Malaysian researchers on open data: The first national survey on awareness, practices and attitudes

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ABSTRACT

The study investigates the awareness, practices and attitudes of researchers in regard to open data – i.e. the sharing and reuse of research data – which is part of a larger study that concentrated on the scholarly communication readiness of Malaysian researchers in Open Science. The data were gathered by means of a survey which obtained 135 responses from researchers based in five research universities in Malaysia. The main conclusions are: (a) the researchers are aware of open data, yet, they are not practising it as shown in the mean scores, as well as in their responses towards the statements asked; (b) unclear information on data privacy policy, misuse of data, and the fear of losing publication opportunity are part of disincentives for data sharing. The requisite for open data understanding, practices and attitudinal change is needed for these may impact research practices, government policies and scientific knowledge, leading to research transparency and accountability, social benefit and economic growth. This paper concludes with a discussion that policies incentivizing the sharing and reuse of open data, as well as tools and guidance to support data sharing, and a strong incentives and rewards to implement open data among researchers, should be encouraged. Future studies should look into the importance of rewards for data sharing among researchers' institutions. Studies bridging the gap between policy and practices of open data should be examined, if true openness in research is to be established in Malaysia.

Keywords: Open data; Open Science; Research data sharing; Readiness studies; Scholarly communication.

INTRODUCTION

The increased emphasis on managing and sharing data produced in research has propelled many policy makers and international research funders to mandate open data, i.e. making research data openly available with as few restrictions possible in a timely and responsible manner (UK Research and Innovation 2015). The norms and traditions of research reflect the value of openness in the hope to the increase in research efficiency and quality (Piwowar 2011). A major purpose of the drive for open data is openness to availability and access, and reuse and re-distribution, and universal participations (James 2013). Researchers are being asked to make data sharing part of their research workflows, especially by international funders who require the submission of data management plans (Williams, Bagwell and Zozus 2017). Since much data is made available through scholarly publications, publishers also require researchers to make supplemental materials available or publish their data, as it was found that authors were likely to share data if their study

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was published in a journal with a ‘‘relatively strong data sharing policy’’ (Piwowar 2011). Research funders and publishers know that research data can be expensive to produce but inexpensive to share, making reuse more feasible and desirable. Open data, which is a pillar of the Open Science movement, has begun to gain traction worldwide and new government initiatives promoting the deposition of data thrive all over the world every year, often building on the top of transparency and reuse of scholarly data. However, in reality, prior research shows that the data sharing activities especially by scientists in low/middle income countries remains low (Bezuidenhout and Chakauya 2018) and not much is known about open data's use and impacts in developing economies (Verhulst and Young 2017).

Malaysia has recognized the potential of open data in becoming a high-income country by 2020, lifting up the bottom 40 percent of income earners and completing the nation's digital transformation. The Eleventh Malaysia Plan (11MP) specifically identified open data among agencies as critical elements in the move towards more effective, transparent and accountable public service delivery (Malaysia 2015). Malaysia, as a developing scientific nation, has a national focus to continue increasing research output and quality under the Malaysia Education Blueprint 2015-2025; and the nation has achieved an inspiring level of growth within the research sector[1]. Malaysia universities have recently stepped up the open access to their research output, however in many, open data are still restricted, and a concern to speed up the availability of open data through institutional and regulations are in progress. However, with all the benefits associated with opening of data, Malaysian researchers have not yet truly embraced open data. The Open Data Barometer reports that Malaysia lacks the availability of open data for key categories, while on positive side showed that the data actually exist but need to be available for people to use and access the data[2]. Word Bank (World Bank Group 2017) reports on Malaysia's open data readiness assessment (ODRA) based on eight dimensions considered essential for an open data initiative that builds a sustainable open data ecosystem, namely, senior leadership, policy and legal framework, institutional structures in government, government data management policies and procedures, demand for open data, civic engagement and capabilities, funding and open data programme, and national technology and skill infrastructure. The report indicated that the country shows clear evidence of readiness in six of the eight dimensions of the ODRA, which ‘‘portends an excellent foundation for realizing the socioeconomic potential of open data’’ (p.17). Two dimensions which evidence of readiness is less clear are policy/legal framework and government data management policies/procedures (World Bank Group 2017), which may be significant barriers to achieving the vision laid out in the 11MP. World Bank concludes that Malaysia requires a high level of national leadership to achieve agreement on the scope of legislative, regulatory and policy changes that need to be made to turn open data into practice and regular usage for data users (World Bank Group 2017).

To make Malaysia's research data a valuable national asset, the Malaysia Open Science Platform (MOSP) was recently launched as “a trusted platform that enables accessibility and sharing of research data aligned with the national priorities and international best practices”[3]. Although Malaysia's readiness towards open data initiative exists and general supports for the concept is encouraging, but increasing the sharing of open data among

[1] High growth rate of scholarly output at 7.2% with a 4 times increase in number of citations, 11% yearly growth in number of patents and generated revenues of RM1.25 billion from Malaysia Research Universities as solution providers to industries, agencies and NGOs (Elsevier 2020).
[2] https://opendatabarometer.org/4thedition/regional-snapshot/east-asia-pacific/
[3] https://www.akademisains.gov.my/mosp/about/

Malaysian researchers is a critical issue to be addressed (Abrizah 2019). Researchers opined that data availability is high, but lack of accessibility is a major challenge when it comes to policy and framework (World Bank Group 2017). Malaysia research institutions are data-rich, but not much high-quality research data is released in practices. Notwithstanding, scientific research resolves around the production, analysis, management and re-use of data. Malaysian researchers need to make their research data open for reusability which can also increase accessibility[4]. However, the readiness of Malaysia as a country to meet up with the challenges that may hinder free flow of research data use and re-use is a concern. The motivation for this paper lies in the reasoning that although the availability of open data offers many opportunities for the researchers, no study exists that questions the behaviours and attitudes of Malaysian researchers in open data and the challenges that often arise. The requisite for open data understanding, practices and attitudinal change is needed for these may impact research practices, government policies and scientific knowledge, leading to research transparency and accountability, social benefit and economic growth. To determine whether the academia are set to move forward with open data initiatives especially when it comes to research and the scholarly communications system, this study aims to gauge the awareness, practices and attitudes of Malaysian researchers towards open data. To accomplish this, the following research questions were identified:

(a) To what extent are the Malaysian academic researchers aware of open data?
(b) To what extent have they personally experienced open data sharing?
(c) What are the disincentives to open data sharing among Malaysian researchers?
(d) What are the Malaysian researchers' attitudes towards open data?

LITERATURE REVIEW

In the context of this study, open data, refers to online, free of cost, accessible data that can be used, reused, and distributed provided that the data source is attributed and shared alike (FOSTER (Facilitating Open Science Training for European Research) 2017a). Open data is a component of Open Science, which is described by FOSTER (2017b) as "the various movements that aiming to remove the barriers for sharing any kind of output, resources, methods or tools, at any stage of the research process". At the core of the library and information science field, the focus of Open Science is placed on two of these movements: open research data and open access to scientific publications. Much has been studied on the general movement that result in open access, however very few studies have looked at the extent to which open data is understood, practiced and perceived.

