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Barriers Affecting Contribution of Developing Countries Social Scientists in ISI Indexed Journals

Ali Shirazi
Ferdowsi University of Mashhad, Faculty of Economic and Administrative Sciences, Mashhad, Iran
a-shirazi@um.ac.ir

Abstract: The decades leading to the third millennium was marked with concerted efforts by governments to raise their knowledge generation and contribution profile in the community of nations. Thus, all kinds of financial and promotional incentives have been offered to academics and researchers to publish papers in international journals, particularly ISI journals. It is argued that quantity and quality of articles published in ISI journals is an indication of scientific capabilities of a country and a yardstick for assessing its development. This research study aims to identify barriers that academics face in publishing papers in ISI social/humanity science journals. A questionnaire based on extensive literature review and a series of unstructured interviews was developed and tested. A stratified sampling method was used to collect data from academics of four social/humanity science faculties of a provincial university in the northwest of Iran. The findings revealed that respondent's perceived lack of proficiency in a foreign language, poor information technology infrastructure and inadequate access to international scientific databases and uncontrollable factors related to the nature of social science disciplines and political climate as the major barriers that prevent or de-motivate them to publish in ISI journals. The research findings were discussed and concluded, and recommendations were made to reduce or remove barriers to publishing in ISI journals.

Keywords: *Social/Humanity Sciences, Academics, ISI Journals, Language, Iran*

1. Introduction

The world has undergone unprecedented political, socio-economic and technological changes over the last three decades. Perhaps the most revolutionized and breathtaking of these changes is in information technology, particularly the amount and speed that anyone, anywhere at any time can access, retrieve and store information of all kinds to their likings. A combined development of information technology hardware and software has culminated in knowledge explosion to the extent that according to Moore's law, doubles every 18 months. It is this quantum leap in scientific development that has led most scientists and experts argue that long-term and sustainable development of societies hinges upon contribution in generating and utilizing knowledge through taking full advantage of information technology knowledge, skills and tools (King, 2004; Man et al., 2004). This belief is so strong and convincing that governments around the world have given priority to the development of information technology sector by investing heavily in areas such as satellite, mobile and internet technology, as the corner stone of economic and social development.

The prominence of knowledge in advanced societies comes as no surprise as activities, products and services are increasingly becoming knowledge-driven and knowledge-based (Drucker, 1993; Nonaka and Takeuchi, 1995; Shirazi, et al. 2011). Thus, today one of the key criteria for gauging development in a country is the extent that it participates in generating and managing knowledge in which information technology plays a pivoting role. One way to assess a country's position in knowledge management is to quantify the knowledge it produces in a given year or period. The number of articles a country's scientists and researchers publish in scientific journals, particularly ISI journals, often determines this position. However, given that a large number of ISI journals are published in English language in the developed countries, particularly in English speaking countries such as the US, UK, Canada and Australia, authors from developing or less developing countries face formidable challenges to publish their scientific work in ISI journals. While some of the barriers related to publishing in western-based journals are rooted in the north-south divide and domination of western ideas, politics and standard-setting, authors from less developed countries should also deal with inherent problems in publishing papers outside of their country of origin, including language barrier, cost associated with publishing, editorial bias and stringent review process (Perakakis, et al. 2011). These problems are disproportionally more severe in the field of social sciences where the content of materials under study is often culture-bound and specific to a country or region, therefore far from the interest of scientific community and readership in the west. This

research paper aims to identify the factors that affect low contribution of social scientists of a developing country in publishing in ISI journals.

2. Publishing in International Journals

ISI Indexed Journals: Among academic scholars, research visibility is highly valued, because it is a necessary condition of social capital and influence (Friedkin, 1998) in the field. Publications create a social structure of scholars which can influence the research visibility and enhance the stature of scholars among their peers (Bayer and Smart, 1991) and their institution (Alpert, 1985). Thus, the academic community around the world has faced with increasing demand by their institutions to publish papers in the Institute of Scientific Information (ISI) journals (now called Thompson Reuters Web of Knowledge) which specialize in *citation indexing*, covering over 14000 academic journals in sciences (SCI), social sciences (SSCI) and arts and humanities (AHCI). In addition, the ISI assigns *impact factor* to the journals on its list as a measure for a journal quality and reputation in its field. Given the ISI vast resources and widespread use, its listing is used to rank journals, scientists, universities and scientific development. Thus publishing in ISI is sought after by academics who wish to be recognized for their research work, to secure appointment in top universities and to advance in academic ranking (Linardi, et al., 1996; Coe and Weinstock, 1984; Hunt and Blair, 1987; Luthans, 1967).

