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Article

The Usage of Academic Social Network Sites by Researchers in Developing Countries: Opportunities and Challenges

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Abstract

Academic social network sites have become vital channels to distribute and share researches. In addition, they allow the spread of ideas, experience, and knowledge among many researchers located around the world. Most of the researchers move in with their papers, profiles, and projects, to gain more communication with other researchers and become more well-known in the academic research world. Yemen is one of least developed countries, suffering from several problems which can be challenging for efficient use of the Internet and its tools and services. This paper attempts to investigate the opportunities and challenges when using academic social network sites by researchers in the universities in Yemen and abroad. The impact of age, gender, specialization, place of graduation and current living place on the usage of academic social network sites was also addressed in this paper. The results showed that academic social network sites are still not well-known among Yemeni researchers. More than 33% of respondents do not know about them, although some of them consider to using one of them in future. The opportunities of using academic social network sites are still limited. Most of the respondents focus on view the other profiles rather than sharing their researches.

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1. Introduction

Peer-reviewed conferences and journals have traditionally been the focus of researchers' efforts to make their research universal. However, as social media have become more known, the way academics distribute their research is changing [1], [2]. Academics are starting more and more to use social media, and are expected to have a professional online attendance. Citation counts will no longer be enough to estimate research impact, and the social importance of authors will become increasingly significant. Thus, researchers have considered social media as a new and vital way to be more visible and to have their research discovered by peers [3], [1], [2]. The academic social networking sites (ASNSs) are websites that seek to shift the social web for academics, such as Academia.edu, ResearchGate, Mendeley, and Zotero, give each member a profile and allow him/her to connect to each other in some way and to share his/her publications [4]. Although reference sharing sites focus on readers; helping users to share and find relevant references for their work [5], Academia.edu and ResearchGate focus more on the publishing of research and projects [4]. These sites are preferred to bring scholars from different disciplines together in an academic community. Academia.edu was founded in September 2008 by a philosopher Richard Price [4], [6] at Oxford University, as an academic social network site. Academia.edu connects the users with non-academic ASNSs such as Facebook and Twitter [7]. ResearchGate was founded in 2008 by the physicians Dr. Ijad Madisch (Boston) and Dr. Soren Hofmayer (Berlin), and the computer scientist Horst Fickenscher (Berlin) [6]. ResearchGate focuses more on the producers of research [4]. It provides a score for evaluating researchers depending upon publication downloads, citation counts, participation in the discussion board and a number of views as well as the question and answer platform, in addition to the service of job searching services [7]. Mendeley was founded in 2009 by three German Ph.D. students (Victor Henning, Jan Reichelt and Paul Fockler) [6]. It facilitates uploading document libraries and allows importing and exporting citations to other similar tools such as EndNote and Zotero [7], [8].

2. Literature Review

Thelwall and Kousha [4] focus on Academia.edu in their research, providing some basic descriptive information about this site and methods for investigating it. The investigation focuses on members of philosophy departments because a philosopher started the site. Philosophers seem to be mainly extensive users, and the discipline of philosophy may display the most developed academia.edu use. This research investigates attributes of philosophy scholars on Academia.edu, introducing a median-based time-normalizing method to adjust for time delays in joining the site. The main objective of this research is to investigate whether Academia.edu is essentially used as a general social networking site, in which case younger users (e.g., students rather than faculty) and female users should be over-represented and more active [4].

El-Berry [7] in his research, attempts to explore the awareness and use of five famous ASNSs; namely ResearchGate, Academia.edu, LinkedIn, Mendeley and Scholastica by the South Valley University (SVU) academic staff. This paper was carried out by using a web-based online questionnaire created through Google Form. Over the limited period, a link to the questionnaire was sent via personal email and Facebook messages to academic staff at the SVU from different age ranges, designations, gender, and faculties. The questionnaire consisted of four clusters of questions. The first cluster was about the demographic characteristics. Data analysis of this cluster shows that the majority of respondents were from the younger researchers. Men responses were more than women, most of the respondents were from the faculties of applied sciences such as Medicine, Nursing, Veterinary Medicine, and Science, in addition to Agriculture and Engineering fields. The second cluster focused on the awareness and use of the ASNSs, this cluster began with a question; if respondents heard of one or more of the ASNSs. The most of the respondents reported that they had heard of these sites. The third cluster was about the benefits and obstacles of using the ASNSs. Finally, the fourth cluster reflected the way to improve the awareness and use of the academic staff at the SVU to the ASNSs [7].