Much of the literature on open data touch on the issues of open data sharing. Data sharing increase the credibility of research findings, providing evidence to support analytic frameworks and decisions and a source for a researcher to consult when building on existing studies (National Research Council 1985). Tenopir et al. (2011) emphasized the importance to study the data sharing practices of researchers as it is a valuable part of the scientific method allowing for verification of results and extending research from prior results. Researchers can have diverse motivations to share their data, and to re-use research data already available, and most of the time sharing research data sets is mostly driven by personal decision (Savage and Vickers 2009). Studies show that there is great variation among research fields in their data-sharing norms (Curty et al. 2017; Fecher,

[4] Vice Chancellor of the University of Malaya in 2018, Datuk Ir. (Dr.) Abdul Rahim HJ. Hashim, at the 6th Global higher education forum on "thriving for knowledge, industry and humanity in a dynamic higher education ecosystem"

Friesike and Hebing 2015; Zuiderwijk and Spiers 2019), to such an extent that different fields can be said to have different data cultures (National Research Council 2009). For example, data availability is high in disciplines that have well-developed traditions of open access and less so in disciplines where data sharing is uncommon. Tenopir et al. (2011) who investigated 1,329 scientists' data needs, sharing practices and intentions, found out that that social science researchers are less likely to make their data electronically available to others when compared with their science counterparts.

Combining information from a bibliometric analysis, a survey and case studies (carried out in Netherlands), CWTS and Elsevier examined how 1,162 researchers from various disciplines worldwide share data, the attitudes of researchers toward sharing data, and why researchers might be reticent to share data (Wouters and Haak 2017). The key findings were that attitudes are generally positive, but open data is not yet a reality for most researchers. Data sharing principles is dependent on the field and practices in that field: for example, researchers in intensive data-sharing fields are advanced in data curation, storage, and sharing, whereas researchers in restricted data-sharing fields are more traditional in terms of knowledge production and dissemination. They are aware of data repositories, but they keep data to themselves and share it through publication or collaboration, making it less accessible or open.

There has been good evidence for a culture of devalued sharing concerns data publishing. Sayogo and Pardo (2013) outlined specific reasons from four perspectives: technology, organizational, legal and policy, and data complexity due to local context and specificity. Although open data sharing policies as well as the technology to facilitate data sharing are quite increasing (Crosas 2012; Crosas et al. 2015), scholars do not share their data even when ethically required to do so (Wicherts, Bakker and Molenaar 2011), especially through publications. Data withholding that occurs in academic affects essential scientific activities such as the ability to confirm published results (Campbell et al. 2002). Existing literature has discussed at length the challenges of data publication in open data initiatives. Some journals have mandated that authors should submit their data together with their results for verification. The availability of data and its reusability has been a challenge as many scholars are not willing to share data due to negativity that may result from sharing research data. A refusal to share data has been established to be related to the number of errors in the resulting manuscript (Wicherts, Bakker and Molenaar 2011); that is to say, the data that need to be reviewed the rigorous out of exactness concerns are the data not being made public. Some aspect of this is probably linked to "fear of errors being discovered" (Spies 2013, p.19). Sharing of published results from available data would go a long way toward openness in science and it will increase the reproducibility of results because some results can be dependent on how the research materials were designed. Thus, re-using the same data increases the chances of reproducing the prior results (Fecher, Freisike and Hebing 2015).

It is also widely believed that the nature of research data can highly influence the intention or motivation to share. The volume and complexity of data (especially those involving a variety of sources) might discourage scholars from sharing data (Jahnke, Asher and Keralis 2012). Conversely, some data might contain sensitive or copyrighted information, which has disclosure risks and cannot be share without proper handling (Wei 2017). Furthermore, the uniqueness of the data can also raise issues of confidentiality or ambiguity of data ownership (Parry and Mauthner 2004). As such, methods like source or volume of the data, techniques to organize, archive and reuse data must be well taken care of (Wei 2017).

There is a consensus in the literature that researchers face resistance when discussing data sharing in the context of their institutions for the following reasons: lack of access to data analysis tool; lack of research data management support; absence of well-defined technical standards; and ethical consideration that discourages sharing and reuse of data (Corti and Van den Eynden 2015). Internal research cultural factors such as unfamiliarity with appropriate methods of secondary analysis and lack of sharing culture among others can affect data sharing among scholars (Kim and Stanton 2016). Fecher, Friesike and Hebing (2015) who examined if there is a common, easy-to-locate platform on which researchers can publish data, found out that even if there is such a platform, it might not always be easy to adopt and use; therefore, an easy-to-use data sharing platform such as a well-designed features like a simple upload mechanism, or automatic data verification is important. King et al. (2011) warned that the benefits of collecting and sharing data may be undermined by infrastructural weaknesses in managing the vast types and quantities of data.

Researchers often lack the resources or the skills to make sure that the data they use, gather and produce are available for reuse – they need to have the right set of incentives to ensure effective data sharing (OECD 2013). Scholars are unsure to publish the data or to what extent it should be sanitized to protect parts' privacy. Other factors are such as insufficient time for usage of unfamiliar data (Tenopir et al. 2011), lack of reward models (Wei 2017) or reward system that recognize scholars, research funding and given credits to those who contribute to knowledge creation (Kim and Adler 2015), and extrinsic motivations for data sharing are lacking (Kim and Stanton 2016). Other factors such as perceived career advancement and scholars' altruism behavior (sense of achievement for sharing great research) have positive relationship with their data-sharing frequencies (Kim 2017; Kim and Stanton 2016). Also, in another study, Kim and Adler (2015) hypothesize that the pressure from funding agencies and journal publishers influence researchers' data sharing and there are no statistically evidence supporting their hypothesis.

Researchers (Zuiderwijk and Spiers 2019) have suggested ways of resolving the issues surrounding data disclosure. First is to make sharing trivial - in the age of Internet and digital scholarship, there should never be a technical or organizational barrier to sharing. Second, there should be measure to incentivize data sharing within the academic workflow. One of the reasons for lack of data disclosure is that little or no credits were given to data sharing. Third, there should be recognized metrics for data sharing such as page views, downloads, citation, and mentions; the incentive for sharing can then come from having a quantifiable metric that can be linked with the researcher's reputation. If sharing were practiced, errors could be detected and corrected at the initial stage of research formation, thereby reducing the effect and alleviating the fear of making them in the first place. Besides, collaboration could be valued more highly because it would increase error detection or reduce error creation and promote a culture that is less scared of failing and drives towards success (Spies 2013, p.20).

The review reflects that, in order to address the challenges and constraints surrounding open data, we need to understand researchers' readiness in terms of knowledge, level of appropriation and perceived values of open data. Hence, the current study seeks to design a survey that includes open data readiness to add value for determining researchers' awareness, practices and attitudes of open data. Obviously more studies are needed to gauge whether open data behaviours and perception are universal or perhaps country-specific, thus filling the existing research gap in understanding their acceptance, or the challenges that researchers may face.

METHOD

This study adopted a quantitative method and employed survey as the research design because it is the most frequently applied mechanism to investigate researchers' behaviours, opinions, and knowledge of a particular phenomenon such as Open Science. Respondents were recruited from five research universities in Malaysia from February to August 2018. The survey questionnaire (Appendix), which is part of a larger study that concentrated on the scholarly communication readiness of Malaysian researchers in Open Science, was developed based on a detailed literature review. The questionnaire collected data about awareness, practices and attitudes of researchers towards open data and, also elicited their demographic information (gender, age, discipline, publication in the last five years, years in academia, academic positions and research institutions). All 25 items statements that capture the variables of interest are on 5 points Likert-scale measurement, except for level of participation on open data practice (with a 3 points yes/no response). Many diverse concepts, constructs and theories exist to explain behaviours and perceptions, which encapsulate awareness, practices and attitudes, making studying this topic challenging. Therefore, the survey questionnaire developed was anchored based upon conceptual framework derived from literature related to open data readiness (World Bank 2017) and organizational change readiness (Weiner 2009; Rafferty, Jimmieson and Armenakis 2013) which cover constructs of awareness, practices and attitudes in order to see how people react to change when new behaviour or practice is introduced.

