greyness could not be determined based on the citation alone, the original work was consulted whenever possible. The number of grey references and total number of references were recorded, and the list of grey citations was copied in the Google Form.

For systematized reviews, additional data was collected. The list of included studies in the Results section was reviewed and the number of grey items and total items included in the synthesis were recorded. The search strategy was also read and all databases potentially containing grey literature were recorded. A source was not recorded if the eligibility criteria excluded all grey literature, or if it was searched in such a way as to exclude grey literature. Data sources could be named databases (e.g., OpenGrey) or generic methods (e.g., snowball searching or contacting subject matter experts). Generic methods were only counted as a grey literature source if either 1) the review explicitly states the purpose was to find grey/unpublished work, or 2) grey literature was present in the included studies. As such, if a review included snowball searching, but the results included no grey literature and the methods did not otherwise acknowledge trying to find grey literature, the snowball searching was not recorded as a grey literature source.

Coding and Analysis

Data from the Google Form were imported to a Microsoft Access database for cleaning and coding. Data for grey literature sources were standardized to a controlled vocabulary and stored in a related table. For the grey literature discourse analysis, systematized articles were coded as to whether or not they included grey literature in the search strategy, and whether they mentioned grey literature in the article text. Where grey literature was discussed, the text was reviewed and the sentiment to grey literature was recorded as one of the following:

- Positive (e.g., "grey literature was included in order to reduce publication bias")
- Neutral (e.g., "both academic and grey literature sources were searched")
- Negative (e.g., "grey literature was excluded because it was presumed to be of low quality.
- Conflicted (a combination of positive and negative sentiments)

Summary statistics presented in the following section were created through database queries.

Results

The searches yielded 512 hits for the years 2016-2020. After ineligible articles were excluded, a sample of 174 gambling review articles remained. When coded for review type, 100 reviews had a systematized search strategy, while 74 were not systematized.

A summary of the number of reviews by type and year is shown in Table 1. Overall there is a trend in the number of gambling review articles increasing over time, but this is attributable to a spike in non-systematized review articles published in 2020, likely due to an increase in researchers conducting desk reviews during COVID-19 lockdowns. The number of systematized review articles increased slightly from 2016 to 2017 and remained stable thereafter.

Table 1: Gambling review articles retrieved from the Web of Science database by year, divided into systematized reviews (SRs) and non-systematized reviews (NSRs)

Year	*SRs*	*NSRs*	*All reviews*
2016	15	8	23
2017	22	14	36
2018	22	8	30
2019	20	12	32
2020	21	32	53
All years	*100*	*74*	*174*

Do systematized review search strategies include grey literature?

For the sample of 100 SRs, Table 2 shows how often grey literature sources are included in the search strategy. Just over half of the SRs included grey literature (54 of 100). There is no significant trend in grey literature inclusion increasing or decreasing over time, neither in raw numbers of SRs including grey literature or as a proportion of all SRs.

Table 2: Systematized review articles on gambling retrieved from the Web of Science database (n=100), summarized by year and whether grey literature is included in the search strategy.

Year	*Includes grey literature*	*Excludes grey literature*	*Proportion including grey literature*
2016	9	6	0.6
2017	11	11	0.5
2018	14	8	0.64
2019	10	10	0.5
2020	10	11	0.48
All years	*54*	*46*	*0.54*

What grey literature sources are searched?

Across the 54 reviews that included grey sources, 90 different sources were searched. The top 21 sources, which were employed in 4 or more reviews, are listed in Table 3. Of the other 69 sources, 44 were employed in only one review, 18 in two reviews, and 6 in three reviews. The full list of sources searched will be available in the published dataset.

Table 3: The most common sources of grey literature in gambling systematized reviews that search grey literature, 2016-2020 (n=54)

Source name	*# of times searched*		*Source name (cont'd)*	*# of times searched*
Google Scholar	17		GambLib.org	6
Google	12		McGill International Centre for Youth Gambling Problems	5
GREO Evidence Centre	11		[generic] Contact with experts	5
ProQuest Dissertations & Theses	11		Gambling Commission (Great Britain)	5
[generic] Snowball searching	10		Gordon Moody Association	5
Responsible Gambling Council (Ontario)	9		National Problem Gambling Clinic (UK)	5
Open Grey	8		GamCare	5
GambleAware InfoHub	8		WHO International Clinical Trials Registry Platform	4
Alberta Gambling Research Institute (AGRI) Repository	6		Advisory Board for Safer Gambling	4
ClinicalTrials.gov	6		Gamblers Anonymous	4
Victorian Responsible Gambling Foundation	6			

The two most popular grey literature sources were Google and Google Scholar, while several gambling-specific organization websites were also commonly used. A few general grey literature sources were popular, including ProQuest for theses and dissertations, two registries for unpublished clinical trials, OpenGrey for general grey literature, and snowball searching and contacting subject matter experts to find additional (including grey) material.

Figure 1 summarizes how many grey literature sources were searched in each article. Of the 54 systematized review articles that searched grey literature, nearly 60% (32 of 54) only searched one or two grey literature sources, which were most commonly a simple query of Google or Google Scholar or a snowball search of the references in included studies. This is in addition to the remaining 46 systematized reviews that did not search grey literature at all.

However, there were also some thorough grey literature search strategies employed. Seven articles searched over 10 grey literature sources, while three searched over 20. The top five articles by number of grey sources search each represent high quality review methods generally and grey literature search methods specifically, and provide useful models for gambling grey literature inclusion (Beynon et al., 2020a, 2020b; Bramley et al., 2018; Wardle et al., 2019; Yakovenko & Hodgins, 2018).

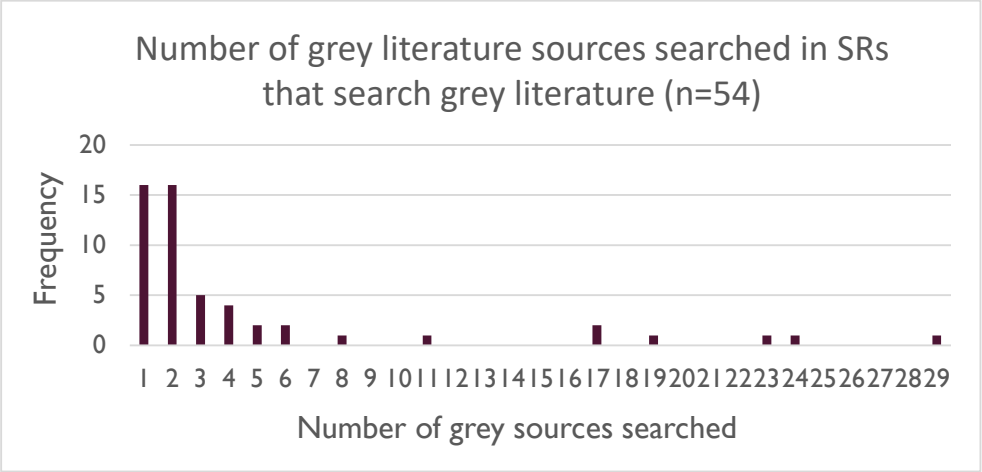

Figure 1: Distribution of number of grey literature sources searched in gambling systematized reviews that include grey literature, 2016-2020 (n=54)

To what extent is grey literature cited?

Of the 54 SRs that included grey literature in the search strategy, nearly three quarters (40 of 54) ultimately included one or more grey publication in the included studies. This is encouraging considering that 32 (nearly 60%) of these reviews only searched one or two grey literature sources, so the proportion of gambling review topics for which relevant grey literature exists is likely higher than what is reported here.

When looking at individual studies included in systematic review syntheses, a total of 3961 citations were made. Of these, 353 were citations of grey literature, or approximately 9% of included studies. This increases to 12% when only SRs that included grey literature are considered (352 of 2,385 included studies).

When considering the full references list of gambling reviews, grey literature represents 9% of all works cited (1,257 of 13,728 citations; see Table 4). When broken down by type of review, the proportion ranges from 14% in SRs that include grey literature, to 7% both for SRs that do not include grey literature as well as NSRs. This shows that for all types of reviews, including systematized reviews that exclude grey literature from the search strategy, there is a certain baseline of grey literature citation in the introduction, methods, and/or discussion sections. However, the total proportion of grey literature cited is much lower than the 26-47% that has been found in systematic reviews of other health domains (Farrah & Mierzwinski-Urban, 2019; Severn et al., 2017), and is also lower than the 18% in a sample of research publications on education (Češarek & Merčun Kariž, 2019).

Table 4: Summary of number of grey literature and total works cited in a sample of gambling review articles (N=174), according to type of review.

Type of article	*Grey citations*	*Total citations*	*% grey citations*
SRs that include grey literature (n=54)	569	4032	14.1%
SRs that exclude grey literature (n=46)	259	3672	7.1%
NSRs (n=74)	429	6024	7.1%
All articles (N=174)	*1,257*	*13,728*	*9.2%*

How is grey literature discussed in gambling review articles?

Within this sample, grey literature is mentioned or discussed in 76 of 100 systematized reviews (76%), and only 6 of 74 non-systematized reviews (8%). It is not expected that grey literature be mentioned or discussed in non-systematized reviews since they normally do not report search methods. Thus, this section will focus on systematized reviews only.

Table 5 summarizes how grey literature is referred to and discussed in gambling systematized reviews. When grey literature is included it is usually acknowledged neutrally, but over one quarter of these articles mention some positive aspect of including grey literature, such as providing additional evidence or reducing publication bias. One review included grey literature but in the study quality assessment scheme assigned grey literature a lower score (Kotter et al., 2019), so this is classified as a negative sentiment. Interestingly, seven reviews included grey literature through a general source such as Google Scholar but did not acknowledge its greyness in any way.

In reviews that did not include grey literature, there were many more articles that did not mention grey literature at all (17 of 46, or 37%). Another 19 articles discussed grey literature neutrally by acknowledging that grey literature was excluded or that only peer-reviewed literature was included, without any reasoning or elaboration. Only one review, the umbrella review by McMahon et al. (2019), provided a neutral methodological justification for excluding grey literature. Only five articles, including one by the present author, were positive about grey literature by acknowledging its exclusion as a limitation of the study, while two were negative in that grey literature was excluded because it was assumed to be of lower quality than academic journal articles. Finally, three reviews were classified as "conflicted" in their sentiment towards grey literature, because they state the exclusion of grey literature was a limitation of the study while simultaneously calling in to question the quality or suitability of grey literature.

Table 5: Summary of sentiments towards grey literature in gambling systematized review articles (n=100)

Review type	Sentiment	n	Description or Examples
Grey literature included (n=54)	Positive	14	Grey literature as source of evidence beyond the published literature (n=5) Grey literature addresses publication bias (n=5) Grey literature as a significant source of gambling literature generally (n=1)
	Neutral	32	Specific grey literature sources included and acknowledged as such Sources that include both primary and grey literature (e.g., Google Scholar), acknowledged as a source of grey literature.
	Negative	1	Grey literature included in review but assigned a lower score in the study quality assessment scheme
	N/A	7	Sources that include grey literature (e.g., Google Scholar) are included but not acknowledged as sources of grey literature, and grey literature is not subsequently excluded
Grey literature excluded (n=46)	Positive	5	Grey literature not included but this is noted as a limitation of the study.
	Neutral	19	Grey sources or "non-peer reviewed" sources excluded, with no reasoning given "*Only peer-reviewed articles published in academic journals [are included]*". Grey literature excluded by omission One article, an umbrella review, appealed to previous umbrella reviews only reviewing primary literature (McMahon et al., 2019)
	Negative	2	Appeal to the assumption that journal articles are more rigorous than grey literature as grounds for exclusion. *"To be included as an output to be evaluated, the published paper had to have: [...] (iv) been subjected to peer-review. It was assumed that those studies that had undergone peer-review*

			would be more scientifically rigorous than anything in the "grey" literature" (Harris & Griffiths, 2018)
	Conflicted	3	Exclusion of grey literature discussed in limitations section, but the quality or suitability of grey literature is also questioned *"The current review was also limited by its inclusion of only peer-reviewed work. It remains possible that books, dissertations, or grey literature could provide more detail [on the topic] given the multi-disciplinary nature of the field. However, these forms of media were excluded to ensure a consistent level of quality throughout the review."* (Barton et al., 2017)
	N/A	17	Grey literature not included nor discussed

Discussion

In previous work we have shown that grey literature constitutes a sizable and unique portion of research produced about gambling (Baxter et al., 2021a). This study extends that previous work by analyzing how that grey literature evidence base is incorporated into knowledge syntheses (i.e., review articles) about gambling. Grey literature was found to play an important role in knowledge syntheses but is perhaps underutilized.