Espinoza and others [1] conducted an exploratory inductive comparative study of the services and tools of a select set of ASNSs. They argued that maintaining multiple profiles might be time-consuming. They suggested starting a discussion about how they can make this process less cumbersome. They aimed for their study and findings to help academics and researchers make informed decisions about their choice of ASNSs. Through the ASNSs the authors provide most of the services they evaluated (collaboration, online persona management, research dissemination, documents management, and impact measurement service); they tended to specialize in one or two. Espinoza indicated that all sites provide communication tools, whereas Mendeley provides the most collaboration tools. Assumed that researchers usually have several profiles, it can become cumbersome and time-consuming to manage all of them, that why they recommended researchers to strategically select the ASNSs that meet his/her goals. The authors concluded that future research could explore ways to facilitate managing multiple profiles across ASNSs and the actual impact their services have on employment, dissemination of results, and collaboration [1].

Relojo and Pilao [9] provided a general overview of the current trends within the academic networking service, and in the end, its impacts on the digital academic. Their paper specifically focused on popular academic networking services such as Academi.edu, Mendeley, and ResearchGate. In addition, Twitter had been taken into account in their study. Their discussion focuses on the benefits, key contributions and future directions of these platforms to both experienced and early career researchers (ECRs). The authors inducted that these ASNSs are still in their early stages to totally scale their impact on how these have facilitated collaborative partnerships among researchers, particularly to those seeking interdisciplinary collaborations. In addition, they expected that these academic sites are like any other websites, could possibly encounter financial issues in the future, which may result in discontinuation of their services. However, in the meantime, the research community cannot deny the fact that these services are becoming increasingly popular in scholarly communication [9].

2.1. Definition of ASNSs

Social network is a social structure of nodes that represents individuals and organizations, to present the relationships between them within a certain domain [10]. Online Social networks have gained a tremendous popularity among people all around the world, especially in the colleges [11]. Academic social networks are forms of internet services, which facilitate the management of relations among scientists, sharing the resource for publications [6]. Academic social network sites like Academia.edu, Mendeley and ResearchGate and others, provide similar features and benefits to their users [El-Berry]. These sites give scholars the ability to publish their research outputs and connect to each other [4].

ResearchGate is a social networking site for scientists and researchers to share papers, ask and answer questions, and find collaborators. According to a study by Nature and an article in Times Higher Education, it is the largest academic social network in terms of active users [12], [13]. Academia.edu is a venture-capital funded private company that provides a social networking website for academics. The platform can be used to share papers, monitor deep analytics around the impact of their research, and track the research of academics they follow, in a particular field [14], [15]. Mendeley is a desktop and web program produced by Elsevier for managing and sharing research papers, discovering research data and collaborating online [16], [9], [3].

2.2. Opportunities of Academic Social Networks Sites

All academic social network sites provide the ability to upload researchers' publications, make their networks visible to other users, and allow linking to non-academic social media like Twitter or Facebook. In addition, all of the academic social network sites allow uploading publication files [7]. They give each member a profile and allow these members to connect with each other in some way as well as to share information about their publications [4], in addition to enabling them to manage and share bibliography [17]. Other benefits like evaluation or discussion of documents, exchange with the intermediary groups/communities or with people sharing the

same interest topics, and skills expertise [17]. While all sites calculate profile or document views, ResearchGate provides academically focused metrics [1]. Academic social network sites allow a certain responsiveness and informality that is not possible with the formal publishing. Another advantage of academic social networks is that they allow work to be shared, with both ResearchGate and Academia.edu giving members the ability to upload their own papers. ResearchGate has its own measurement, called RG Score, which assigns members each with a score based upon content interactions and the score of the members interacting with the content. Content greatly contributes to ResearchGate, like profile information and answered or asked questions, influences the RG score, in addition to publication information, like views, downloads, and citations [2]. ResearchGate's question-and-answer part is an important and interesting feature. Given a large number of members, it can present a way to crowd-source problems [18].

2.3. Challenges of Academic Social Network Sites

There are some challenges that have been recorded by Aventurier [17]. He listed some questions which are faced the researchers.

Which the platform can be used? How difficult is it to chose and no interoperability? Is it time-consuming? Does share it will leave to a competitor?. what are the advantage and the sustainability? Are there enough active users? What is the optimized or the inefficient use? Is there a lack of management of digital identity?