The instrument was sent to an identified panel of experts in scholarly communication for validation. The experts' eligibility is set based on their professional practices and knowledge in scholarly communication of published works (especially those who are experts in open scholarly communication, actively publishing and advocating open data). A total of five academic researchers identified as experts in scholarly communication were invited to attest the content of the instrument. An invitation e-mail was sent to the panels to seek their consent to participate in the validation process. The instrument and assessment score guides were sent upon obtaining their consent to participate. The experts examined the information about: (a) the objective of the instrument, where the questions are comprehensive enough to collect all the information needed to answer the purpose and goal of the study; (b) the content areas where it measures what it is intended to measure; (c) the level of difficulty of the questions that is appropriate for the sample; and (d) if the instrument looks like a questionnaire (Creswell 2008; Oluwatayo 2012). Feedbacks obtained served as improvement to the questionnaire.

A pilot study was conducted on 30 academic researchers at a research-intensive university in Kuala Lumpur. The questionnaire was updated based on the removal and movement of variables and items. Subsequently, corrections were made after the pilot test and were incorporated in the real questionnaire. However, it was observed that the duration to complete the questionnaire has increased from 10 minutes to 15 minutes. Upon completion of this stage, the questionnaire is ready for empirical data collection.

The sample size was determined based on Krejcie and Morgan (1970) population and sample table. With a population of 9,299 researchers in the five research universities in Malaysia (at the point of data collection), the sample size was determined as between 368-370 (confidence level=95%, margin of error =2.5%). Upon institutional approval to survey was sought, an e-mail invitation to the survey link (using google forms), with a brief introduction for the survey which hoped to encourage cooperation from participants, were distributed to 400 academic researchers' institutional e-mail addresses, which were

retrieved from either university or faculty staff directory regardless of whether they provided consent or did not provide consent to be recruited. These academic researchers comprise Professors, Associate Professors and Senior Lecturers in various disciplines, and they were chosen under the assumption that they had completed significant research and were likely to be currently have research data in their possession. After three rounds of distributions, responses were received from 300 respondents; of which 165 that were incomplete were dropped from the analysis. It may possibly be inferred from this observation that respondents who did not complete the questionnaire have a total lack of knowledge of the subject of open data. The questionnaire is automatically protected against multiple participations. Consequently, 135 questionnaires were completed and used for analysis, resulting in 33.75 percent response rate, which is fairly typical of an average survey response rate (33.0%) and an e-mail survey (30.0%) (Lindemann 2018). The Cronbach's alpha score, which measures the internal consistency of all items, was satisfactory (α = 0.811). Table 1 presents data on the survey responses.

Table 1: Survey Response Rate

Total population	9299
Sample size	368-370
Oversample size	400
Clicked on the survey link	300
Incomplete survey	165
Completed survey	135
Response rate	33.75%

The returned questionnaire was analyzed using descriptive statistics. Mean values for the questions were calculated based on numeric values of the scale item with "not at all aware" (or "very untrue of me") being 1 and "extremely aware" (or "very true of me") being 5. Diverging stack bars was used to visualize the percentages in Likert questions, with the mean values shown at the end of each bar.

Table 2 presents the study demographics. The age of the respondents was used to identify whether they are early career researchers (ECRs) or established researchers. According to the working definition of Malaysian ECRs, they are "researchers between 30-39 years old, who are not more than ten years from receiving their doctorates operating without tenure" (Abrizah, Shah and Nicholas 2016, p.76). Established researchers in this study are researchers in their prime who have developed a level of independence or those that are leading in their research areas. These are researchers aged between 41 years and above and have experience more than 10 years on the academic job – as defined by the Vitae European Researchers Framework (2016, p.5).

Table 2: Demographics of Survey Respondents

Demographics		Number	Percentage
Gender	Female	85	63.0%
	Male	50	37.0%
Research experience	Early career researcher	60	44.5%
	Established researcher	75	55.5%
Academic Position	Senior Lecturers	106	78.5%
	Professors & Associate Professors	29	21.5%
Academic discipline	Sciences	94	69.6%
	Social sciences	41	30.4%

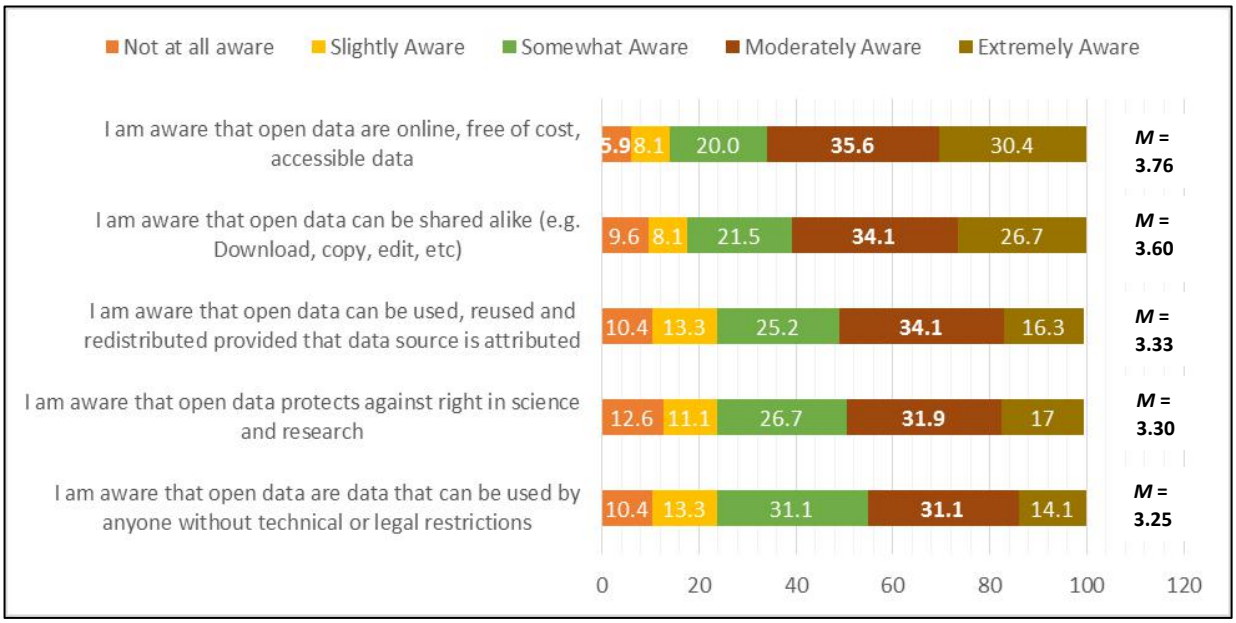
RESULTS

Researchers' Awareness of Open Data

This section examines the Malaysian researchers' awareness of open data. It is important to be aware that the concept of open data speaks directly to basic questions of ownership, responsibility, and control (Wouters and Haak 2017). Open data awareness in this study covers the understanding on awareness that open data are freely accessible; can be shared alike; can be used, reused and redistributed; protects against rights in science; and can be used by anyone without restriction.

Figure 1 presents the descriptive analysis of five item statements which is aimed at providing detailed understanding into the awareness of researchers towards open data. Considering the mean responses that reflect researchers' awareness of open data, currently there is a reasonably positive awareness (extremely aware/moderately aware/somewhat aware) that:

(a) open data are online, free of cost, accessible data (86.0%; *M*=3.76).
(b) open data can be shared alike through download, copy, edit etc. (82.3%; *M*=3.60)



1 – "Not at all aware", 2 – "Slightly aware", 3 – "Somewhat aware", 4 – "Moderately aware" and 5 – "Extremely aware". Note: The higher the mean score, the more important the activity of researchers toward open data.