Although grey literature was searched in just over half of systematized reviews on gambling, most of these grey literature search strategies were not comprehensive. Furthermore, the proportion of reviews including grey literature did not increase over the five-year period investigated.

Grey literature represented 9% of the "included" studies in systematized reviews, and this increases to 12.5% when only considering those that included grey sources at all. Grey literature also represented 9% of all works cited across all types of reviews. These figures are lower than results from similar grey literature analyses in other health-related domains. A study sampling review articles employing Godin et al.'s (2015) grey literature search methodology found that grey literature made up 23% of documents cited (Severn et al., 2017). This figure jumps to 47% for horizon scanning reports on non-drug health technologies (Farrah & Mierzwinski-Urban, 2019), although it is reduced to 33% when excluding manufacturer information, which would have limited applicability in reviews on gambling harm-related topics .

The lower grey literature citation rate in gambling could be because there is simply less relevant grey literature available, but it is likely at least in part due to less thorough methods. In Severn et al.'s (2017) sample a grey literature search methodology and checklist was always used, whereas in the gambling sample grey literature searches were only employed in just over half of systematized reviews, and were usually not thorough. Despite these limitations, at least one relevant grey document was found in nearly three quarters of gambling systematized reviews that searched for it. Taken together this suggests that more relevant grey literature may be found and included in gambling review articles if a grey literature search methodology was applied more often.

The discourse analysis revealed some further concerning results. I have argued that grey literature is relevant to many aspects of gambling harm and thus for most gambling review articles a grey literature search is required for the search strategy to be considered comprehensive. This study found that of 46 systematized reviews that did not include grey literature, 17 did not mention grey literature at all, and of the other 29 only one was judged to give a sufficient methodological justification for its exclusion. The three studies with a "conflicted" position on grey literature are interesting as they demonstrate a tension between understanding of grey literature's value and reservations about its quality.

Thus, it is not only the case that grey literature ought to be included in gambling review articles more often, but also when it is excluded it should be discussed as a limitation of the study, or some methodological reason should be given, even if the reason is that a grey literature search was beyond the scope of the article or the means of the authors.

As this study has focused on academic journal articles, the opportunities for improvement lie with the study authors, journal editors, and peer reviewers. For this reason, attention should be paid to the journals in which gambling research is published. A mapping review of 2,266 articles investigating antecedents to harmful gambling found that gambling research is overwhelmingly published in gambling-specific or addiction journals (Hilbrecht & Baxter, 2021). Similarly, of the 23 "generally of low quality" review articles in the two umbrella reviews on gambling (McMahon et al., 2019; Velasco et al., 2021), all but two were published in a gambling or addiction journal (the exceptions being Williams, West, et al., (2012) and Livingstone et al., (2014)). Although detailed analysis is not presented here, 29% of the systematized reviews in the current study sample were published in gambling journals, while another 31% were published in addiction or behavioural addiction journals, and the rest distributed across psychology, psychiatry, neuroscience, medicine, public health, and social sciences journals. Thus, it is possible that grey literature methods are not as well understood utilized in gambling and behavioural addictions research communities as they are in the broader health research community.

Opportunities for improvement

For researchers writing gambling review articles, it is of course recommended to include grey literature sources in the search strategy. Godin et al.'s (2015) methodology serves as a strong basis for grey literature searches treating gambling as a public health issue, and if a thorough grey literature search is not possible, our previous application of the methodology (Baxter et al., 2021b) has shown that Greo's International Gambling Research Evidence Centre (Greo, n.d.) and the Alberta Gambling Research Institute Repository (Alberta Gambling Research Institute, n.d.) have strong international coverage and are functional and up-to-date at the time of writing, and are recommended as baseline gambling grey literature sources.

Review methods can also be improved generally through the assistance of an information specialist. A study of general medicine systematic reviews found that those with a librarian coauthor had the highest quality search strategies, and those with a librarian listed in the "Acknowledgements" section were still significantly higher quality than those with no librarian involvement (Rethlefsen et al., 2015). Thus, researchers are encouraged to take advantage of any systematic review services that may be available through their organization's library.

As the value of peer-review has been raised in many gambling systematized reviews excluding grey literature, another method to improve one's review is to seek peer-review from those who are experienced with review methods. Systematic reviews can be preregistered in PROSPERO and some journals will accept review protocols for peer review and publication (e.g., *Systematic Reviews*, see Beynon et al., 2020a, 2020b). Although it is often not feasible to publish a protocol, proactive peer-review for review methods is available through PRESS (Peer Review of Electronic Search Strategies, McGowan et al., 2016). Proactive peer review was encouraged in the original PRISMA statement (Moher et al., 2009), but was expanded to its own reporting item in the 2021 PRISMA-S extension in acknowledgement of its value in reducing errors and potentially increasing the number of included relevant studies (Rethlefsen et al., 2021). Although one study found that peer review only added additional relevant studies in 4% of a sample of rapid reviews (Spry & Mierzwinski-Urban, 2018), the current study suggests that peer review would bring greater benefits to the "generally low quality" systematic reviews on gambling, especially if it resulted in the addition of grey literature sources.

The article in the present sample with the most thorough grey literature search strategy, Beynon et al. (2020a), is an exemplar for all the above recommendations and is available Open Access. It is a protocol published in the journal *Systematic Reviews*, meaning the methods were preregistered and received external peer-review of the search strategy before any searches were performed. It acknowledges that the search strategy was developed by a senior information scientist and internally peer-reviewed by a second information specialist. Not surprisingly, this review protocol has thorough grey literature searches that include the baseline gambling websites recommended above. It is recommended that this protocol be referenced by anyone aiming to perform a high-quality systematic search of gambling literature.

These improvements can likewise be encouraged by peer reviewers and editors of gambling and addiction journals. As peer review normally happens after a review article has been completed, it may not be feasible for a peer reviewer to require revisions that include a comprehensive grey literature search. If there is no grey literature search in a submitted systematic review, peer reviewers could ask for a simple search of the "baseline" gambling databases listed above, or at minimum should require that the exclusion of grey literature be noted as a limitation. Peer reviewers not experienced with systematized review methods should refer to the PRISMA-S reporting guidelines checklist while reviewing (Rethlefsen et al., 2021).

Editors of gambling and addiction journals could provide these guidelines and resources to subject-matter-expert peer reviewers, but can also seek to recruit information specialists as methodology-expert peer reviewers for systematic review articles. Librarians are an underutilized source of peer-review expertise: A recent survey found that less than a quarter of health librarians had been approached to do peer review, but their reviews almost always result in revisions or rejection based on the search methods, while 95% of those who hadn't been approached said they would (54%) or might (41%) peer review (Grossetta Nardini et al., 2019).

Gambling and addiction journal editors are also encouraged to acknowledge the value of grey literature in editorial policy documents, for systematic reviews as well as an important source of evidence for narrative reviews and research article introductions. The new journal *Critical Gambling Studies* explicitly and positively acknowledges grey literature in the article assessment rubric provided to authors and peer reviewers ("Submissions," n.d.). Editors of other journals may use this as a model and are also encouraged to escalate grey literature guidelines and standards to their peers and communities of practice, such as the International Society of Addiction Journal Editors (ISAJE).

Limitations and further research

This study has noteworthy limitations which present opportunities to build on or further analyze the existing dataset. Firstly, the scope of the study was limited to a five-year period and only one multidisciplinary article database, Web of Science, which was selected because it provided the most relevant bibliographic data. Future analyses could extend the time period and searching more databases. Scopus is recommended as the next scholarly database to include as it has broad and complementary multidisciplinary coverage and the necessary search functions.

It would be remiss and hypocritical to not acknowledge that this review does not itself include grey literature. Although the focus on journal articles provides specific insight into peer review and publishing practices of scholarly journals, there are also many gambling review studies that are published as grey literature reports that are better positioned to inform and influence policy decisions. Thus, it would be valuable to also investigate to what extent grey gambling reviews themselves utilize grey literature and what the opportunities for improvement may be there. Again, the Greo and AGRI gambling grey literature databases provide excellent baseline sources for this investigation.

This study did not differentiate between disciplinary approaches to gambling research other than the preliminary analysis of journals. Further analysis by discipline will be particularly revealing for biological approaches to gambling, such as neuroscientific and animal model studies, which are often published outside the popular journals for gambling (Hilbrecht & Baxter, 2021). In the current study, grey literature inclusion and citation was low in both systematized and non-systematized reviews on these topics. This field of gambling research merits further investigation as it may also have a different yet also underutilized body of grey literature (for example, mainly preprints, conference proceedings, or clinical trials rather than government and institute reports).

A broad variety of grey literature sources were consulted across the reviews in this study, but these were not investigated in detail. An analysis comparing the number and types of grey literature sources searched to the number of relevant grey resources found would provide valuable insight into which grey literature sources are most useful for gambling, and the number of relevant sources that constitutes a sufficiently comprehensive gambling grey literature search.

Finally, future analysis of the dataset could catalogue the individual grey literature items cited in this sample and the number of times each item is cited. This would provide an informative impact assessment as to what grey gambling publications are cited the most often. These data are not readily available for bodies of grey literature as they are for journal articles and can provide insight into the attributes of the most influential and potentially highest quality gambling grey literature.

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Bibliometric analysis of entrepreneurship program papers from China, India, Indonesia and Malaysia

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Abstract
The focus of this paper is on the bibliometrics of entrepreneurship program papers issued on the Scopus Preview written by Asian countries' affiliation researchers from 1987 until 2021. The data was collected in February 2022. The findings are (1) the research topics are entrepreneurship, psychology, pedagogy and economics; (2) Malaysian researchers produced most papers in Asian countries; and (3) Chinese authors are the most productive regarding the paper's quality of citation rate. We suggest maximizing the non-partnership strategy and the partnership strategy to produce more papers. Besides this, we suggest choosing the right keywords to produce high-quality papers.

Keywords: Bibliometrics; Entrepreneurship Program; Asia
Subject area: Management

1. Introduction

Within more than three decades, the research of entrepreneurship programs or entrepreneurship education and training has been growing worldwide[1],[2],[3] and has become a hot theme to explore[4]. Although in the current years, numerous bibliometric analyses on entrepreneurship program papers have been written down (e.g. [5],[6],[7]) there is still limited knowledge of the entrepreneurship program in Asia[8]. Due to the limitation of the papers to the entrepreneurship programs papers written by authors from Asia, this research analyses documents on entrepreneurship programs papers in Asia based on the literature. This research compared the most productive writers' countries in Asia, published in Scopus-indexed publishers from 1987 to 2021.

Based on the explanation above, the research questions of this research are:

1. What are the bibliography trends of entrepreneurship program research papers in Asia?
2. What are the categories of the entrepreneurship program research papers in Asia based on their quantity and quality?

2. Method

This research is a literature databased-based descriptive bibliometric research. The authors use entrepreneurship program papers published in the global bibliography (i.e., the Scopus[9]). The authors studied the bibliography in February 2022, with the keywords "entrepreneurship program", "entrepreneurship education" or "entrepreneurship training". The selection "affiliation country" was on the four countries in Asia with the highest numbers of papers published in the Scopus as the representation of Asia countries. Malaysia, Indonesia, China, and India were the national identity. The following selection on the "subject area" was "Business, Management, and Accounting," "Economics, Econometrics and Finance," "Phycology" and "Social Science"[10].