Despite ISI visibility and researchers' eagerness to publish in ISI journals with high impact factors, the ISI and efforts to publish in ISI journals have been criticized for being exclusive and bias. The scientific publishing disparity between developed and developing countries is evident whereby 78.3% of the world's published scientific research in 2001 produced by the US, the European Union and Japan, and 31 nations out of total of 191 contributed to 98% of the volume of citations to scientific research which only China, India and Iran were developing countries (Salager-Meyer, 2008). This disparity, from the *discursive* (language-related) perspective, is even more striking. According to Montgomery' estimate (2004), while only 5%-9% of the world population live in English speaking countries, 80% of the world's scientific articles are published in English language journals. Hence, some critics even claim that ISI is another ploy by western powers, particularly the US, to colonize, exploit and dominate the developing countries. In other words, it is the imperialism of the new era by which a western superpower cunningly uses propagandas, such as *equality of access* and *unhindered distribution of knowledge,* to have access to research carried on and paid for by developing countries. Such a view is not new; in fact it is the core of dependency theory that arose in 1970 as a reaction to modernization.

Perhaps the main criticism of ISI is its *evaluative process* to select and rank journals and authors whereby mainly western reviewers judge work of other scientists on the basis of their views on what is interesting, important and applicable. This, as ISI opponents argue, makes such judgment culturally bias and scientifically untenable (Cameron, 2005, Shakiba et al., 2008; Dickersin et al., 1987; Horton, 2000; Edwards, 1991). The well-known impact factor of a journal that shows how often its articles that are one and two years old are cited (on average), has also been criticized for being a very short-term impact indicator. Furthermore, the ISI self-citations might result in a biased impression of the external citation impact of the journal. Finally, ISI tends to count citations to all items in a journal, but in the computation of the impact factor, divides these citations by just the number of articles, letters, and review articles (Nederhof, 2006). As the result of such criticisms, particularly those related to political, cultural and religious bias, Islamic countries have established a rival citation index called *Islamic Scientific Index* (ISC), to counter ISI. However, these reactions may prove to be unsuccessful, because they are often seen as ideologically-bound by politics and regionally-bound by religious beliefs, thus have limited coverage and use on the global scale. Consequently, ISI remains to be the primary citation indexes where almost all academics and researchers across the world wish to publish in its journals. This is despite the fact that for example, Science Citation Index from which most scientometric/bibliometric data are drawn, covers less than a quarter of peer-reviewed journals world-wide (Cronin, 1984; Dong et al. 2005).

Iran's knowledge contribution and rank: Thomson Reuters (2011) in its Global Research Report has explored the position of the Middle Eastern countries in publishing in ISI journals and challenges they face in participating and taking advantages of knowledge generation and development in the future. According to its analysis, Iran ranks second, behind Turkey, in producing world class scientific research. For example, while Turkey produced 81,900 ISI papers in 2005-2009, Iran and Egypt contributions were 42,600 and 17,500 respectively. The report highlights that Iran's growth in scientific production has been much faster than any other country in the region (e.g. more than twice faster than Turkey) over the same

period. In fact, based on ISI reports, Iran has increased its academic publishing output nearly 10 folds from 1996 to 2004, and ranked first globally in terms of output growth rate, followed by china with a three fold increase. Overall Iran produces 0.48% of the world's highly cited output in all fields just about half of what would be expected for parity at 1%. The comparable figures for other countries in the region following Iran are: Turkey at 0.37%, Jordan at 0.28%, Egypt at 0.26% and Saudi Arabia at 0.25% (Thomson Reuters, 2000-2010). Similarly, Science Matrix in its 30 Years Science Report (2010) singles out and hails Iran for its remarkably fast build-up of scientific capabilities the world has experienced over the last two decades and suggests that this growth with its emphasis on specific, strategic, subfields may be the result of Iran's controversial nuclear technology development program. This remarkable growth of Iran scientific outputs, particularly in basic, physical and applied science (mathematics, chemistry, physics, engineering and medical sciences) have been attested by many other governmental and independent reports (Table 1).