Figure 1: Awareness of Open Data, according to Malaysian Researchers

However, in terms of awareness that open data can be used, reused and redistributed provided that the data source is attributed (*M*=3.33); awareness that open data protects against right in science and research (*M*=3.30); and awareness that open data are data that can be used by anyone without technical or legal restrictions (*M*=3.25) garnered less than 10 percent of extreme awareness respectively. From the findings, one may conclude that although open data awareness among Malaysian researchers is still low, a substantial portion of Malaysian researchers are still not aware or have limited awareness of open data and the potential benefits, as well as show that concerns over copyright infringement.

Researchers' Practices of Open Data Sharing

Open data sharing in this study covers the practice of making data available for used for scholarly communication by the researchers, and the reasons for doing so. In terms of practices around data sharing, the survey shows that more than one-third (39.3%) of the researchers did not share data at all. This reflects the finding that data sharing practices vary considerably among researchers with only about 16 percent researchers who acknowledged always or often make their research data open, and a high majority (45%) either sometimes or rarely share their research data (Table 3). Although the tendency to share data openly is a concern as shown from their response, findings indicate that open research data is a more established practice among the sciences and ECRs. When cross-tabulate between variables (Table 4), what emerges is a picture of very scattered practices and it is observed that:

a) More females have the tendency to make their research data open (n= 14), compared to the males (n=8).
b) More scientists always or often make their research data open (n=18), compared to the social scientists (n=4)
c) More Senior Lecturers (n=16) always or often make their research data open compared to the Professors and Associate Professors (n=6)
d) More ECRs (n=12) always or often make their research data open compared to established researchers (n=10)

Table 3: Frequency of Making/Sharing Open Data

How often do you make/share your data openly	Frequency (Percentage)
Never	53 (39.3%)
Rarely	30 (22.2%)
Sometimes	30 (22.2%)
Often	14 (10.4%)
Always	8 (5.9%)
Total	135 (100.0%)

Table 4: Frequency of Making/Sharing Open Data and Demographics Comparisons

Demographics	Never	Rarely	Sometimes	Often	Always	Total
Male	18	11	13	5	3	50
Female	35	19	17	9	5	85
Sciences	36	19	21	10	8	94
Social sciences	17	11	9	4	0	41
Senior Lecturers	45	22	23	10	6	106
Professors & Associate Professors	8	8	7	4	2	29
Early career researchers	27	8	13	9	3	60
Established researchers	26	22	17	5	5	75

Further analysis was conducted on those who reported having experience sharing data (82, 60.7%) and responded to four item statements regarding their reasons for data sharing based on a 5-point response scale (Figure 2).

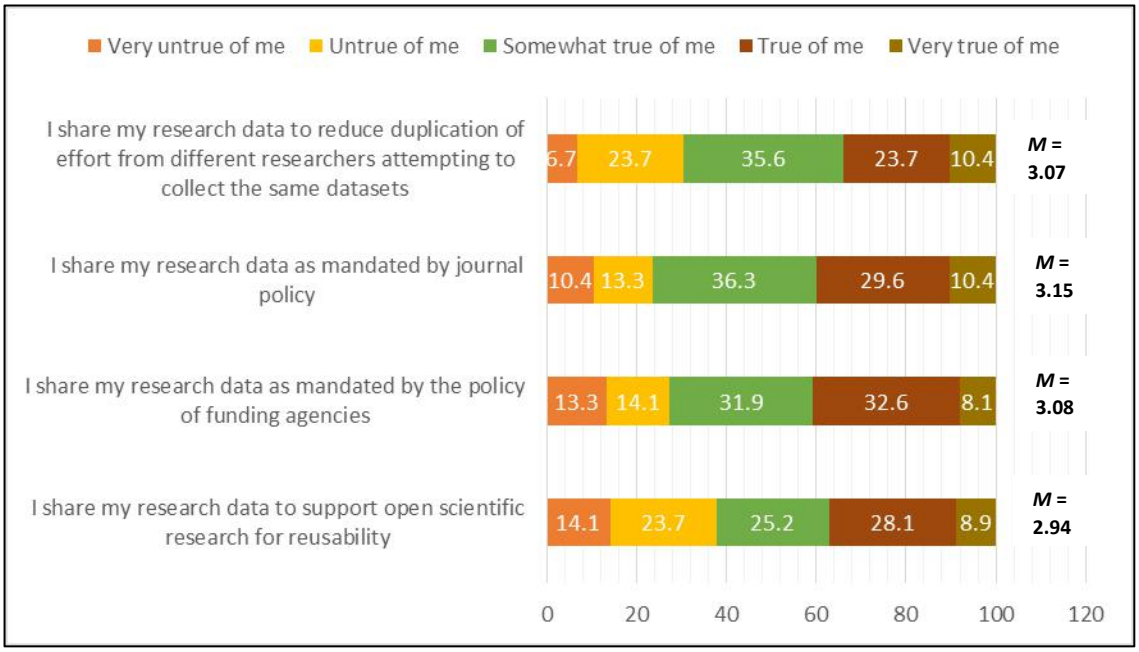
a) I share my research data to support open scientific research for reusability,
b) I share my research data as mandated by the policy of funding agencies
c) I share my research data as mandated by journal policy, and

d) I share my research data to reduce duplication of effort from different researchers.

Considering the mean responses that reflect researchers' reasons for open data sharing, currently open data mainly occurs because of (in ranked order):

a) Compliance with journal or publisher requirements (*M*=3.15)
b) Compliance with funder mandates (*M*=3.08)
c) Reducing unnecessary duplication of research (*M*= 3.07)

Interestingly, while the emphasis of open data is to support reusability of research, this does not often practice as being important (*M*=2.94). Research data is perceived as personally owned and decisions on sharing are driven by researchers, not by institutes or funders. Findings seem to indicate that open data is a reality for publishers and research funders but has not yet come a reality for researchers.



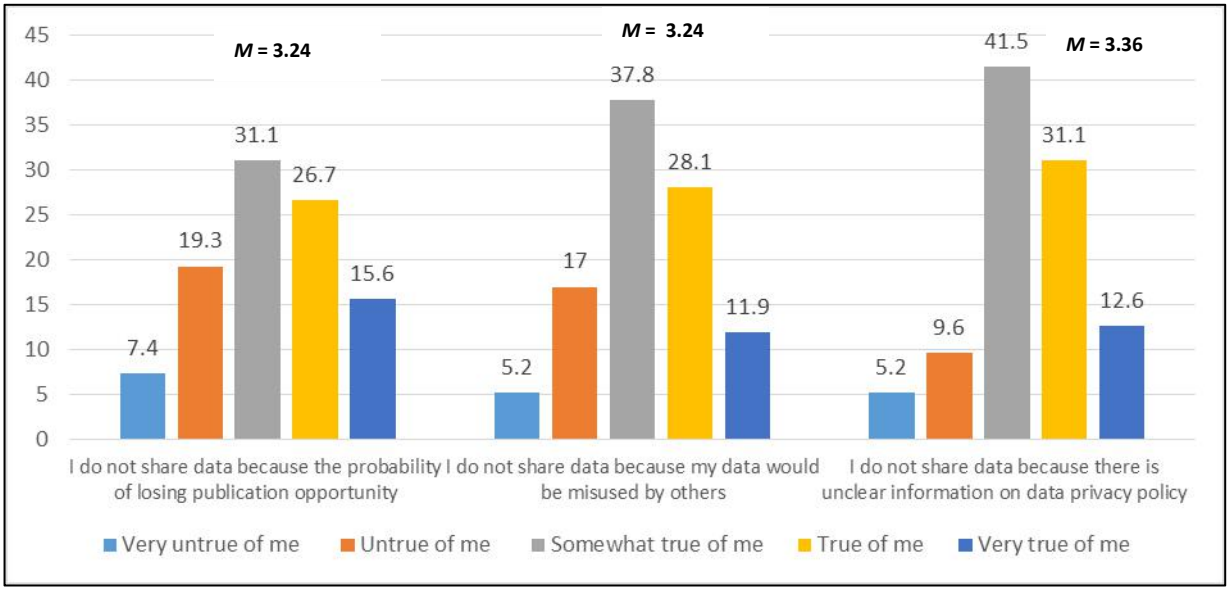
Note: 1 - "Very untrue of me", 2 - "Untrue of me", 3 - "Somewhat true of me", 4 - "True of me", 5 - "Very true of me". Note: The higher the mean score, the more important the practices of researchers toward open data.