The results of written papers in English published from 1987 until 2021 were 6.671 papers. 1.148 papers from Malaysia (17,21%), 923 papers from Indonesia (13,84%), 920 papers from China (13,79%) 849 papers from India (12,73%) and 2.831 papers from other Asian countries (42%). Those four countries contribute more than 50% of entire documents. A comprehensive study of the literature was conducted.

The analyses are divided into two parts: (1) the bibliography trends to find the research topic (2) the comparison of the four top countries in Asia that produce the most papers on entrepreneurship programs regarding the quantity and the quality of the papers.

3. Findings and Discussions

3. 1 Bibliometric trend

Table 1 shows the most cited papers as references in entrepreneurship programs in Asian countries. Most of those papers are about entrepreneurship, demonstrating that academics create their research on previous entrepreneurship studies. To find out the research topic, the authors investigate the top 20 most cited papers:

Table 1. Top 20 most cited articles on the topic of entrepreneurship programs in Asia

No	Article (Total Citation)	Journal
1	Development and cross-cultural application of specific instrument to measure entrepreneurial intentions[14] (1316)	Entrepreneurship: Theory and Practice
2	Human capital and entrepreneurial success: A meta-analytical review[18] (813)	Journal of Business Venturing
3	Linking organizational culture, structure, strategy, and organizational effectiveness: Mediating role of knowledge management[26] (584)	Journal of Business Research
4	The effects of entrepreneurial personality background and network activities on venture growth (373)	Journal of Management Studies
5	Intellectual capital and new product development performance: The mediating role of organizational learning capability[16] (302)	Technological Forecasting and Social Change
6	Triple helix system: An analytical framework for innovation policy and practice in the knowledge society[20] (296)	Industry and Higher Education
7	Transforming higher education in whose image? Exploring the concept of world-class university in Europe and Asia[28] (290)	Higher Education Policy
8	S-D Logic informed customer engagement: Integrative framework, revised fundamental propositions, and application to CRM[21] (286)	Journal of the Academy of Marketing Science
9	Danger zone entrepreneurs: The important of resilience and self-efficacy for entrepreneurial intentions[11] (252)	Entrepreneurship: Theory and Practice
10	Institutional forces and the written business plan[22] (244)	Journal of Management
11	How do networks and learning drive M&AS? An institutional comparison between China and the United States[24] (221)	Strategic Management Journal
12	The economic impact of special economic zones: Evidence from Chinese municipalities[30] (214)	Journal of Development Economics
13	The impact of higher education on entrepreneurial intention of university student in China[15] (205)	Journal of Small Business and Enterprise Development
14	Microfoundations of organizational paradox: The problem is how we think about problem[25] (197)	Academy of Management Journal
15	The impact of entrepreneurship education: A study of Iranian students' entrepreneurship intentions and opportunity identification[12] (185)	Journal of Small Business Management
16	Toward a psychology of entrepreneurship- An action theory perspective[29] (179)	Foundations and Trends in Entrepreneurship
17	Effects on self-concepts traits and entrepreneurial orientation of firm performance[27] (171)	International Small Business Journal
18	Relationship among strategic capabilities and the performance of women-owned small ventures[13] (169)	Journal of Small Business Management
19	Linking leader inclusiveness to work unit performance: The importance of psychological safety and learning from failures[30] (157)	Leadership Quarterly
20	Identifying enables of technological innovation for Indian MSMEs using best-worst multi criteria decision making method[19] (156)	Technological Forecasting and Social Change

There are similarities in this research theme regarding and can be classified based on their similarities as entrepreneurship is a complex topic that could intersect with other disciplines[7,10].

Table 2. Topics of entrepreneurship program of Asian countries

Topic	Sub topic
Entrepreneurship	Entrepreneurial intention[11],[12],[13],[14],[15]
	Entrepreneurial character[16],[17],[18]
	Innovation[19],[20]
	Marketing[21]
	Strategic Management[22],[23],[24],[25],[26],[27]
Pedagogy	Pedagogy[28]
Psychology	Action theory[29]
	Learning process[30]
Economic	Economic Policy[31]

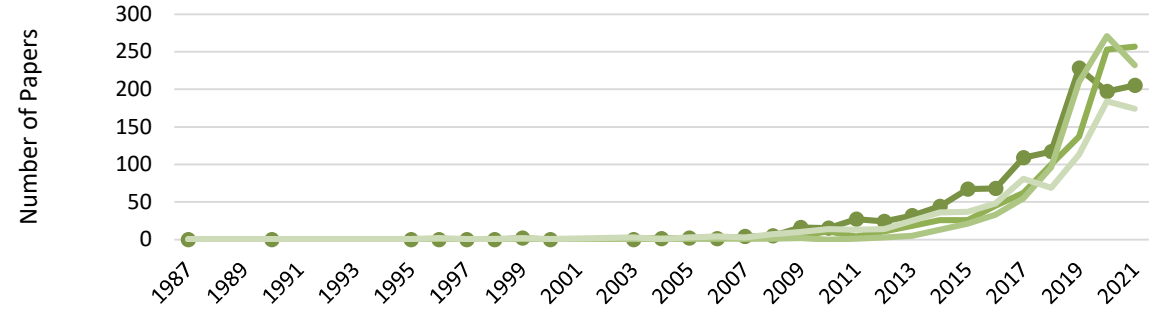
Based on Table 2 above, even entrepreneurship program is a broad topic; nevertheless, most researchers from Asian countries tend not to discuss much psychology, pedagogy, and economics.

3.2 Comparison of top four of Asian countries

The authors will discuss the top four Asian countries that produce papers on entrepreneurship program. The entrepreneurship programs articles produced by authors of the Malaysia institution affiliation started in 1999, expressively have increased since 2010, and peaked in 2019 with 228 papers. The production of Chinese authors on this topic started in 1998, meaningfully have increased since 2011 and peaked in 2021 with 257 articles. Indonesian researchers began to write on this theme in 1996, pointedly have increased since 2012, and peaked in 2020 with 271 papers. The Indian authors started producing in 1987, expressively have increased since 2007, and peaked in 2020 with 184 papers.

Figure 1 shows that the authors from India, Indonesia, and China started the earliest writing papers about entrepreneurship programs in 1987, 1991, and 1994 with one document as a starting point. On the other side, Malaysia's authors, which started last in 1995, write most papers on this topic with two documents as a starting point. Malaysia's authors begin to exceed the number of documents from 2007 into 2019. Interestingly, as a non-populous country and the non-highest number of campuses, Malaysia publishes most papers on entrepreneurship programs in Asia or 17,21% of a total of 6.671 Asian countries' reports. However, the number of papers published by China authors and Indonesian authors tends to exceed Malaysian articles in the future quantity.

Figure 1. Number of the articles on entrepreneurship programs issued in the Scopus bibliography from Malaysia, China, Indonesia and India from 1987 to 2021



	1987	1990	1995	1996	1997	1998	1999	2000	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Malaysia	0	0	0	0	0	0	2	0	0	1	2	1	4	5	16	15	27	24	32	44	67	68	109	117	228	197	205
China	0	0	0	0	0	1	0	0	1	2	1	4	1	3	5	11	4	11	18	26	26	45	62	100	137	253	257
Indonesia	0	0	0	1	0	0	0	0	0	1	1	1	1	1	2	0	1	3	5	13	21	33	55	96	210	271	232
India	1	1	1	2	1	1	2	1	3	1	3	4	3	7	10	14	13	14	25	36	37	48	81	69	113	184	174

Based on the keyword selection, the researchers from Indonesia, Malaysia and India selected the word "entrepreneurship" as the first keyword, while the researchers from China chose the keywords innovation as the first keyword. " Entrepreneurship" is an extensive topic while "innovation" is specific. The researchers from China tend to be specific in choosing the topic (Table 3).

Table 3. Comparison of keywords used in publication

No	Country	Keywords (Number of keywords)
1	China	Innovation (96), Sustainable Development (63), Sustainability (61), Entrepreneurship (39), Education (37), Entrepreneur (36), Student (33), Entrepreneurship Education (32), Human (29) Entrepreneurial Intention (24)
2	India	Entrepreneurship (63), Innovation (35), Sustainable Development (35), Higher Education (33), Sustainability (30), Entrepreneurial Intention (25), Microfinance (24), Entrepreneur (23), Education (22), Entrepreneurship Education (21)
3	Indonesia	Entrepreneurship (63), Innovation (30), Entrepreneurship Intention (29), Education (26), Entrepreneurship Education (25), Entrepreneurial Orientation (24), SMEs (23), Students (22), Performance (21), Higher Education (20)
4	Malaysia	Entrepreneurship (76), Entrepreneurship Intention (65), Entrepreneurship Education (55), Sustainability (44) Innovation (33), Performance (32) Education (29), Higher Education (28), SMEs (27), Leadership (21)

3.2.1 The production of the paper based on the quantity

A partnership among parties that has resources has many benefits, such as gaining more production. It can be said that a partnership gains potential benefits from partnership[32]. While not doing a partnership with other parties from a different country (non-partnership), they will lose the chance to benefit from the partnership. In this research, partnership refers to the alliance of the researchers of one country with the researchers from different countries. On the other side, non-partnership refers to the cooperation among the researchers of the same country.

Regarding the number of papers, the number of Non-Partnership (NP) documents from Indonesians' affiliations and Malaysians' affiliations is above the mean ($\bar{x}$) of the top four countries in Asia (mean = 627,25). In addition, the number of papers from China's affiliation and Indians' affiliations with NP strategy is below the mean ($\bar{x}$). Meanwhile, the papers of Partnership (P) from Chinas' affiliations and Malaysians' affiliations are above the mean ($\bar{x}$) of the top four countries in Asia (mean = 356,25). Besides, the number of papers from Indonesians' and Indians' affiliations with the Partnership strategy is below the mean ($\bar{x}$).

Malaysians' affiliations are above the mean ($\bar{x}$) toward the NP and P papers. Malaysia produced most of the documents on entrepreneurship programs with maximality in NP and Partnership strategy. On the other side, Indonesia and China are just maximizing one approach: NP or Partnership strategy. India, even, does not maximize NP or Partnership strategy at all.
Regarding the number of the research institution, the number of the research institution of Non-Partnership (NP) from Indonesian affiliation, Indian affiliation, and China affiliations are above the mean ($\bar{x}$) of the top four countries in Asia (mean = 110). In addition, the number of research institutions in Malaysia affiliated with NP strategy is below the mean ($\bar{x}$). Meanwhile, the number of research institutions with a Partnership strategy from Malaysian partnership is above the mean ($\bar{x}$) of the top four countries in Asia (mean = 50). The other research institutions from three countries with Partnership strategies are below the mean ($\bar{x}$). Based on the findings above, Malaysia, as a country with just a few campuses compared to China, Indonesia, and China, applied a Partnership strategy to boost 35% of the papers by 64% partnership strategy with other countries' research institutions.

Regarding the number of the source of the funding papers of the NP, China and Malaysia are above the mean ($\bar{x}$) of the top four countries in Asia (mean = 70). The source of the funding papers of the NP of Indonesia and India are below the mean ($\bar{x}$) of the top four countries in Asia. Meanwhile, the number of funding sources with the Partnership strategy of India and Malaysia are above the mean ($\bar{x}$) of the top four countries in Asia (mean = 50). The number of funding sources with the Partnership strategy of two other countries is below the mean ($\bar{x}$). Based on

the number of NP and Partnership strategy funding sources, Malaysia is above the mean ($\bar{x}$). On the other side, China and India optimize in one approach: NP or Partnership strategy. Indonesia, even, does not maximize NP or Partnership plans at all.