Table 1: Sample of Reports on Iran's Scientific Development

Source	Report findings on Iran's scientific contribution to knowledge generation
ISI (2000-2010)	Increased nearly tenfold (1996 to 2004), ranked first globally in terms of output growth rate; 25% of scientific articles published in 2008 by Iran were international co-authorships with top five countries coauthoring with Iranian scientists are US, UK, Canada, Germany and France; ranked 32, 46 and 56 in Chemistry, Physics and Biology respectively among all science producing countries; ranked 15th in 2009 in the field of nanotechnology in terms of presenting articles.
Science-Matrix (2010)	Surpassed the total scientific output of Sweden, Switzerland, Israel, Belgium, Austria and Norway, Israel, Finland and Denmark; Its nuclear sciences advancement has in the past two decades grown by 8400% as compared to the 34% for the rest of the world.
US Government (2010)	Has the world's highest growth rate in Science and Engineering article output at 25.7% p.a.; leads the region in growth in scientific instruments, pharmaceuticals, communications and semiconductors
British Govt. (2004)	Has quadrupled publication rate in international journals in terms of scientific impact (ranked 30th in the world)
SRJ (2009)	Ranked 22th in the world in scientific publications by volume in 2007
Science Watch (2008)	Has the world's highest growth rate for citations in medical, environmental and ecological sciences; produces 1.71% of engineering papers, 1.68% of chemistry papers and 1.19% of material sciences papers of the world total (2005-9)
Evidence (2009)	Doubled its biological sciences and health research output in two years (2006-8) and ten-folded its physical science output in ten years (1998-2008); Has improved the impact of its engineering papers and is already ahead of India, South Korea and Taiwan in engineering research performance.
UK Royal Society (2011)	Has the world's fastest growth rate in science and technology; Increased its scientific output by 18 folds during the period 1996-2008.

ISI Social Science, Humanities and Arts: In contrast with astonishing growth rate of Iran's scientific outputs in basic and applied sciences over the last 10 years, Iranian social scientists have contributed very little to overall Iran's scientific output. For example, while in 2008, of total of 13568 Iran's ISI papers, only 523 (4%) were in social and human sciences. Table 2 compares the number of papers Turkey and Iran published in ISI journals in 2007 and 2008 (Thompson Reuters, 2008-2009).

Table 2: Turkey and Iran ISI Papers in 2007 and 2008

ISI Field of Knowledge	Iran		Turkey	
	2007	**2008**	**2007**	**2008**
Science	8938	13424	19132	23497
Social Science	351	487	902	1584
Humanities and Arts	30	36	108	286
Total	9061	13568	19658	24765

As Table 2 shows, although the annual growth rate of Iran's ISI papers in science is double the rate of comparable data for Turkey, the annual rate of Turkey's ISI papers in social/humanity science and arts has grown twice as fast as that of Iran's ISI in these fields. The poor contribution of social scientists of these two countries with high rate of growth in science supports the view expressed by many in the academic community that there are fundamental differences between research and publishing papers in basic/applied sciences and social/human sciences. While research in basic sciences follow some constant natural laws that are independent of time and place, social science research deal with varied and unpredictable phenomena, namely human and group thoughts and behaviors in a particular context, which make their contents differ from one individual or country to another (Shirazi, 2006). This implies that something is meaningful when its core concepts are at least understood, even if not accepted. Therefore, if a person, for example a reviewer, is not familiar or interested in a research subject or context assigned to them to review, it is more likely they are negatively influenced by it and evaluate it unfavorably.

Writers in knowledge management have made a similar case on contexualization. Data in knowledge management is the basic element in the hierarchy of human knowledge, but data is meaningless by itself without reference to either space or time. In other words, a piece of data becomes meaningful information only when we attribute meaning to it. The meaning of useful data is derived from its association by other things which in itself are the by-product of social and cultural factors. Therefore, as Reany (1988) argues, concepts that form knowledge do not exist apart from a conceptualizer, an intelligent being; thus human knowledge is subjective and has no absolute meaning. Baumard (1999) refers to this as a person's mental make-up, thus when we hear the "Berlin wall fell", people attributes meaning to it and interpret it, according to their mental make-up, culture and situation. Niglro (1984) takes this argument further by suggesting that decision-makers' value systems influence how knowledge is understood, decided upon and applied, meaning that our thoughts and actions processes are firmly embedded in our epistemological and ontological points of view. In these processes, our tacit knowledge – the personal knowledge resident within the mind, behavior and perceptions of individual – plays a particularly critical role in forming our opinions and views on what and how we see, judge and decide.