Figure 2: Experiences of Open Data Sharing, according to Malaysian Researchers

Disincentives to Open Data Sharing

This question is a continuation of the researchers' perceptual experience in open data sharing. The survey shows that one third of the respondents did not share data at all. Since open data has not become a reality for many Malaysian researchers, one would expect, at a minimum, that barriers to sharing would discourage and disincentivize open data and slow the uptake of open data practices. Respondents were asked to rate three statements that relate to why they are not favour of sharing or publishing data, and whether these researchers share a common research profile or disciplinary background. Figure 3 illustrates that Malaysian researcher acknowledge that they do not share their research data because of:

(a) unclear information on data privacy policy (*M*= 3.36)
(b) the concern that their data would be misused by others (*M*= 3.24)
(c) the probability of losing publication opportunity (*M*= 3.24).



Note: 1 - "Very untrue of me", 2 - "Untrue of me", 3 - "Somewhat true of me", 4 - "True of me", 5 - "Very true of me". Note: The higher the mean score, the more important the practices of researchers toward open data.

Figure 3: What Disincentivize Researchers towards Open Data sharing

These finding indicate that the researchers have clear beliefs about who owns data, they feel that as the data owner prior to publication, they have more ownership over data than an institute, department, or funder. On publication of data, many researchers feel (very true of me; true of me; somewhat true of me) that they would be losing publication opportunity (73.4%). Legal and ethical concerns are cited as reasons for not publishing research data alongside an article: a substantial proportion of the respondents answered that they do not like the idea that others might abuse (let alone take credit for it) (77.8%) and a high majority were unclear about data privacy policy (85.2%).

Further analysis was conducted on those who have major concerns about making or sharing data openly (very true of me; true of me; somewhat true of me). Table 5 presents the findings. It was evidenced that females (n=85) have more concerns in open data sharing. For instance, more females have concern about losing publication opportunity received (n=61; 45.1%), concerns about data misuse by others received (n=66; 48.9%) while concern about data privacy received (n=71; 52.6%) on sharing research data as compared to their male counterparts (n=50; 28.1%, 28.9%, 32.6% respectively). Accordingly, established researchers were more in the study (n=75) and their concerns about sharing data is relatively high for example concern about losing publication opportunity garnered (n=54; 40.0%), concern about data misuse by others received (n=57; 42.2%) and concern about data privacy received (n=64; 47.4%) as compared to the ECRs (n=60) for the same feelings (n=45, 33.3%; n=48, 35.6%; n=51, 37.8% respectively). More so, in terms of discipline, the sciences (n=94) have more concerns about losing publication opportunity (n=70; 51.9%), concern about data misuse by others received (n=74; 54.8%) and concern about data privacy received (n=80; 59.2%) as compared to the social scientists (n=41). On the contrary, fewer Professors and Associate Professors (n=29) have less concerns about losing publication opportunity (n=20; 14.8%), probably because they are already established in their careers and versatile in scholarly publishing. However, they

also have concerns about data misuse by others (n=23; 17.0%) as well as concern about data privacy received (n=25; 18.5%). More senior lecturers (n=106) have concerns with these issues (n=79, 58.5; n=82, 60.7%; n=90, 66.7% respectively). Again, as illustrated, research data seem to be perceived as personally owned and decisions on sharing are driven by researchers, not by their institutions or funders. Findings seem to indicate that the concern for sharing data is a reality for researchers, especially among the established, the sciences and the female researchers.

Table 5: Researchers' Major Concerns in Open Data Sharing and Demographics Comparison

Demographics	Losing publication opportunity	Data misused by others	Data privacy
Male	38	39	44
Female	61	66	71
Sciences	70	74	80
Social sciences	29	31	35
Senior Lecturers	79	82	90
Professors & Associate Professors	20	23	25
Early career researchers	45	48	51
Established researchers	54	57	64

Researchers' Attitudes towards Open Data

Built from studies on Open Science perceptions (Ostaszewski 2014; Martinez and Poveda 2018), the authors determine researchers' attitudes towards open data from statements that reflect (a) the deficiencies of the current system which could be overcome by open data; (b) the implications of open data; and (c) the barriers to the promotion and positioning of open data. As reflected from the means score of each statement in Figure 4, findings on Malaysian researchers' open data attitude converge towards the fact that the researchers have generally accepted the idea of open data and that they consider it as globally beneficial for progress in science, but they believe open data has constraints that prevent its widespread proliferation.

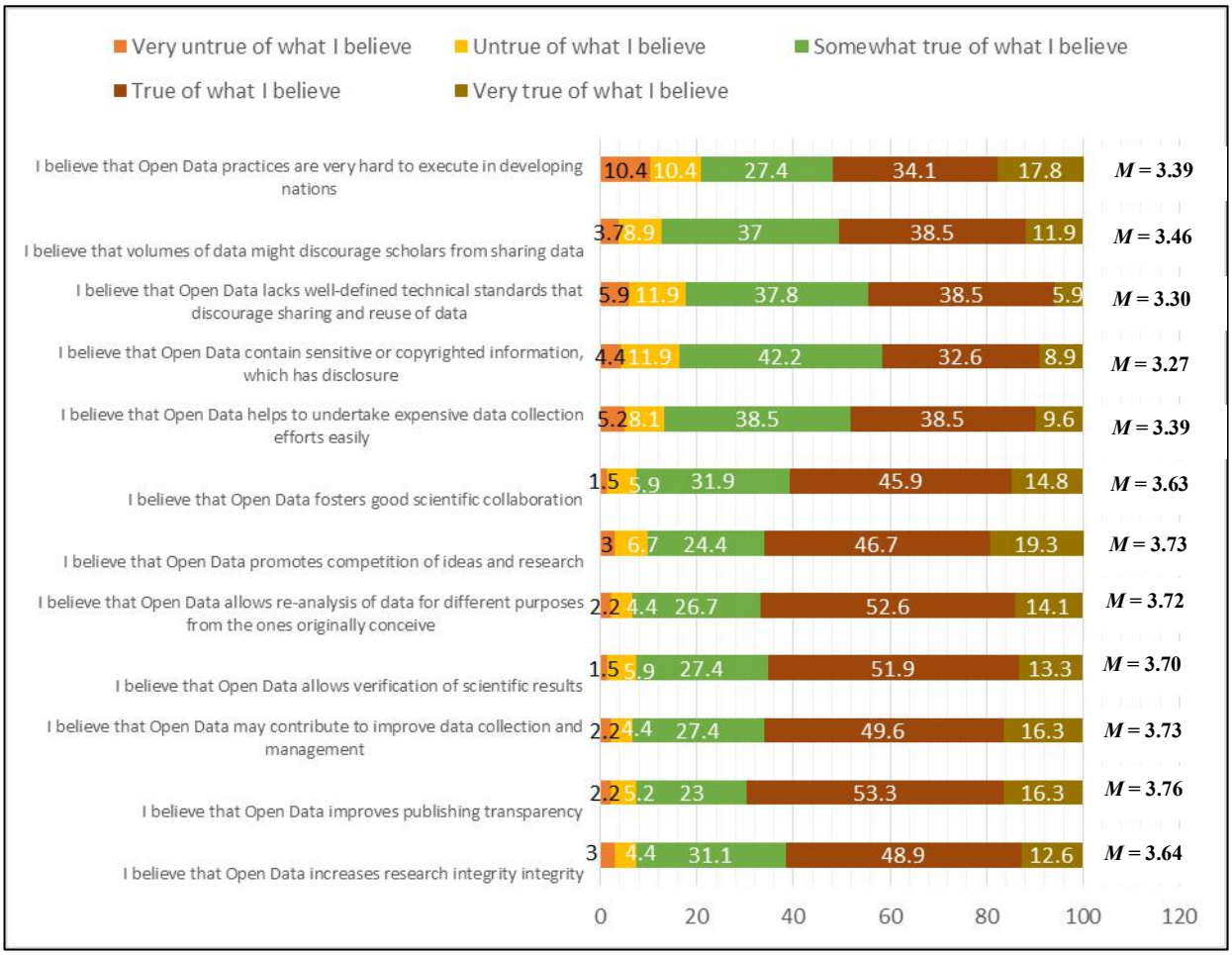
Malaysian researchers considered the following to be the deficiencies of the current system that open data could overcome (very true of what I believe / true of what I believe):