On the other hand, Aventurier listed as well some challenges for institutions. Asking about the spread of knowledge that might be used by competitors, lack of control of the institution reputation, analyze by other institutions of the use of networks, tools multiplication

3. Research Methodology

This study was carried out by using a web-based online questionnaire created through Google Forms. The authors preferred to use the questionnaire because it is the most suitable quantitative method for obtaining data from a representative sample of people. The respondents are all Yemeni researchers who are working at universities in Ye-

men and abroad. The sample covered all Yemeni universities (public and private). The sample also includes different age groups, gender, education levels, the place of study or graduation, current location; place of living and finally all university specializations.

The questionnaire was designed to collect information for four main factors. The first one was about the demographic characteristic, the second one was about the knowledge of these networks, third one was about the benefits and opportunities of these academic social network sites and the last factor was about the problems and challenges in using academic social networks sites. The questions under each factor were obtained from the literature review as well as the authors' own experiences. The questionnaire was distributed to three groups of Yemeni researchers on Facebook and to all relevant researchers elsewhere.

3.1. Research Questions

The present research aims to find answers to the following questions

1. How many Yemeni researchers use ASNSs?
2. How do they benefit from ASNSs?
3. What are the challenges and problems they face with ASNSs?
4. Do gender and age affect the way Yemeni researchers use ASNSs?
5. Do the level of education/and field of study affect the way the Yemeni academics deal with ASNSs?
6. Does the place 'where they studied/live' affect the way Yemeni researchers deal with ASNSs?

3.2. Research Goals

The research aims to determine the following factors:

1. The opportunities and benefits of ASNSs according to Yemeni researchers' point of view.
2. The challenges and problems Yemeni researchers may face using ASNSs.
3. The impact of gender and age on using ASNSs.
4. The impact of level/field of study on using ASNSs.
5. The impact of place of study/living on using ASNSs.

4. Research Importance

Academic social network sites are still new especially in the context of Yemeni researchers. From

this point, our research contributes to the knowledge of investigating and studying this new area of interest. Our research spots the light on these vital sites for the researchers to see how they Can benefit from joining academic social network sites and what are the challenges they are facing. Moreover, our research might encourage them to coop with the technology to make their researches visible and global.

5. Analyzing Findings

Yemen is one of least developed countries. It suffers from many problems that are not our subject in this paper, only those related to the internet and

economic problems, which might affect the usage of academic social network sites. Our sample includes Yemeni researchers who are working in universities either in Yemen or outside Yemen.

5.1. Data Analysis

Table 1 presents the research sample with its characteristics and the impact of these characteristics on the usage of academic social network sites. It presents two parts. First, it summarizes the basic information of the respondents' characteristics. Second, it gives the impact view of the demographic characteristics on the academic social network sites usage.

Demographic Characteristics of Respondents				The Impact of Demographic Characteristics on the Usage of ASNSs	
Demographic Characteristics	No	Percentage	Using ASNSs	Not Using ASNSs	
Age	25 – 34	18	24%	14 (78%)	4 (think about using) 0 (do not think about using)
	35 – 44	34	45.3%	22 (65%)	10 (think about using) 2 (do not think about using)
	45 – 54	14	18.7%	10 (71%)	4 (think about using) 0 (do not think about using)
	Over 55	9	12%	5 (56%)	4 (think about using) 0 (do not think about using)
	Total	75			
Gender	Male	43	57.3%	32 (74%)	10 (think about using) 1 (do not think about using)
	Female	32	42.7%	18 (56%)	15 (think about using) 0 (do not think about using)
	Total	75			
Education Level	Postdoc	16	21.3%	12(75%)	4 (think about using) 0 (do not think about using)
	PhD	36	48%	21 (58%)	14(think about using) 1 (not think about using)
	MSc	23	30.7%	16 (70%)	6 (think about using) 1 (do not think about using)
	Total	75			

University of last/Current study	Yemen	17	22.7%	9 (53%)	8 (think about using) 0 (do not think about using)
	Arab	31	41.3%	23 (74%)	7 (think about using) 1 (do not think about using)
	International	27	36%	17 (63%)	9 (think about using) 0 (do not think about using)
	Total	75			
Current Location	Yemen	42	56%	20 (48%)	22 (think about using) 0 (do not think about using)
	Abroad	33	44%	29 (88%)	2 (think about using) 2 (do not think about using)
	Total	75			
Specialty	Applied Sciences (IT, Engineering , Health ...)	50	66.7%	34 (68%)	14 (think about using) 2 (do not think about using)
	Social Sciences and Humanities	25	33.3%	15 (60%)	10 (think about using) 0 (do not think about using)
	Total	75			
Total of respondents =(75)					

5.2. Demographic Characteristics of Respondents' Analysis

Table.1 shows that there were 75 respondents who participated in this study. The results shown in Table 1 indicate that 45.3% of the respondents were at the age range between 35 and 44.