Table 4. Number of the papers, research institutions, and funding of Malaysian, Indonesia, China and India affiliation

No	Number of papers			Number of research institutions			Number of funding sources			
	NP	P	Total	NP	P	Total	NP	P	Unidentified	Total
	%	%	%	%	%	%	%	%	%	%
Malaysia	747	417	1.164	57	103	160	100	59	915	1074
	65%	35%	100%	36%	64%	100%	10%	5%	85%	100%
China	348	600	948	121	39	160	112	47	479	638
	37%	63%	100%	76%	24%	100%	18%	7%	75%	100%
Indonesia	789	159	948	135	25	160	34	26	686	746
	83%	17%	100%	84%	16%	100%	5%	3%	92%	100%
India	625	249	874	127	33	160	92	67	781	1030
	72%	28%	100%	79%	21%	100%	9%	6%	85%	100%

Note: NP= Non-Partnership, P = Partnership

3.2.2 The production of the paper based on the quality

Authors with affiliations from China publish their papers mostly in Q2 Scopus-indexed journals (Table 5). Authors with affiliations from Indonesia tend to publish papers in Q2 and Q3 Scopus journals. Meanwhile, writers from Malaysia and India mainly publish papers in Q3 Scopus-indexed journals.

Table 5. Comparison of the publications in the Scopus journal

No	Country	Journal (Number of papers)	Quartile			
			Q1	Q2	Q3	Q4
1	China	Sustainability Switzerland (116)			√	
		Journal of Cleaner Production (21)	√			
		Sage Open (18)		√		
		International Journal of Emerging Technologies in Learning (15)		√		
		Eurasia Journal of Mathematics, Science and Technology Education (14)		√		
2	India	Benchmarking (20)		√		
		International Journal of Business and Globalisation (20),			√	
		Emerging Markets Case Studies (19)			√	
		Prabandhan Indian Journal of Management (16)			√	
		Journal of Engineering Education Transformations Economic (9)				√
3	Indonesia	International Journal of Innovation Creativity and Change (65)		√		
		Journal of Entrepreneurship Education (39)			√	

No	Country	Journal (Number of papers)	Quartile			
			Q1	Q2	Q3	Q4
		International Journal of Scientific and Technology Research (35)				√
		Journal of Asian Finance Economics Research (29)		√		
		International Journal of Supply Chain Management (25)			√	
4	Malaysia	International Journal of Innovation Creativity and Change (46)			√	
		Asian Social Science (39)				√
		Sustainability Switzerland (30)			√	
		Pertanika Journal of Social Sciences and Humanities (29)			√	
		Advance Science Letters (26)				√

Table 6 shows the paper's quality in China, India, Malaysia, and Indonesia. The paper quality of the researchers from China ranks first compared to others. The researchers from China chose the specific topic: "innovation" as the keyword and tended to publish it in Q2 journals. This strategy leads to the be high quality and most cited papers[33].

Table 6. Comparison of the number of papers and the number of citations

Rank	Country	Number or papers	Number of citations	Quality of papers
1	China	923	13.096	14.23
2	India	849	8465	9.97
3	Malaysia	1.144	8.840	7.41
4	Indonesia	924	3.233	3.50

Authors from China had more highly cited papers than authors from India, Malaysia and Indonesia (Table 6). The Scopus bibliography from 1996 to 2021 for papers on the entrepreneurship program showed that papers from China-affiliated authors had the most citations (13.096 citations of 923 papers), followed by India-affiliated authors (8.465 citations of 849 papers), Malaysia-affiliated authors (8.840 citations of 1.144 papers) and Indonesia-affiliated authors (3.233 citations of 924 papers). From the quality of the paper, Indonesian authors had the lowest volume of cited papers.

4. Conclusion

This research has two-part discussions based on the comparisons and findings on the entrepreneurship program papers above. First, regarding the research topic of the entrepreneurship program, the researchers from Asian countries tend to write mainly on "entrepreneurship." Just a few of the papers discuss psychology, pedagogy and economics. Future research could be more about psychology, pedagogy, economics, and finance. Second, the discussion concerned to the quantity and the quality of the paper. The most productive Asia country in the Scopus database is Malaysia. Malaysia, as a non-populous country in Asia— with just a few campuses compared to India, Indonesia and China— produce most of the papers on entrepreneurship programs with maximality both Non-Partnership and Partnership strategy in terms of the number of documents, the number of research institutions and a number of the sources of funding. Using this strategy, Malaysia has become the most productive country in Asia. Furthermore, selecting the journal[34],[35] and keywords are crucial to producing high-quality papers. The selection of the keywords, which will lead to the novelty and selection of the Journal with high demand papers quality, will also lead to high-quality papers.

This research revealed a gap in entrepreneurship programs, based on the researcher's most cited papers affiliated from Asian countries with the intersection of psychology, pedagogy[36], economics, and finance. Future research could be on entrepreneurship with the intersection with those topics. The limitation of this research is that this research just analyses the most Scopus Preview cited papers by Asian researchers to find out the research topic primarily written by Asian researchers.

The theoretical contribution of this research is the research topic of the Asian researcher on the entrepreneurship program theme. Wile, the practical implication is to maximize the Non-Partnership and Partnership strategy to increase productivity and quality of the papers. The partnership affects the quantity of the papers. It can be seen that Malaysia, with the highest productivity in Non-Partnership and Partnership strategy, has become the most productive country in Asia. In addition, choosing the right keywords that will lead to novelty and publishing in high-quality journals affects the papers' quality.

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The endless life of OA Journals from myth to reality: the survey on present status of vanished OA journals in Iran and future prospect*

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Abstract:
Open access journals in Iran were created in line with the open access movement in the world and their number is increasing day by day. In Iran ROAD is recognized as an important resource for identifying and tracking open access journals for publishers, users and researchers. In monitoring the Iranian open access journals of ROAD database, we recognized that the URL of some of these journals is not active. As we know there is no guarantee for long-term access to open access journals on the web & Iran doesn't have Internet archives, the importance of investigating this issue becomes more. The primary aim of this study for the first time is to explore the phenomenon of vanishing OA journals in Iran on ROAD by tracking all Iranian open access journals in this database in the period from 2010 - 2020 in all subject area such as social science, applied science, medicine & etc. the journals were sorted by year, and in each year they divided into three categories base on type of publishers: academic publishers, non-academic publishers and self-publishers. After checking the ROAD URLs, if the address is not active, title and URL of the journals were searched in all kinds of search engines and Wayback Machine. Our result shows that the highest percentage of vanished journals belong to the category of self-publishers and non-academic publishers, respectively, and academic journals have the lowest percentage of vanished. Surveys show that between 2010 and 2020, a total of 110 open access journals were vanished, including 38 self-publishers, 25 academic publishers and 47 non-academic publishers.
Keywords: Iranian open access journals, Vanished OA, ROAD, Iran ISSN National Centre, ISSN international Center

Introduction

Scientific journals are one of the main channels of communication between researchers and experts. Researchers publish the results of their research in relevant and reliable scientific journals. In many countries, the credibility and effectiveness of researchers is evaluated based on the quantity and quality of their articles published in scientific journals. The history of the invention of the first scientific journals dates back to the 17thcentury[1]

In the past, people had access to scientific journals in print and through the payment of a subscription fee, but in recent years, many of the features of scientific journals have changed. The publication of online magazines, which began in the early 1990s with the development of the World Wide Web, is considered to be the most influential of these developments. Also, the expansion and dissemination of free and unrestricted research outputs in the form of the Open Access Movement. Today, some of the scientific articles in scientific journals are published in the field of science beyond open access. It's been just over a decade since the concept of Open Access (OA) first captured the attention of the scientific and scholarly research community, bringing with it the promise and potential of a shining new digital landscape, in which knowledge is freely shared and freely used, and the pace of scientific discovery is accelerated for the benefit of all. [2]

The Budapest Open Access Initiative (BOAI) is a public statement of principles relating to open access to the research literature, which was released to the public on February 14, 2002. It arose from a conference convened in Budapest by the Open Society Institute on December 1–2, 2001 to promote open access which at that time was also known as Free Online Scholarship. This small gathering of individuals is recognized as one of the major defining events of the open access movement. The text of the initiative was translated to 13 languages.

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On the occasion of the 10th anniversary of the initiative in 2012, the ends and means of the original initiative were reaffirmed and supplemented with a set of concrete recommendations for achieving open access in the next 10 years.[3]

In 2012, the ISSN International Centre, under the guidance of its Governing Board and largely inspired by the ventures mentioned above, posited that it could play a useful part in the promotion of Open Access scholarly resources. With the support of the 89 national centers which comprise its network, the ISSN International Centre is indeed in a good position to provide an overview of the development of OA scholarly resources worldwide. With backing from UNESCO's Communication and Information Sector, the ISSN International Centre opened in 2013 a web service called the Directory of Open Access Scholarly which is fed by national ISSN centers supplying their bibliographic records that are further processed to be made available on ROAD in various formats including RDF. A unique feature of ROAD lies in the provision of global statistics thus allowing users to monitor the development of OA resources across the globe. [4]

e-journals in Iran

Along with the emergence of electronic journals in the world, Iranian e- journals also grew day by day. Statistics show that the number of e-journals is increasing every year compared to print journals.

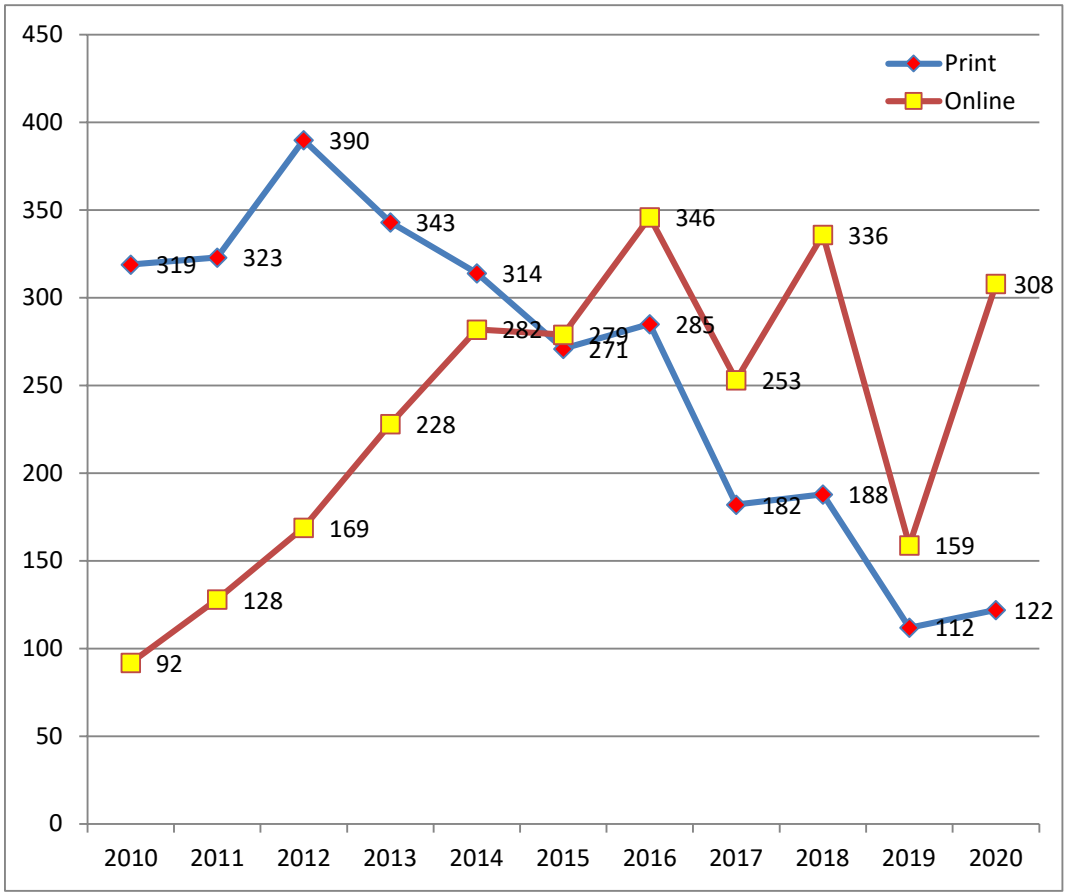


Figure 1- Increase in the number of e-journals 2010 - 2020[5]

Moreover, special features of open access publications have led many publishers to move towards the open access of their information resources. This process is accelerating and the number of open access journals is increasing every day. The short distance between the completion of the research and its publication and the possibility of wider access of the scientific community to open access journals has caused more success and attention to it.