a) improves publishing transparency (69.6%, *M*=3.76)
b) allows re-analysis of data for different purposes from the ones originally conceived (66.7%, *M*=3.72)
c) improves data collection and management (65.9%, *M*=3.73)
d) allows verification of scientific results (65.2%, *M*=3.70)
e) increases research integrity (61.5%, *M*=3.64)
f) helps to undertake expensive data collection efforts easily (48.1%, *M*=3.39)

They believed that (very true of what I believe /true of what I believe) the implications of Open Science and its impact on research are as follow : it promotes competition of ideas and research (66.0%, *M*=3.73); and it fosters good scientific collaboration (60.7%, *M*=3.63). Based on these findings, it can be said that respondents viewed open data in a positive way.

While the benefits of open data may be recognized, the barriers are clear as well. They believed that (very true of what I believe / true of what I believe) the barriers related to the promotion and positioning of open data are as follows:

a) open data practices that are very hard to execute in developing nations (51.9%, *M*=3.39)
b) volumes of data might discourage researchers from sharing data (50.4%, *M*=3.46)
c) it lacks well-defined technical standards that discourage sharing and reuse of data (44.4%, *M*=3.30)
d) it contains sensitive or copyrighted information, which has disclosure (41.5%, *M*=3.27).



Note: 1 - "Very untrue of what I believe", 2 - "Untrue of what I believe", 3 – "Somewhat true of what I believe", 4 - "True of what I believe", 5 - "Very true of what I believe". Note: The higher the mean score, the more important the attitude of researchers toward open data.

Figure 4: Attitudes towards Open Data, according to Malaysian Researchers

DISCUSSIONS AND CONCLUSIONS

The open data behaviours and perceptions of Malaysian researchers indicate that overall it is apparent that there is a reasonably positive awareness, although the tendency to share research data openly brings with it many concerns and challenges for researchers. While open data is clearly established as a topic that is now in the mainstream for researchers (Fane 2019), a substantial proportion of Malaysian researchers are still not aware or have limited awareness of open data and the potential benefits. The reason for not sharing data openly could be as a result of not having access to their data anymore,

not being able to publish findings from their data especially if another researcher uses it first affecting their own ability to publish. Findings indicate that academic discipline and research experience affect the affinity of open data and its sharing practices, as it is a more established practice among the sciences and ECRs. This could be as a result of their open scholarly communication behaviours such as promoting and fostering scientific research and collaborations, as well as attitudes with regard to the motivation to improve scientific transparency to go in line with the likelihood of stand-in on any innovative beliefs, especially to make their footings known in academe and as the harbingers of new wave in their chosen fields (Nicholas et al. 2017; 2019).

There is clearly a lack of understanding among the respondents around what makes open data sharing essential. The motivation was partly compliance with journals publisher and research funders. This may be due to the clear steps most publishers take today to increase motivation to share data, that make it worth a researcher's time and effort to open up their research (Baynes 2019). Interestingly, while the emphasis on open data is to support reusability of research, this practice does not often viewed as being important. Research data are perceived as personally owned and decisions on sharing are driven by researchers, not by their institutions or funders. Findings seem to indicate that open data is a reality for publishers and research funders but has not yet become a reality for researchers.

While Malaysian researchers in this study recognize the benefits of sharing data in the form of the deficiencies of the current system that open data could overcome, the barriers in the promotion and positioning of open data are clear as well. This is corroborating with the report from Elsevier and Centre for Science and Technology Studies (CWTS) which reveals that although the benefits of open research data are well known, in practice, confusion remains within the researcher community around when and how to share research data (Wouters and Haak 2017). This may be as a result of scholars withholding attitudes toward sharing of data, as identified in past studies (Kim and Stanton 2016; Tenopir et al. 2011; Wicherts et al. 2006). Malaysian researchers acknowledge that they do not share their research data in particular due to unclear information on data privacy policy, trust in what others may do with researchers' data if it is made openly available, and the probability of losing publication opportunity. The biggest barrier to research data sharing and reuse seems to be a matter of trust, which was also found in the Digital Science study (Hrynaszkiewicz 2019). However, in the study of Ostaszewski (2014), majority of the respondents claim that sharing research data in research practice may positively contribute to a progress in their discipline. Such a high level of support complies with the main arguments addressed by advocates of Open Science, that giving and sharing research data would give extra boost to the process of scientific progress.

From the foregoing, it is obvious that the research community has started the open data journey, but open data is yet to be given its pride among Malaysian researchers. We can convincingly reason out that the researchers view some hindrances to open data, which might be as a result of lack of training and incentives for data sharing. Implementing open data in research requires a level of readiness among the researchers, as well as a cultural transformation in the way universities collect, share, and consume information. The issues of cultural and national concerns pose a major challenge to open data sharing. Concerns about misuse and the fear of losing publication opportunity alongside the lack of incentives should be addressed urgently by the funders and advocates of open data. Policies that incentivize the use and reuse of open data sharing practices, as well as tools and guidance

to support data sharing and a strong incentives and rewards to implement open data practice among scholars should be encouraged.

This paper is the first national survey that elicits Malaysian researchers' from research-intensive universities view with regard to open data behaviours and perception. Its limitation is rooted in the sample, which is relatively small and not necessarily representative of the Malaysian research population as a whole. However, it provides a much needed snapshot of open data sharing practices today and provides a timely complement to national studies on Open Science readiness. Open data is a key component of Open Science, but cultural change needs to happen for Open Science to become the norm in research practice. Malaysia, as a nation that has achieved an inspiring level of growth within the research sector (Elsevier 2020) and research competences, can realize the vast amount of social-economic benefits of open data by moving towards providing and motivating the academic researchers on the guiding principle that will allow open data as a matter of routine rather than exception that is obtainable at the moment. Insights gained from this study would be useful for researchers – as well as their institutions, government and funders to better understand how to best serve data sharing needs, and the philosophy involves when it comes to research data sharing among the scholars, and how to manage challenges that often arise. Malaysian scholarly journal publishers are not left behind in the resistance researchers face when submitting their data as publishing requirements. There should be an alliance between the publishers and the funders to enable data sharing to be more effective and rewarding and to ensure compliance for data publishing. Future studies should investigate the importance or rewards for data sharing among the researchers' institutions, also, studies bridging the gap between policy and practices of open data sharing should be examined. It is worth considering, at least, why researchers may not respond to a data sharing request.