The male respondents were 43 (57.3%) whereas female respondents were 32 (42.7%). According to the level of the respondents', 48% each had a Ph.D. degree. About 41.3% have graduated from Arab universities. (56%) of the respondents were in Yemen at the time this research was done. Finally, 66.7% of the respondents' came from the field of applied sciences.

5.3. The Impact of Demographic Characteristics on the Usage of ASNSs

(The Usage and Intent to Use Analysis)

In this part of data analysis, we are going to investigate the impact of the demographic characteristics of both elements; the usage of academic social network sites and the intent to use 'the readiness'. Data has been obtained from the Etcel file that was derived from the Google form models. Then we used sorting and filtering features that are based on required data to record how

many respondents there are who are using personal cloud storages and how many are intending to use them according to each of the demographics characteristics in our study.

From table 1, there were 18 respondents who responded to this questionnaire who lie in the age range of 25 to 35 years old, 14 of them reported that they were using academic social network sites. This means 78% from respondents in this age range are using academic social network sites. On the other hand, only 56% of the respondents who age over 55 years old are using academic social network sites. This result showed that age does affect the usage of academic social network sites. The younger researchers use academic social network sites more than the older ones. All age ranges showed good results in intending to use the sites, as shown in the table.

There were 43 males who responded to this questionnaire, 32 of them were using academic social networking sites. This means that 74% of the males in this study are using academic social networking sites. On the other hand, only 55% of the females (only 18 out of 32) are using academic social networking sites. These who do not use academic social networking sites are considering

using them as shown in the table. This result is expected due to the fact that males in Yemen have a wider chance to develop themselves further and use technology more than females due to the country's culture.

The level of education showed that 12 respondents out of the 16 who have postdoc are using academic social networking sites, that means (75%) of them are using academic social networking sites. 16 out of 23 respondents with MSc level of education are using academic social networking sites. That means 70% of the respondents are using academic social networks sites.

On the other hand, 58% of the PhD respondents are using academic social networking sites.

Furthermore, all respondents from all levels of education in this study showed positive attitudes towards the use of academic social networking sites. From the above table, 31 out of 32 of respondents who are still studying or have graduated from Arab Universities are using academic social networks sites (74%). On the other hand, 9 out of 17 (53%) of the respondents who are still studying or have graduated from Yemeni Universities are using academic social networks sites. This is an expected result, due to the culture of Yemen, where academic research is not supported in universities; that do not encourage their researchers to make use of the new technology, to further develop themselves. Almost all of the respondents who reported that they are not using academic social network sites are considering using them. The results showed that 20 out of 42 respondents who abroad are using academic social networks sites, whereas 29 of 33 respondents who live in Yemen are using academic social networks sites.

This result was expected, living abroad offers the chance to use internet and technology easily in comparison with those who live in Yemen. At the

same time, the respondents who live in Yemen showed the intension to use them. This was an expected result. Yemeni people show a good inclination towards technology [19].

All the respondents from applied sciences showed good results in both using academic social network sites and in exhibiting the intension to use them. There are 34 of 50 who are using academic social network sites. In addition, 15 out of 25 who come from social science and humanities are using academic social network sites (68%). Moreover, respondents from social sciences and humanities studies showed a good result; the intension to use them. The expected result was that respondents from applied sciences would show a high percentage in using academic social network sites due to their good background regarding technology. In conclusion, we reach the fact that the usage of academic social network sites is still low among the Yemeni researchers. There are some respondents who reported that they have not heard about them at all! The good result is that most of the respondents indicated that they are considering using one of them. From our point of view, Yemeni researchers do not have the motivation to use academic social network sites because of the internet access problems in Yemen, as well as the lack of understanding of the importance of academic social network sites. It was expected that respondents from the applied sciences field would show a high percentage in using academic social network sites as well as the Yemenis living abroad. Again, the lack of motivation is another factor that hinders the development of their career and the manner of dealing with technology.