Open Access background in Iran

Since 2013, Iran ISSN National Center along with the establishment of ROAD, like other ISSN network centers, start cooperated with ROAD. According to ROAD activity report for 2018, Iran is one of the top ten contributing countries in OA publications.[6]

Table 1. Top 10 participating countries (ISSN National Centres

Indonesia	**4920**
France	**2912**
India	2410
Turkey	1749
United Kingdom	1666
United States	1655
Iran	1456
Brazil	1286
Poland	1219
Spain	926

ROAD statistics until the end of 2020 shows:

- 2163 journals are published as open access.
- 84 journals are archived in Keepers Registry
- 66 titles have been Ceased

The subject coverage of open access journals is as follows:

- SOCIAL SCIENCES (1408 Title)
- APPLIED SCIENCES. MEDICINE. TECHNOLOGY (934 Title)
- MATHEMATICS. NATURAL SCIENCES (212 Title)
- RELIGION. THEOLOGY (148 Title)
- LANGUAGE. LINGUISTICS. LITERATURE (127 Title)
- THE ARTS. RECREATION. ENTERTAINMENT. SPORT (90 Title)
- PHILOSOPHY. PSYCHOLOGY (87 Title)
- GEOGRAPHY. BIOGRAPHY. HISTORY (87 Title)
- SCIENCE AND KNOWLEDGE. ORGANIZATION. COMPUTER SCIENCE. INFORMATION. DOCUMENTATION. LIBRARIANSHIP. INSTITUTIONS. PUBLICATIONS (68 Title)

The number of journals that are indexed in indexing databases by type of database is as follows:

- ROAD (2163)
- DOAJ (451)
- CROSSREF (380)
- SCOPUS (129)
- CABABSTRACTS (84)
- THE KEEPERS (84)
- GLOBALHEALTH (75)
- PUBMED (54)
- PUBMEDCENTRAL (32)
- ECONLIT (9)
- MIRABEL (7)
- MEDLINE (4)
- PSYCHINFO (3)
- CIRAD (OU PUBLIER) (3)
- GEOREF (3)
- LINGUISTICS (1)

Methodology

- At the first we define a "vanished" OA journal as a journal that published at least one volume as immediate OA after which production ceased, and the journal, together with the published full-text documents, disappeared from the web.[7] In cases, individual issues of the journals are still exist on the web, through local and international indexing open access database, we do not count the journal as a vanished journal. Also, if a URL is searched in the wayback machine and full-text volumes and articles are found, it will still not be considered as vanished journals.
- The research population includes all Iranian Open access journals in the ROAD, for identifying vanished OA journals in this research we focus on vanished open access journals in ROAD database & we selected all number of Iranian OA journals between the years 2010 - 2020 in all subject area such as social science, applied science, medicine & etc.
- Journals were sorted by year, and in each year we divided them into three categories by type of OA publishers: academic publishers, non-academic publishers and self-publishers.
- We focus on journals instead of articles for methodological reasons then we start to examined ROAD URLs, if the journals URL is not active, we searched both title and URL of the journals in search engines and Wayback Machine. through various searches we found that in some cases only the URL of the magazine has changed and the magazine is still active and current, so we were recorded the number of these records by category as a magazine with changed URL and also listed journals that were completely vanished by category. After a month URL of vanished OA Journals In the first review have been re-checked to make sure whether they were really vanished or not.

Findings

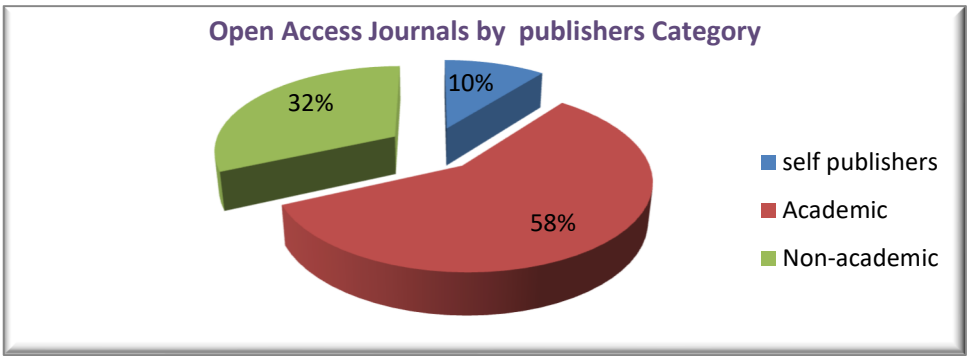


Figure 2 - Open Access Journals by publishers

Analysis of open access journals published between the years 2010-2020 showed that these journals were published by publisher type as follows:

- 10.63% self-publishers
- 57.65% Academic journals
- 31.71% non-Academic

Table 2 - Review statistics of open access journals by year

Year	Sum	Publishers											
		Self-Publisher				Non-person publishers							
						Academic publishers				Non-Academic publisher			
		Vanished	Changed Address	Current	Total	Vanished	Changed Address	Current	Total	Vanished	Changed Address	Current	Total
2010	40	0	0	1	1	0	2	28	30	0	0	9	9
2011	57	1	0	5	6	0	3	39	42	0	0	9	9
2012	61	0	0	0	0	0	5	34	39	3	3	16	22
2013	120	3	0	7	10	1	3	69	74	5	3	31	36
2014	229	3	1	17	21	6	10	112	128	6	1	83	90
2015	250	6	2	10	18	5	9	128	142	6	4	75	90
2016	312	9	5	25	39	3	6	177	186	6	3	78	87
2017	317	6	5	15	26	4	12	188	204	11	8	68	87
2018	324	9	0	143	52	2	6	163	171	5	2	105	101
2019	159	1	0	18	19	2	3	71	76	3	0	61	64
2020	284	0	0	38	38	4	0	151	155	2	0	89	91

- ✓ A review of 2010 journals found that 75% of them were academic, 22.5% were non-academic, and 2.5% has self-publishers. 6.6% of academic publishers have changed URL.
- ✓ Among open access journals in 2011, 68.73% were academic, 78.15% were non-academic and 52.10% were self-publishers. 7.14% academic publishers have changed their address, 16.66% of self-publishers have been vanished and could not be retrieved in internet search.
- ✓ In 2012, 63.99% of open access journals have academic publishers and 36.65% of them had non- academic publishers and there were not self-publishers. The study showed that 12.82% of academic journals and 13.632% of non-academic journals have changed their addresses, and finally 9.09% of journals with non-academic publishers have been vanished.
- ✓ A review of 2013 shows that 61.66% are academic publishers, 30% are non-academic publishers and 8.3% are self-publishers.

In this year 2.7% academic publishers, 11.11% non-academic publishers and 30% self-publishers have vanished & 4.05% academic publishers, 8.33% non-academic publishers Have changed the URLs.

- ✓ There were 55.89% journals with academic publishers, 39.30% of with non-academic publishers and 4,080% of self-publishers in the year 2014. Of these, 4.68% academic publishers, 1.11 non-academic publishers, and 4.76% self-publishers journal have vanished. 7.8% academic publishers, 7.77% non-academics, and 14.28% self –publishers have changed Address.
- ✓ In 2015, 250 open access journals were published, of which 56.8% were academic, 34% non-academic and 9.2% were self-publishers.

3.52% of academic journals, 6.66% non-academic journals & 33.33% self-publishers have vanished. In 6.33% academic journals, 4.44% non-academic journals & 11.11% URL change observed.

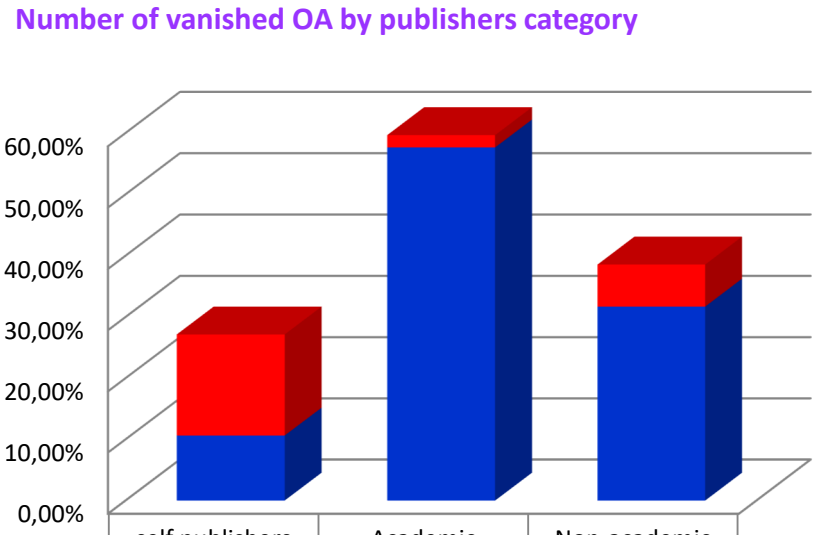
- ✓ Among the 2016 open access journals, 59.61% academic, 27.88% non-academic and 12.5% self-publisher have observed.

1.61% academic journals, 6.87% non-academic journals & 12.82% self-publishers have vanished. URL change was observed in 2.67% academic 3.44% non-academic and 10.25% of self-publishers.

- ✓ In 2017, the number of open access journals reached 317, 64.35% were academic, 27.44% were non-academic and 7.95% were self-publishers. 1.47% of academic journals, 13.79% of non-academic journals and 23,076% of publishers have vanished, respectively.
- ✓ Among the open access journals in the year 2018, 52.77% were academic, 31.7% were non-academic and 16.04% were self-publishers. After reviewing the URLs of magazines published in this year, it became clear that 4.95% non-academic publishers & 17.3% of self-publishers have vanished in this year.3.50% journals with academic publishers, 1.98% non-academic publishers & 3.84% of self-publishers had changed URL.
- ✓ Among published open access journals in the year 2019, 47.69% were published by academic publishers, 40.25% by non-academic publishers and 11.94% by self-publishers. 2.64% open access journals by academic publishers, 4.68% by non-academic publishers and 5.26% by private publishers have vanished.
- ✓ Among 284 open access journals in the year 2020, 54.57% belongs to academic publishers, 32.04% non-academic & 13.38% were self-publishers. In this year just 1. 29% of journals with non-academic journals vanished.