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REFERENCES

Abrizah, A. 2019. Malaysian researchers on open science readiness: Call for action. Paper presented at the *Exploratory Discourse: Charting the Way Forward For MOSP,* Discussion Session on Open Science, 7 November 2019, Putrajaya International Convention Centre. Available at: https://www.akademisains.gov.my/initiatives__trashed/i-connect-mosp/.

Abrizah, A., Shah, N.A.K. and Nicholas, D. 2019. Malaysian early career researchers on the ethics of scholarly publishing. *Malaysian Journal of Library & Information Science,* Vol. 24, no. 1: 75-96.

Bezuidenhout, L. and Chakauya, E. 2018. Hidden concerns of sharing research data by low/middle-income country scientists*, Global Bioethics*, Vol. 29, no. 1: 39-54, Available at: DOI: 10.1080/11287462.2018.1441780.

Campbell, E. G., Clarridge, B. R., Gokhale, N. N., Birenbaum, L., Hilgartner, S., Holtzman, N. A. and Blumenthal, D. 2002. Data withholding in academic genetics – evidence from a national survey. *Journal of the American Medical Association*, Vol. 287 no. 4:473-480, Available at: doi: 10.1001/jama.287.4.473.

Corti, L. and Van den Eynden, V. 2015. Learning to manage and share data: jump-starting the research methods curriculum. *International Journal of Social Research Methodology*, 18:5, 545-559, Available at: DOI: 10.1080/13645579.2015.106262

Creswell, J. W. 2008. Educational research: Planning conducting and evaluating quantitative and qualitative research (3rd ed.) U*pper Saddle River,* NJ: Pearson Education.

Crosas, M. 2012. A data sharing story. *Journal of eScience Librarianship,* Vol. 1, no. 3: Article 7. Available at: http://dx.doi.org/10.7191/jeslib2012.1020

Crosas, M., King, G., Honaker. and Sweeney, L. 2015. Automating open science for big data. *Annals of the American Academy of Political and Social Science,* Vol. 659, no. 1: 260-273.

Curty, R.G., Crowston, K., Specht, A., Grant, B.W. and Dalton, E.D. 2017. Attitudes and norms affecting scientists' data reuse. PloS One, Vol. 12, no. 12: e0189288. Available at: doi: 10.1371/journal.pone.0189288.

Elsevier. 2020. *Malaysia - Research excellence and beyond.* Available at https://www.elsevier.com/research-intelligence/campaigns/malaysia-research-excellence-and-beyond.

Fane, B. 2019. What is the state of open data in 2019. In *Digital Science Report: The state of open data 2019, a selection of analyses and articles about open data, curated by Figshare.* London, UK: Digital Science.

Fecher, B, Freisike, S. and Hebing, M. 2015. What drives academic data sharing? *PLoS One.* Vol. 10, no. 2:e0118053. Available at: https://doi.org/10.1371/journal.pone.0118053.

FOSTER. 2017a. Open science definition. Available at: https://www.fosteropenscience.eu/taxonomy/term/100.

FOSTER. 2017b. Open science at the core of libraries. Available at: https://www.fosteropenscience.eu/learning/open-science-at-the-core-of-libraries/#/id/5a01e2d1c2af651d1e3b1b3c.

Hrynaszkiewicz, I. 2019. Building trust to break down barriers. In *Digital Science Report: The State of Open Data 2019, a selection of analyses and articles about open data, curated by Figshare.* London, UK: Digital Science.

Jahnke, L., Asher, A. and Keralis, S. D. C. 2012. *The problem of data.* Council on Library and Information Resources. Available at: http://www.clir.org/wp-content/ uploads/ sites/6/pub154.pdf.

James, L. 2013. *Defining open data*. Open knowledge foundation blog. Available at: http://blog.okfn.org/2013/10/03/defining-open-data/.

Kim, Y. and Stanton, J.M. 2016. Institutional and individual factors affecting scientists' data-sharing behaviors: a multilevel analysis*. Journal of the Association for Information Science and Technology,* Vol. 67 no. 4: 776-799, Available at: doi: 10.1002/asi.23424.

Kim, Y. and Adler, M. 2015. Social scientists' data sharing behaviors: investigating the roles of individual motivations, institutional pressures, and data repositories. *International Journal of Information Management,* Vol. 35 no. 4: 408-418.

Kim, Y. 2017. Fostering scientists' data sharing behavior via data repositories*,* journal supplements and personal communication methods. *Information Processing & Management,* Vol. 53, no. 4: 871-855. Available at: https://doi.org/10.1016/j.ipm.2017.03.003.

King, R. D., Liakala, M., Lu, C., Oliver, S. G. and Soldalova, L. N. 2011. On the formalization and reuse of scientific research. *Journal of the Royal Society Interface,* Vol. 8:1440-48. Available at: https://royalsocietypublishing.org/doi/pdf/10.1098/rsif.2011.0029.

Krejcie, R. V. and Morgan, D. W. 1970. Determining sample size for research activities. *Educational and Psychological Measurement,* Vol. 30, no. 10: 607-610. Available at: Doi:10.1177/001316447003000308.

Lindemann, N. 2018. What's the average survey response rate? [2018 benchmark]. *SurveyAnyplace.* Available at: https://surveyanyplace.com/average-survey-response-rate/.

Malaysia. 2015. *Eleventh Malaysia Plan 2016-2020: Anchoring growth on people*. Putrajaya: Economic Planning Unit, Prime Minister's Department, Malaysia. 372p.

Martinez, C.I.P. and Poveda, A.C. 2018 Knowledge and perceptions of open science among researchers—A case study for Colombia. *Information*, Vol. 11, no. 9, 292. Available at: https://doi.org/10.3390/info9110292.

National Research Council. 1985. Sharing research data. Washington, DC: National Academies Press. Available at: https://doi.org/10.17226/2033.

National Research Council. 2009. Beyond 'Fortress America': National security controls on science and technology in a globalized world. Washington, DC: National Academies Press.

Nicholas, D., Watkinson, A., Boukacem-Zeghmouri, C., Rodriguez Bravo, B., Xu, J., Abrizah, A., Swigon, M. and Herman, E. 2017. Early career researchers: scholarly behaviour and the prospect of change. *Learned Publishing*. Vol. 30, no 2: 157-166. Available at: DOI:10.1002/leap.1098.

Nicholas, D., Watkinson, A., Boukacem-Zeghmouri, C., Rodríguez Bravo, Bl., Xu, J., Abrizah, A., Swigon, M., Clark, D. and Herman, E. 2019. So, are early career researchers the harbingers of change? *Learned Publishing*, Vol. 32 no 3: 237-247. Available at: https://doi.org/10.1002/leap.1232

OECD. 2013. OECD Reviews of Innovation Policy: Sweden 2012, OECD Publishing, Paris, Available at: http://dx.doi.org/10.1787/9789264184893-en.

Oluwatayo, J. A. 2012. Validity and reliability issues in educational research. *Journal of Educational and Social Research,* Vol. 2, no. 2*:* 391-400.

Ostaszewski, M. 2014. Analysis of the attitude within academic and research communities towards open science – quantitative survey. Paper presented at the *Conference Opening Science to Meet Future Challenges,* Warsaw, Poland, March 11, 2014,16p.

Parry, O. and Mauthner, N. S. 2004. Whose data are they anyway? Practical, legal and ethical issues in archiving qualitative research data. *Sociology* Vol. 38, no. 1:139-152. Available at: https://doi.org/10.1177/0038038504039366.

Piwowar, H. A. 2011. Who shares? Who doesn't? Factors associated with openly archiving raw research data. PLOS ONE, Vol. 6, no. 7: e18657. Available at: https://doi.org/10.1371/journal.pone.0018657.