5.4. Discussion

Which academic network sites do respondents use more?

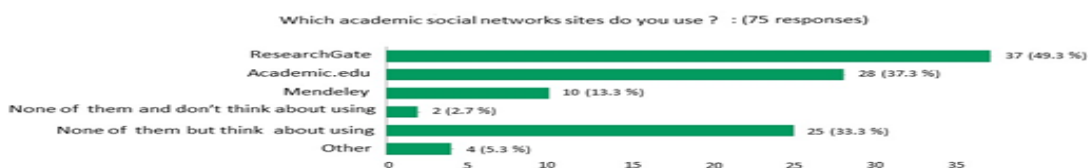


Fig.1. Which Academic Networks Sites do the Respondents Use more?

Figure 1. displayed that 49.3% of the respondents selected ResearchGate as the most common academic social network sites. Those of them who do not use any kind of academic social networks

sites, (33%) are considering using it in the future. This presents a good indicator for future. The Reasons Behind not using any Academic Sites:

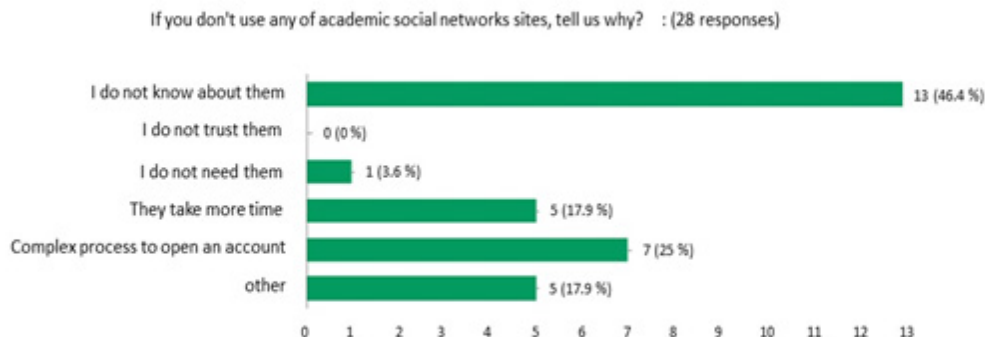


Fig. 2. The Reasons behind not Using any Academic Sites

Fig. 2. uncovered the main reasons behind why some respondent do not use any of the academic social network sites. 28 respondents have replied to this question. This means that (37%) of the given sample do not use academic social network sites. 13 of 28 respondents (46.4%) who are not using them, reported that they do not even know about them. 25% of them attain that academic

network sites require a complex process to create an account. From our point of view, this could be possible due to the difficulty of English language to many respondents, especially those whose studies and specialties are in Arabic.

The Benefits of Using Academic Social Network Sites:

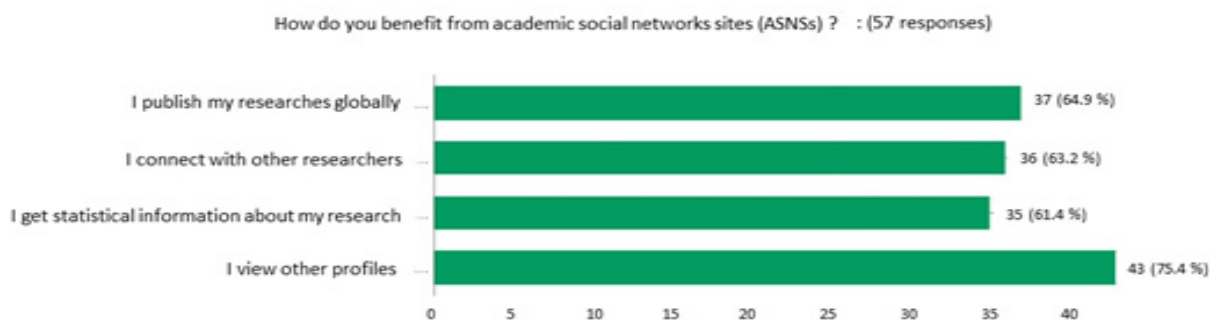


Fig.3. The Benefits of Using Academic Social Network Sites

To determine the benefits and opportunities of academic social network sites, we can analyze the above figure. The above figure shows that (75.4%) of Yemeni researchers, those who responded to the current study, benefit from academic social network sites through viewing the

others profiles. There are other benefits like globally publishing researches, connecting with other researchers, getting statistical information about their researches. All showed low percentage on benefit of them, all of them arrange around 60%. Although publishing and sharing research is the main opportunity you get operating these academic sites, not all Yemeni researchers are shar-

ing their researches on the academic social network sites. From our point of view, that might be for two reasons. First, maybe some of them still have no published papers in journals or conferences. And the second reason is that they are

not confident enough to share their researches globally.