Results

Studies show that the highest percentage of vanished journals belong to the category of self-publishers and non-academic publishers, and academic journals have the lowest percentage of vanished.



	self publishers	Academic	Non-academic
vanished OA by publisher categoriy	16,52%	2%	6,85%
Total OA	10,63%	57,65%	31,71%

Figure 3 - Number of vanished OA by publishers category

Academic journals in 2014, non-academic journals in 2017 and self-publishers in 2015 had the most vanished OA journals. Surveys show that between 2010 and 2020, a total of 110 open access journals were vanished, including 38 self-publishers, 25 academic publishers and 47 non-academic publishers

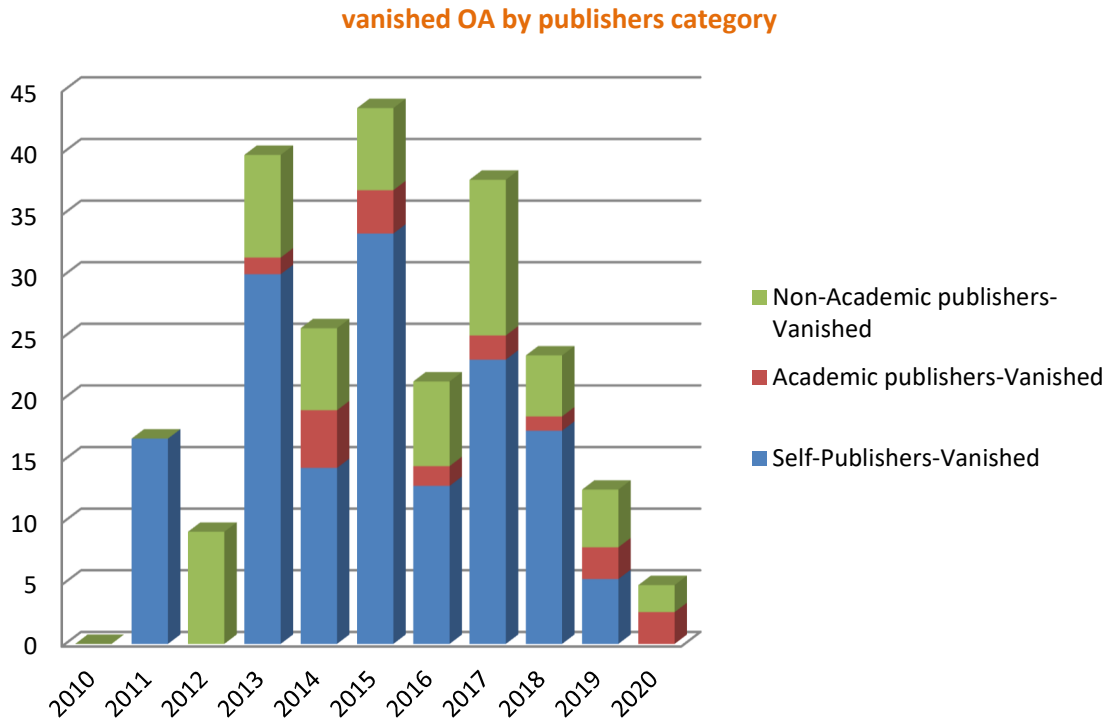
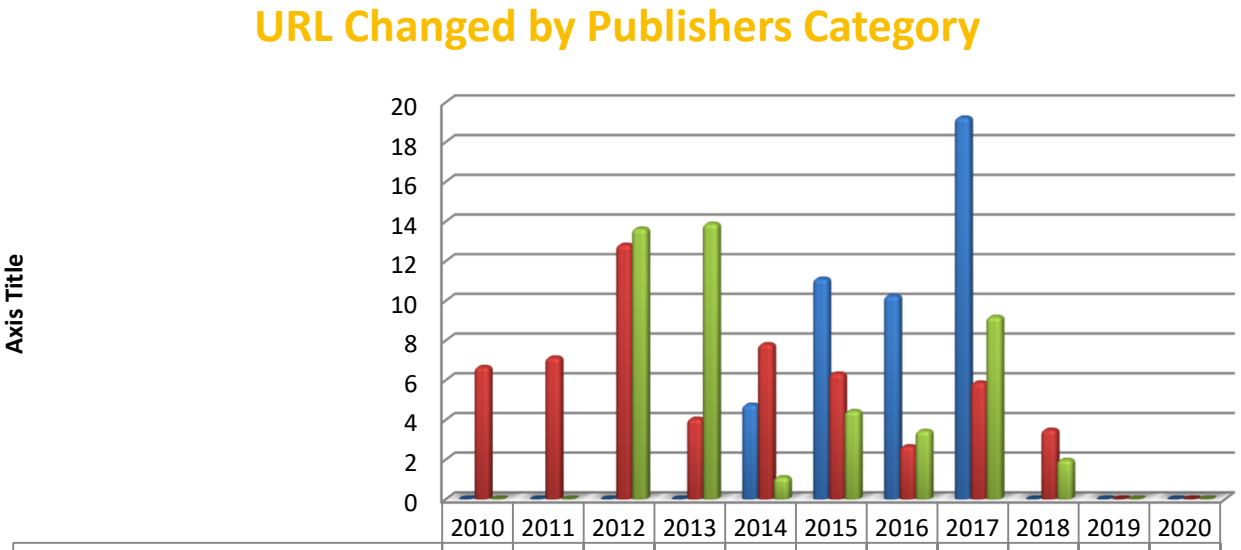


Figure 4 - vanished OA by publishers category

The most URL changed belongs to Self-publishers and non-academic publishers.



	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Self-Publishers-Change Address	0	0	0	0	4,76	11,11	10,25	19,23	0	0	0
Academic publishers-Chang Address	6,66	7,14	12,82	4,054	7,81	6,33	2,67	5,88	3,5	0	0
Non-Academic publishers-Change Address	0	0	13,636	13,88	1,11	4,44	3,44	9,19	1,98	0	0

Figure 5 - URL Changed by Publishers Category

Conclusion

- ✓ Preserving OA journals is big financial challenge for publisher so it seems the highest percentage of vanished OA journals belong to the category of self-publishers.
- ✓ Academic journals not only have less financial challenges but also have a more consistent policy.
- ✓ The criteria for assigning ROAD code to OA journals are updated annually and announced by the ISSN International Center to the ISSN networks, the Iran ISSN Center also follows these criteria, It seems that the use of these criteria has helped to reduce the number of vanished OA in recent years.
- ✓ None of the vanished journals were indexed in any of the international or local indexing databases
- ✓ The vanished journals were completely removed from the web and it was not possible to contact them to find out how many issues had been published.
- ✓ keepers Registry can protect e-journals which are "at risk of loss" and need to be archived.[8]
- ✓ In fine, implementing the National Web Archives in Iran is essential.

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Zines as Nonbinary Objects and Questions of Privilege*

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Introduction

Zines exist within the hybrid recesses of cultural consciousness. They are subcultural relics of the eras prior to the internet and they are knowledge infrastructures that overtly disrupt mainstream cultural perspectives. They also function as boundary artifacts that bridge gaps between analog print protocols and digital manifestations of data such as PDFs and hyperlinks. Nicolini et al. (2012) observe that "we look at objects as boundary devices but also as epistemic things, objects of activities, and infrastructures" (p 5). Zines as critical data artifacts communicate subcultural values and rebellious ideologies. Zines are also hybrid creations that traverse the boundaries between digital and analog as well as the social and scholarly.

Zines as "epistemic things" (Nicolini et al. 2012 p. 5) emerge as cultural representations but also adapt to serve as attitudes about "the world that leads to the deposition of knowledge in a form from which others can draw" as Rheinberger (2005 p. 409) commentd. Zines traditionally are laypersons' objects, with content that is created for and consumed by other laypersons. They possess rebellious potential in that not only do they represent the ideas which they espouse and the cultures which generate these notions, but they communicate ideologies across social margins. They are traditionally laypersons' objects, with content that is created for and consumed by other laypersons.

Zines are social objects too, and they draw their influences from underground and nonlinear processes that make them "distinct from other modes of relating to the world" (Rheinberger 2005 p. 409). The "data journeys" (Longino 2020 p. 391) of zines are mutable messy and multiple; as social objects they do not pursue linear trajectories and as knowledge infrastructures they are porous as they evolve through the participatory responses, reactions and reflections of the individuals who read them. R. Clark Parsons (2017) has indicated that "Over the last decade, zines, or self-published booklets ranging dramatically in style and content, have made a resurgence. It is impossible to estimate the number of contemporary zinesters in the United States, whose subversive, hodgepodge texts are not catalogued in the Library of Congress or issued ISSNs… The humble do it yourself (DIY) zine perseveres in spite of, but perhaps more accurately, *because* of the meteoric rise of blogging and social media platforms" (p.2). Zines occupy the digital and the analog terrains simultaneously. However, R. Clark Parsons (2017) also interjects that "the polarization of zines versus blogs also precludes a more nuanced framework that positions zine-making as a feminist practice working in conjunction with digital media, distinct but symbiotic discursive strategies for coping with structures of power that privilege some bodies while marginalizing others within the public sphere" (p 4). Zines are social objects too, and they draw their influence from underground and nonlinear processes that make them disruptive and disorderly.

Furthermore, data themselves are messy and mutable; zines capture this reality through their lack of formalized classification, indexing and bibliographic archives during their creation and distribution. Longino (2020) expands on this, concluding that it is "a naïve fantasy that data have an immediate relation to the phenomena of the world, that they are 'objective' in some strong, ontological, sense of that term, that they are the facts of the world speaking directly to us" (p. 391). Zines as boundary objects are subjective, social and subversive data artifacts that not only

* First published in the GL2021 Conference Proceedings, February 2022, https://doi.org/10.26069/greynet-2022-000.472-gg

demonstrate subcultural ideologies, but collaboratively create communities of practice through shared interest and perspectives. Clark- Parsons (2017) supports this through her observation that "Zine-making as an accessible DIY media practice that operates outside of both marketplace logic and sociopolitical constraints, enables the invention and circulation of counterdiscourses that might otherwise find no outlet within the commercial media landscape" (p 9).

Zines such as *Major Threat* (a punk rock boundary object designed by academics and educators to reach laypersons) is a data artifact that loudly proclaims how zines occupy digital and physical communities and resist conventional classification schemes. Kemp, founder of Major Threat, tells the readers that "if you find a copy of this online, please share it. Print a couple. Email to friends. Post it anywhere and everywhere. Help this movement to improve education grow" (Kemp 2020 p. 2). This particular zine uses the viral philosophical practices of the digital realm to encourage widespread meme awareness in print formats and in online platforms as well. *Major Threat* promotes the mores of punk literati to dismantle traditional academia and simultaneously calls for rebellion from laypersons to effect this change from a place of privilege.

The embodied contradiction in this zine-as-data-thing deftly reveals how zines resist binary classifications as simply literature, ephemeral objects or digital representations of countercultural insurrection. Grey literature supports rebellious data things as it calls attention to contradictions as reflexive spaces where people can delve into transgressive knowledge infrastructures built through collaborative, social and subjective interactions within varied communities. Zines are one crucial example of the sundry possibilities to engage in conversations beyond the cross disciplinary and ask difficult questions about accessibility, privilege and diversity.

Zines as cultural artifacts and librarians

Creasap (2014) has argued that "Zines occupy a middle ground between traditional research papers or essays and Web-based media such as blogs. Unlike research papers, zine style is decidedly informal. Images are hand drawn or cut and pasted by hand..The informal, creative and participatory character of zines…unlike blogs, zines are physical objects that can be held and passed from person to person by hand" (p.155).

Yet as demonstrated by the aforementioned zine *Major Threat,* zines are also digital objects that circulate in online environments. Zines as cultural artifacts are constructed as countercultural data objects; as Creasap (2014) also finds "Zines share commonalities with independent media of earlier women's movements, such as scrapbooks, pamphlets and manifestos" (p. 157). The scholar C. L. Weida (2013) argues that this countercultural significance of zines has antecedents in other types of DIY objects when she observes that "Zines may be seen as an extension of genres like artist sketchbooks, chapbooks, surrealist games, and manifestos of art history" (p. 68). C.C. Bagelman and J. Bagelman (2016) comment on this further by linking zines to "philosophical movements like Surrealism used small runs of self-published material, decorated in collage and bricolage, as a forum for ideas" (p. 366). Zines have also, according to N. Nijsten (2016) "evolved to include punk fanzines from the 1970s onward, and since the 1990s more and more women got involved" (p. 414). Zines as symbols of countercultural and grassroots community values within their historical antecedents continue to fascinate information professionals and educators. Many librarians are fascinated by zines and S. Thomas (2018) has commented on how librarians in particular "have expressed interest in collecting and teaching zines and regularly seek opportunities to co-teach or present to classes. Librarians can also assist with zine assembly and reproduction outside the classroom. A librarian may know of other faculty teaching with zines, of campus resources and contacts for planning a zine event and of relevant special collections in the library" (p. 750). Librarians do have access to knowledge

infrastructures that include special collections and the opportunities to engage with communities and classrooms in various ways that students and faculty might not be able to do.

Du Laney, Maher and Schindler (2020) have argued that "The zine format becomes a vehicle that integrates key skills such as research techniques, critical information literacy and concise argument synthesis with course-specific learning outcomes" (p. 12). Lymn (2013) expands this to include librarians as potential countercultural producers of knowledge infrastructures as well as information allies when she constructed "librarians as insider ethnographers" (p. 1) within their communities. She directly confronts conventional perspectives of librarians as custodians of traditional mores when she states: "There is the sense that the librarians don't participate in DIY and grassroots communities; but they do" (Lymn 2013 p. 4). S. Britton (2018) has expressed the odd status of zines in library spaces as well as the difficulties presented in terms of access, authority, and agency when zine values and countercultural resistance encounter institutional barriers and metadata management. She comments that "Some zine makers are reticent for their zines to be part of library collections, particularly institutional libraries as the controlled, owned, nature of something like a library collection seems to be the antithesis of many of the fundamental ideas that are central to zine making: independence, estrangement from mainstream culture, and the zine as an ephemeral object" (Britton 2018 p. 5).