Rafferty, A. E., Jimmieson, N. L., and Armenakis, A. A. 2013. Change readiness: A multilevel review. *Journal of Management,* Vol. 39, no. 1: 110-135. Available at: doi:10.1177/0149206312457417.

Sayogo, D.S. and Pardo, T.A. 2013. Exploring the determinants of scientific data sharing: Understanding the motivation to publish research data. *Government Information Quarterly,* Vol. 30, Supplement 1: S19-S31. Available at: https://doi.org/10.1016/j.giq.2012.06.011.

Savage, C.J. and Vickers, A.J. 2009. Empirical study of data sharing by authors publishing in PLoS journals. *PLoS ONE*, Vol. 4, no. 9: e7078. Available at: https://doi.org/10.1371/journal.pone.0007078.

Spies, J.R. 2013. *The open science framework: Improving science by making it open and accessible.* Charlottesville, VA: University of Virginia.

Tenopir, C., Allard, S., Douglass, K., Aydinoglu, A. U., Wu, L*.,* Read, E., Manoff, M. and Frame, M. 2011. Data sharing by scientists: Practices and perceptions. *PloS ONE,* Vol. 6, no. 6: e21101. Available at: https://doi.org/10.1371/journal.pone.0021101 PMID: 21738610.

UK Research Council and Innovation. 2015. Guidance on best practice in the management of research data. Available at: https://www.ukri.org/funding/information-for-award-holders/data-policy/common-principles-on-data-policy/.

Verhulst, S.G. and Young, A. 2017. *Open data in developing economies: Toward building an evidence based on what works and how.* United States Agency for International Development. 148 p. Available at: http://odimpact.org/files/odimpact-developing-economies.pdf.

Vitae European Researchers Framework. 2016. *Vitae B10: Early career researchers and employment challenges – learning from Italy and Germany*, p.5) Available at https://www.vitae.ac.uk/vitae-publications/reports/vitae-occasional-papers-vol3-b10.pdf/view?searchterm=early+career+researchers.

Wei, J. 2017. *Qualitative data sharing in social science.* A thesis submitted to the Graduate Faculty of School of Information Sciences in partial fulfillment of the requirements for the degree of Doctor of Philosophy, University of Pittsburgh, Pennsylvania, United State.

Weiner, B. 2009. A theory of organizational readiness for change*. Implementation Science*, Vol.4, no. 67: 9. Available at: http://www.implementationscience.com/ content/pdf/1748-5908-4-67.pdf.

Wicherts, J. M., Borsboom, D., Kats, J. and Molenaar, D. 2006. The poor availability of psychological research data for reanalysis. *American Psychologist,* 61:726-28. Doi:10.1037/0003-066X.61.7.726.

Wicherts, J. M., Bakker, M. and Molenaar, D. 2011. Willingness to share research data is related to the strength of the evidence and the quality of reporting of statistical results. *PLoS ONE*, Vol. 6, no. 11: e26828. Available at: Doi: 10.1371/journal.pone.0026828.

Williams, M., Bagwell, J. and Zozus, M.N. 2017. Data management plans: the missing perspective. *Journal of Biomedical Informatics*, Vol, 71, no. 7: 130-142.

World Bank Group. 2017. Open data readiness assessment: Malaysia. The Malaysia Development Experience Series, Global Knowledge & Research Hub in Malaysia, Governance Global Practice.

Wouters, P. and Haak, W. 2017. Open data Report: The researcher perspective. Available at: https://www.elsevier.com/about/open-science/research-data/open-data-report.

Zuiderwijk, A. and Spiers, H. 2019. Sharing and re-using open data: A case study of motivations in astrophysics, *International Journal of Information Management*, Vol. 49: 228-241. Available at: https://doi.org/10.1016/j.ijinfomgt.2019.05.024.

APPENDIX – Questionnaire

S/N	**Statements on level of participation in open data practices. Note: (1) No, and Not Considered; (2) No But Considered; (3) Yes**					
1	Have you ever made your data open before?	1		2		3
	Please indicate [√] your frequency of practices in the following statement. Note: (1) Never; (2) Rarely; (3) Sometimes; (4) Often; (5) Always					
2	How often do you make your data open?	1	2	3	4	5
	Open data are data that can be used by anyone without any constraint (financial or official). **Please tick [√] to indicate your response Note: (1) Not at all aware; (2) Slightly Aware; (3) Somewhat Aware; (4) Moderately Aware; (5) Extremely Aware**					
	I am aware that open data…					
3	are online, free of cost, accessible data	1	2	3	4	5
4	can be shared alike (e.g. download, copy, edit etc)	1	2	3	4	5
5	can be used, reused and redistributed provided that the data source is attributed	1	2	3	4	5
6	protect against right in science and research	1	2	3	4	5
7	are data that can be used by anyone without technical or legal restrictions	1	2	3	4	5
	I share my research data…					
8	to support open scientific research for reusability	1	2	3	4	5
9	as mandated by the policy of funding agencies	1	2	3	4	5
10	as mandated by the journal policy	1	2	3	4	5
11	to reduce duplication of effort from different researchers attempting to collect the same data sets	1	2	3	4	5
12	I do not share data because the probability of losing publication opportunity	1	2	3	4	5
13	I do not share data because my data would be misused by others	1	2	3	4	5
14	I do not share data because there is unclear information on data privacy policy	1	2	3	4	5
	Please indicate (√) your perception of the following statement about open data					
	Note: (1) Very untrue of what I believe; (2) Untrue of what I believe; (3) Neutral; (4) True of what I believe; (5) Very true of what I believe					
	I believe that open data …					
15	increases research integrity	1	2	3	4	5
16	improves publishing transparency	1	2	3	4	5
17	may contribute to improve data collection and management	1	2	3	4	5
18	allows verification of scientific results	1	2	3	4	5
19	allows re-analysis of data for different purposes from the ones originally conceive	1	2	3	4	5
20	promotes competition of ideas and research	1	2	3	4	5
21	fosters good scientific collaboration	1	2	3	4	5
22	helps to undertake expensive data collection efforts easily	1	2	3	4	5
23	contain sensitive or copyrighted information, which has disclosure	1	2	3	4	5
24	lack well-defined technical standards that discourage sharing and reuse of data	1	2	3	4	5
25	volumes of data might discourage scholars from sharing data	1	2	3	4	5
26	practices are very hard to execute especially in developing nations	1	2	3	4	5

Demographic Information

Instruction: Please fill in the space provided or tick (√) the answer that BEST describe you

Age: ☐ ≤ 30 ☐ 31-35 ☐ 36-40 ☐ 41-45 ☐ ≥ 46	**Gender:** ☐ Male ☐ Female **Years in Academia:** ☐ < 1 year ☐ 6-10 years ☐ 1-5 years ☐ 11 ≥ years
Academic Position ☐ Research Officer ☐ Research Assistant ☐ Senior Lecturer ☐ Post Doctorate ☐ Research Fellow ☐ Associate Professor ☐ Professor ☐ Others, please specify …….	**Discipline:** What Subject Discipline are you specialized in? [Please Specify] …….. **Publication: How many publications do you have in the last 5 years?** ☐ None ☐ 1 - 3 ☐ 4 - 6 ☐ 7 and above [Please Specify]……
Your Research University: ☐ Universiti Malaya (UM) ☐ Universiti Sains Malaysia (USM) ☐ Universiti Kebangsaan Malaysia (UKM) ☐ Universiti Putra Malaysia (UPM) ☐ Universiti Technologi Malaysia (UTM)	**Email: Optional (For Acknowledgements only):** …… ……

Thank you for your willingness to participate in this survey