The Problems Facing Respondents when Using Academic Social Sites

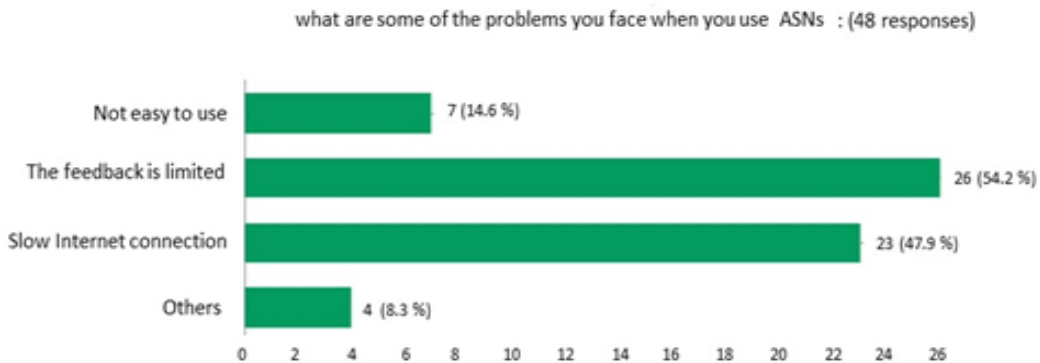


Fig. 4. The Problems Facing Respondents when Using Academic Social Sites

Figure 4. showed some of the problems and challenges that face Yemeni researchers. The limitation of feedback was the biggest problem facing researchers who responded to this research (54.2%). In addition, the problem of internet connection and its weakness in Yemen affects the

usage of academic social network sites. Not easy to use was not a big problem, only (14.6%) of the respondents face this problem.

The Frequency of Access and Benefits of Academic Social Sites Analysis:

What researches do you share on (ASNSs)?	My published researches	All my researches (published and unpublished)		
	72.7%	27.3%		
How often do you access (ASNSs)?	Not often	Monthly	Daily	When I have a new research to share
	27.8%	11.1%	29.6%	31.5%

Table 2. The Frequency of Access and Benefits of Academic Social Sites Analysis

Table 2. shows that the majority of the respondents (72.7%) share only their papers that have already been published in journals or conferences. In addition, (31.5%) of the respondents only access the academic social network sites when they have new researches to share.

6.Conclusions

The primary aim of our research is to find the opportunities and benefits of academic social net-

work sites according to Yemeni researchers' point of view as well as the challenges and problems they might be facing. The second aim is to find the impact of gender and age, level/field of study, studying/living place on using academic social network sites. From all the questionnaire analysis and findings, we can conclude that academic social network sites are still not well recognized among Yemeni researchers. More than 33% of

respondents do not know about them, in spite some of them are considering using them in the future. The benefit of using academic social networks sites is to focus on and/or view the other researchers' profiles. Some of the opportunities that academic social network sites provide like joining projects, asking or answering questions, are still not used by the Yemeni researchers and maybe not of their interest, i.e. using Academic social network sites is still not one of the Yemeni researchers' essential issues in their academic career.

7. Recommendations

The authors arrive at a set of recommendations that can make a change on using academic social network sites and increase their utilization.

1.The Yemeni researchers who are already using academic social network sites should encourage their colleagues and invite them to make use of one of these academic sites, and to benefit more from them to improve their researches and join the global research world.

2.The Responsibility should be on the educational institutions as well. They should urge their academic staff to join these academic social network sites to help publish their researches and make them globally recognized. The aim of these developments is to assemble all the ideas and achievements together from all around the world and work together for quality and valuable research to assist the society and develop its quality life.

3.In Addition, our research and future research in this area of interest might shed the light on the current subject. It focuses on the importance for the Yemeni researchers to make use of the technology to benefit from these developments.

8.Acknowledgment

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