Zines as NonBinary Objects

Zines as artistic expressions, sentimental confessions, cultural critiques and community manifestos establish themselves as nonbinary objects. They disrupt digital spaces through an insistence on print media as a way to spread memes of resistance and revolt. They disrupt analog spaces through an insistence that community and creativity can expand and grow through digital connections.Alison Piepmeier observed in 2008 that zines are "what Gregory Sholette terms 'Dark Matter' , work that functions outside of and is therefore invisible to the established art world and to academic scholarship" (p. 218). C.L. Weida (2013) indicates that the zine as a nonbinary objects demystifies knowledge infrastructures as hidden from the layperson; rather it builds infrastructures through creativity and community: "..making a zine does not require training, initiation, or education as a prerequisite-a zinester is simply a person who creates a zine." (pp. 76-77). Zines as hybrid nonbinary social objects "explicitly explore the intersection of narrative and materiality" (Poletti 2008 p. 87).

M.R. Bold (2017) also discusses why zine making has grassroots outreach through digital spaces and why it is critical for zine communities to be diverse, active and visible. "Zines are significant because they offer the opportunity for connection, community and networking between those interested in these diverse topics. Despite this..diversity in race, class, and age are underrepresented in the zine community." (p. 215). However, "Zines and DIY/self-publishing have helped to change the way that consumers engage with content: turning passive consumers into active cultural producers" (Bold 2017 p. 219). Zines as nonbinary data artifacts create agency and have the potential to generate communal ideologies that challenge conventional boundaries and barriers to laypersons because as A. McNutt (2021) observed "Zines allow for personal expression in a manner that most other mediums do not. This is likely due to history with individualistic or alternative cultures…as well as the amorphous nature of their form-typically any approach to their design or content is valid. The freedom of personal expression is thus not bound by the restrictive more found in other forms" (p. 3). Zines are one crucial example of the sundry possibilities to engage in conversations beyond the cross disciplinary and to ask questions about agency, privilege, accessibility and diversity within cultures that are valued and created by laypersons.

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Grey literature and the role of women pioneers in Qajar era (1910-1920)*

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National Library and Archives of Iran

Abstract
Iranian society in the Qajar era, despite having an ancient civilization and culture, had a medieval society with national and religious prejudices. During this era, due to the society's view of women and the lack of importance to their prosperity, their education was not considered. After constitutional revolution, newspapers and magazines became more active and their number increased day by day. In this time, newspapers became very popular among the people, and their news covered not only political and social subjects, but also the news of women of other nations in the form of apparent values, duties and status in the family. This news and information and intellectual progress led women to cooperate with the press of that time; because they considered it is the perfect tool to express their thoughts with others and connecting abroad. In this regard, women started publishing magazines in order to awaken and increase the awareness of women in the society in which the first magazine was published by women was "Danesh".
In this research, the articles of women's journals, that were published during 1910-1920, studied in order to obtain an understanding of the information needs of women in that period. This study surveys the topics and the number of articles written or translated by women. The research population consisted of 116 issues from six titles of the women journals and a total of 569 articles were reviewed.
A review of these journals shows that women initially tried to cover subjects such as childbearing, marriage, health, etc. in their own media. The purpose of these journals was to take women out of the space created by their dominant culture or society, to bring them into the community, and to make them aware of the right to equality with men, while preserving their dignity as mothers and females. These media were a window to address the most basic information needs of women, such as health and psychological topics. It was especially important to inform women about the health and protection of children at a time when infectious diseases such as smallpox were pandemic.
Keywords: Iranian women, Qajar era, Grey literature, Women Journals

Qajar dynasty

The reign of the Qajar dynasty in Iran (1796 – 1925) is recognized as a period of dynamic political, economic, and cultural transformations. Founded in the late 1700s, the Qajars ruled for the next century and a half. The last decades of the dynasty's rule were also marked by Iran's first twentieth-century revolution, the Constitutional Revolution of 1906, which resulted in the formation of an elected parliament and the drafting of a national constitution, both of which still comprise the backbone of Iran's government[1].

Social status of women during the Qajar

"Behind the closed doors at home, prohibited from everything in life, education, training and social life, women are regarded as mindless, like infants; they are confined to the burdens of household work and childbearing and are considered the slaves and servants of their husbands," wrote Bibi Khanum Astarabadi (1852–1920), an outspoken and prominent Qajar woman. Similarly, in describing women's absence in public, Mohammad Ali Jamalzadeh, a noted novelist commented: "No women can be seen in this country of men, but strangely, half of the walking population in the streets is wrapped in black bags from head to the toe without even an opening to breathe."
Yet, these invisible women were capable of action, as in the Constitutional Revolution of 1905–1911 when many women gathered in the streets of Tehran took off their veils and shouted: "Long live freedom. . . . We must . . . live the way we want!"

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Women were primarily confined to the household and reproduction. Their three-piece dress consisting of the chador (a long veil that covered them from head to toe), the rubandeh (a short veil that masked the face), and the chaqchur (very loose trousers) that signified their separate world; it assured them space and identity as zai'feh, or the weak sex and status as moti'eh, or those obedient to men's will.

Women spent most of their lives in the private world of the family. Indeed, a common name for a wife was manzel (the home). Rich or poor, women were confined to, and devoted their entire lives to the family.

Focusing on women's journals, this historical research discusses women's experiences in the family and their work, religion, and politics at the turn of the twentieth-century[2].

In sum, despite variations in different classes, women were primarily confined to the private and secluded world of the family. Patriarchal power also varied by class. The higher women were on the social scale, the more secluded and less mobile they were. By contrast, less-privileged women were more mobile and less secluded. Class and patriarchy acted together to shape women's lives; together, they affected women's work both within and outside the family.

Depending on the kinds of work they performed, working Iranian women often combined child rearing with their tasks in the larger economy. Not all women worked outside the family. Those who did, they struggled against poverty, whether single or married, or as child laborers. While these women encountered male domination both in the household and in the marketplace, the economically secure women stayed home and experienced patriarchy more directly there. Gender subordination varied by class insofar as women's work was concerned. Women's work was diverse. Many poor women worked as carpet weavers, vendors, domestic laborers, and seamstresses[3].

The beginning of women's activity as a journalist and the process of content production for women in different classes of society

With the Constitutional Revolution and the beginning of the Enlightenment, we see that the publication of journals by women for women is not far from the beginning of the publication of newspapers (in general) in Iran.

The director and editor in chief of women's periodicals were mostly women, and each of them had significant social activities (women's movement activist, writer, doctor, etc.) and was fluent in one of the foreign languages.

The women's journal of this era was: "*Danesh", "Shokoufeh", "Zaban-e Zanan", "Name- ye Banovan"," Jahan-e Zanan" and "A'alam-e Nesvan"*[4].

Danesh Journal

Danesh was the first women's magazine; the first issue was published in 1910, four years after the Constitutional Revolution. The director was *Dr. Kahal*. The contents of this magazine were in moral subjects, housekeeping, childbearing, and marriage didn't talk about the politics. Its goal was to educate women and girls and to teach morals to women.

Although it was the first experience of women in journalism, it succeeded to a large extent in meeting the goals set out at the outset and took effective steps to introduce women to society[5].

Shokoufeh Journal

The first issue of the *Shokoufeh* was published in 1913 under the management of *Maryam Amid*. Beautiful and instructive cartoons were printed in each issue of Shokoofeh and critically reviewed the superstitions and old customs of the society. Most of Shokoofeh's articles were related to women's schools, their exams, and other matters related to women and girls. It also covered news and articles about women around the world[6].

Zaban-e Zanan Newspaper

In 1919, *Sedigheh Dolatabadi* (director) published the *Zaban-e Zanan* newspaper in Isfahan. This is the first women's newspaper to have the word '*woman*' (*Zanan*) in its title. During its publication, the newspaper advocated for freedom and the development of culture among women in the country[7].

Jahan-e Zanan Journal

It was a special magazine on women's rights and education that *Fakhr Aafagh Parsa* started publishing as a director in Mashhad in 1920 and later continued to publish in Tehran. The content of this Magazine was more about European-style women's liberation and unveiling and equal rights[8].

Name- ye Banovan Newspaper

Its editor in chief was *Shahnaz Azad*, whose first issue was published in 1920 in Tehran. The pro-unveiling newspaper also published articles written exclusively by women, as well as national and international news[9].

A'alam-e Nesvan Journal

Its editor in chief was *Nawabeh Safavid*, and established in 1920 in Tehran. The articles were written by the American School graduates for Girls in the Presbyterian missionary compound in Tehran. The subject of the articles was extensive and included medical reports, housekeeping tricks, fashion in the West, literary works, and news from feminist movements around the world. The magazine also published articles denouncing the early marriage of girls, the lack of women's political rights in Iran, and the *hijab* (=veil)[10].

Findings

A review of these journals shows that women initially tried to cover subjects such as childbearing, marriage, health, etc. in their own media. These media were a window to address the most basic information needs of women, such as health and psychological topics. It was especially important to inform women about the health and protection of children at a time when infectious diseases such as smallpox were pandemic. Later, the purpose of these journals changed to take women out of the space created by their dominant culture or society, to bring them into the community, and to make them aware of the right to equality with men, while preserving their dignity as mothers and females.

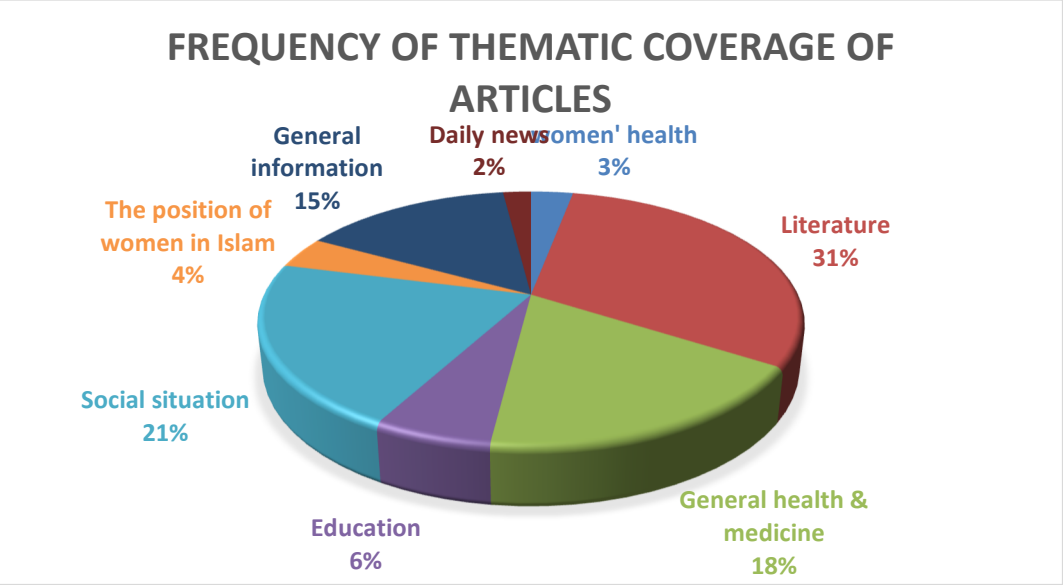

Chart 1. Frequency of thematic coverage of articles

Out of 569 articles, the most thematic coverage is in the fields of literature with 31% and women's life style and social situation with 21%. Also, the least covered topic is the daily news about political issues (2%). The publication of poems on the subject of women's status and dignity, as well as stories and myths in which women have played a role, are other points to consider in these articles.

Due to the awareness of women in the years since the publication of newspapers, these publications also gradually addressed issues such as women's rights and their role in society, which, of course, was not very pleasant to the society of that day and led to their closure. This is a reason for the small number of articles in the field of current issues and political news.
As Figure 2 shows, most articles are written by women (55.54%). The lowest number of articles was written by men (12.3%); Also, the highest number of translations with 8.26% was done by women and the lowest by 1.05% by men.
One of the reasons is the prejudice of some publications in publishing articles written by women. As some of them like ***Zaban-e Zanan*** stated in their editorial, they would not publish at all if they received an article from the gentlemen: "Only the letters and articles of women and girls are accepted. Men should not bother to write something that will not be accepted".
The unfamiliarity of many women writers with a second language caused the number of translated articles to differ significantly from other articles. It should be noted that this is a positive point and encouraged women to write.

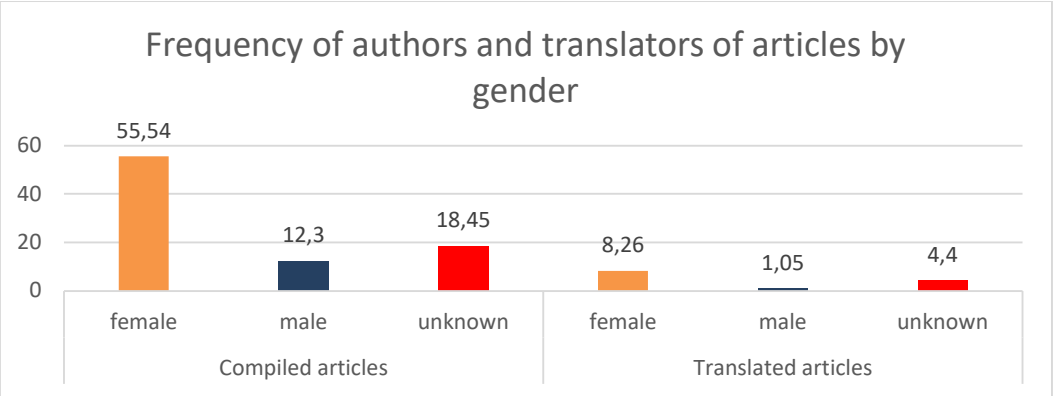

Chart 2. Frequency of authors and translators of articles by gender

Although the publication of journals for women caused significant changes, public opinion still did not accept the presence of women in society. Therefore, many women published their articles and translations in journals under abbreviated or anonymous names, and the author of 162 articles (28.47%) is not known to have been a woman or a man.

Conclusion

The articles written in the specialized journals of women in the Qajar period were mostly about topics related to home, family and children, and the daily news (included the social and economic news). There are no political subjects in the initial issues of these articles. Perhaps the reason for this is the lack of connection with other countries and societies, which caused them to stay away from new information and news and promote superstition.
Gradually, as these publications found their place in the society, a number of them, such as *Zaban-e Zanan* and *A'alam –e Nesvan*, addressed topics related to women's political rights and current political issues.
In this regard, in order to achieve individuality, women had to achieve the following components: the right to choose and freedom to decide, accept responsibility for choice, rely on rationality with the tools of knowledge and science, desire for dynamism and progress in life, attention to individual rights and social. Permission to publish articles for women shows the awakening of society and the need for change in life. The gradual launch of journals founded and run by knowledgeable and educated women is a revolution in social life and a change in women's attitudes.
As these journals show in subsequent years and the content of their articles, women were no longer indifferent to internal and external events at this stage as in the past. By studying newspapers, participating in association meetings, literacy, etc., they realized the difference between the conditions of their country and other societies and called for the improvement of their situation. Women also realized the differences between societies and called for an end to this discrimination.

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[8] . Jahan-e Zanan Journal (1920)

[9] . Name- ye Banovan Newspaper (1920)

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EUROSPAN

NEW TITLE

Managing Grey Literature

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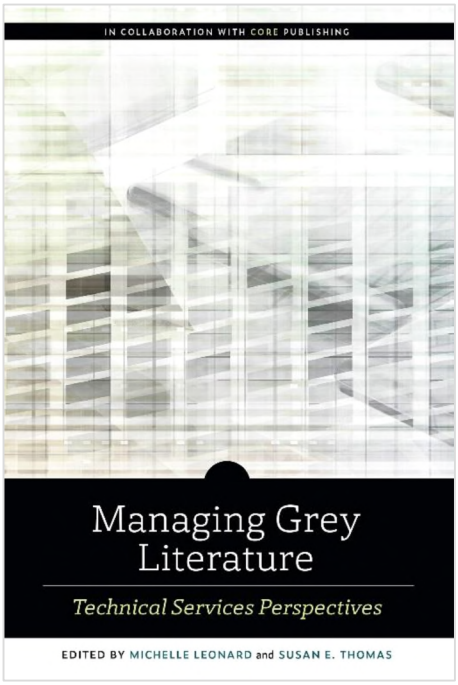
Edited by Michelle Leonard & Susan E. Thomas



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Chapter 3 Ideas and Challenges in Cataloging Grey Literature – Rachel Berman Turner
Chapter 4 Persistent Identifiers and Grey Literature: A PID Project and GreyNet Use Case – Dominic Farace, Stefania Biagioni, Carlo Carlesi, Chris Baars
Chapter 5 Communicating the Value of International Grey Literature – Tamsin Vicary, Maria Kalentsits, Florine Lim, Daryl Superio
Chapter 6 Impact of Digital Transformation on Grey Literature – Dobrica Savić

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Twenty-Fourth International Conference on Grey Literature

Publishing Grey Literature in the Digital Century

National Library of Medicine
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Call for Posters

Title of Poster:	
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Guidelines

Persons who seek to present a poster during GL2022 are invited to submit an English abstract between 250-300 words. The abstract should describe the project, activity, information product or service. The abstract should likewise include a title, name(s) of the creator(s) and their full address information. Abstracts are an important source of information available prior to the conference that is accessible to conference delegates and the international grey literature community.

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Poster Presentations

On the afternoon of Day One, each person presenting a poster will have 3-4 minutes in the Main Conference Hall to introduce their work. The Poster Session will continue on the morning of Day Two, where the presenters will be able to meet with delegates and participants in an informal setting. In order to guarantee a backup of your presentation, you are required to submit an MP4 pre-recorded video of your poster presentation by **November 15th 2022**.

Poster Prize 2022

Those presenting conference posters are also eligible for the Poster Prize 2022 that will be awarded during the conference Closing Session. Posters will be judged onsite by a panel of jurors based on their innovative content, relevance to the conference topics, graphic design, and accompanying abstract. The results of prior distance balloting by members and subscribers to GreyNet International will likewise factor into judging the conference posters.

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Conference Program – Day 1

OPENING SESSION

Welcome Address

Dr. Patricia Flatley Brennan
National Library of Medicine
United States

Keynote Address

To be Announced

Opening Address

Dr. Markus Stocker
Leibniz Information Centre for Science and Technology, Germany

Day Moderator – Kristina Womack, National Library of Medicine, United States

PLENARY SESSION ONE

DIGITAL PUBLISHING AND GREY LITERATURE

Grey Literature in the Digital Century: What Makes it Different?
Julia Gelfand, University of California, Irvine, United States

Enhancing Access to Grey Literature and Data in Health Sciences
Sangeeta Narang, JPNA Trauma Centre, All India Institute of Medical Sciences, India

Characteristics of a Well-Developed Grey Literature Repository: The Case of the International Nuclear Information System *Brian Bales, International Atomic Energy Agency; Nuclear Information Section, Austria*

A Retrospective on the Challenges of Introducing Grey Literature into a Scholarly Publishing Platform
Alistair Reece, GeoScienceWorld, United States

Information Fatigue Syndrome, Digital Burnout, and Grey Literature
Dobrica Savić, IAEA Information And Knowledge Management Consultant, Austria

PLENARY SESSION TWO

STAKEHOLDERS AND POLICIES INFLUENCING GREY LITERATURE

Open Science as an Opportunity for Academic Grey Literature
Joachim Schöpfel, University of Lille and Hélène Prost, CNRS - GERiiCO, France

Data Science as a Research Support Service and the Role of the Libraries: UF's CNI Executive Roundtable Experience *Plato Smith, Erik Deumens, and Christopher Barnes, University of Florida, United States*

A Study on the Conceptualization of Digital Transformation from a Data Management Perspective
Seokjong Lim and JaeHoon Kim, Korea Institute of Science and Technology Information, KISTI, South Korea

Using the Overton policy to academic citation network: How does the policy grey literature and scholarly record connect? *Euan Adie, Terrence Bucknell, Jennifer Glover, and Angel Luis Jaso Tamame; Open Policy Ltd., UK*

Legal Implications of the CASE Act on Grey Libraries and Grey Literature Authors *Tomas A. Lipinski and Laura Christine Schein, School of Information Studies; University of Wisconsin—Milwaukee, United States*

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Lightening presentations on each conference poster that will be exhibited in the main conference hall during the Poster Session and Sponsor Showcase on the morning of Day 2.

Twenty-Fourth International Conference on Grey Literature

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Conference Program – Day 2

Poster Session and Sponsor Showcase

The Poster Session continues on the morning of Day 2, where the presenters meet with delegates and participants in an informal setting. Those presenting conference posters are eligible for the Poster Prize 2022 that will be awarded during the Closing Session. Posters will be judged on their innovative content, relevance to the conference, graphic design, and presentation. This year's posters will be judged by both a delegate jury as well as an online public forum. The first Call for Posters opens on April 25, 2022.

Day Moderator – Esther Lee, National Library of Medicine, United States

Plenary Session Three

Innovating and Repurposing Grey Literature

ICSTI Member Survey: Innovative services for non-textual materials *Margret Plank, TIB Hannover, Germany Shelby Stooksbury, OSTI-DOE, Lisa Curtin, International Council for Scientific and Technical Information, United States*

Preregistration of research for theses - a new standard?
Tereza Šímová, Czech University of Science, Institute of Philosophy of the Czech Academy of Sciences, Czech Republic

Patent Files: Case Study of Digitalization in The National and University Library
Veronika Potocnik and Mojca Trtnik, National and University Library, Slovenia

Zine Making as Autoethnographic Serious Leisure
Andrea Marshall, Centre for Media and Celebrity Studies, United States

Digital Publishing, Open Access, and Grey Literature: The War in Ukraine 2022 as a Use Case
Dominic Farace, GreyNet International, Netherlands; Plato L. Smith, University of Florida; George A. Smathers Libraries, United States; Stefania Biagioni and Carlo Carlesi, InfraScience; ISTI-CNR, Italy

Special Panel Session

Challenges and Rewards of Collecting and Processing Digital Grey Literature in U.S. National Libraries and Agencies

A Special Panel comprising four government subject matter experts on grey literature will talk about the unique challenges and rewards they face as consumers of published grey literature in this digital era in the public sector.

Closing Session

Closing wrap-up by the two Conference Moderators, Presentation of the Poster Prize, Conference Handoff, and Farewell

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Youngen, G.W. (1998), Citation patterns to traditional and electronic preprints in the published literature. - In: College & Research Libraries, 59 (5) Sep 1998, pp. 448-456. - ISSN 0010-0870

Crowe, J., G. Hodge, and D. Redmond (2010), Grey Literature Repositories: Tools for NGOs involved in public health activities in developing countries. – In: Grey Literature in Library and Information Studies, Chapter 13, pp. 199-214. – ISBN 978-3-598-11793-0

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Review Process

The Journal Editor first reviews each manuscript submitted. If the content is suited for publication and the submission requirements and guidelines complete, then the manuscript is sent to one or more Associate Editors for further review and comment. If the manuscript was previously published and there is no copyright infringement, then the Journal Editor could direct the manuscript straight away to the Technical Editor.

Journal Publication and Article Deposit

Once the journal article has completed the review process, it is scheduled for publication in The Grey Journal. If the Author indicated on the signed Rights Agreement that a preprint of the article be made available in GreyNet's Archive, then browsing and document delivery are immediately provided. Otherwise, this functionality is only available after the article's formal publication in the journal.

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