Undoubtedly, the most challenging problem that academics whose mother tongue is not the medium of writing required by most ISI journals (i.e. English), face is to write in standard English. Language has a profound influence in concept formation process. It is through language that we understand and relate to concepts, as they are made by humans and mediate the relations among them. Vygotsky (1978) in his theory of activity refers to language and symbol systems as psychological tools that play fundamental roles for developing human conditions. From this perspective, it is the language that makes thought processes and knowledge development possible. Elkjaer (1999) argues that language is a tool that transforms our thoughts into a social phenomenon and is a way to share our world with others. Hence, to transform personal knowledge to public knowledge, there must be acceptable standards, common interpretive frameworks, and patterns of judging content of information. In other words, we need social technologies by which arguments and documents are understood and accepted (Ramlogan and Metcalf, 2002). In summary, publishing in ISI or any other international journals with English language readership involves personal and cultural dimensions that cannot be easily dismissed as peripheral issues. This implies that at least in social sciences, as we get further away from the mental make-up and cultural setting of the author, we should question more the validity of editor/reviewer value judgment on what constitute a good or bad research and what articles to reject or accept.

3. Research Method

This research is carried out in a large provincial university with a total enrollment of about 20,000, 800 academic staff and 13 faculties excluding medical science faculties. The population under study included four social/humanity science faculties, namely literature and humanities, economic and administrative sciences, theology and education/psychology. The literature on publishing in ISI journals and findings of 15 exploratory interviews with academic staff formed the basis for designing a questionnaire which aimed to identify barriers to low contribution of academics in publishing in ISI social/humanity science journals. A random stratified method of sampling was used to include participants from all four faculties. The questionnaire was piloted-tested and validated (Cronbach's $\alpha = 0.84$). The questionnaire distributed among academics in the designated faculties of whom 52 completed and returned them. The faculty of economic and administrative sciences had the highest representation (39%), followed by faculty of

literature and humanities (14%), education psychology (10%) and theology (8%). Descriptive statistics and t-test were used to analyze the data.

4. Findings and Discussion

The descriptive analysis of data showed that 85% of respondents were assistant or associate professors, 83% were male, and 69% received their doctorate degree from abroad. In addition, respondents indicated their length of service, papers published in national and international journals, including ISI journals as well as books authored or translated during the past five years (2006-2010). Table 3 lists these variables with their respective mean, standard deviation and correlational relationship between them.

Table 3: Mean, Standard Deviation and Correlational Factors between Variables

No	Variable (2006-2010)	Mean	S.D.	1	2	3	4	5	6	7	8	9
1	Length of Service	14.35	9.31	1								
2	Years studies abroad	2.02	3.34	0.29	1							
3	No. of papers in proceedings of international conferences	2.98	4.81	-0.05	0.03	1						
4	No. of papers published in national journals	6.55	5.68	0.31*	0.05	0.05*	1					
5	No. of papers published in international journals	0.98	1.82	0.28	0.19	0.24	0.31*	1				
6	No. of papers submitted in ISI journals	0.73	1.35	0.24	0.08	0.29	0.22	0.82*	1			
7	No. of papers published in ISI journals	0.22	0.71	0.13	0.17	0.27	0.1	0.54*	0.65*	1		
8	No. of books translated	0.88	1.79	0.27	0.16	-0.12	0.08	-0.05	-0.08	-0.04*	1	
9	No. of books authored in Iran	1.49	2.45	0.44*	0.02	0.13	-0.46	0.18	0.23	0.24	0.46*	1

As Table 3 shows, mean of papers published in national journals over the past 5 years (2006-2010), is 6.55, compared to less than one paper published in international journals, and only 0.22 in ISI journals. Interestingly, respondents are better represented in international conferences, despite the fact that participating in international conference also requires submitting papers in a foreign language, most often in English, and in some cases in French, German or Arabic. In addition, there is a strong relationship (0.82) between the number of papers published in international journals and ISI journals.
In addition, a t-test, using 2.5 as the specific value to determine the relationships between factors under study and low contribution of social/humanity science academics in publishing in ISI journals, was performed (Table 4).

Table 4: Factors Affecting Low Contributions in Publishing in ISI Journals

Factor (2006-2010)	t-value	Df	p-value
Lack of proficiency in foreign languages	4.21	64	0.00
Lack of ability and insufficient information accessibility	3.98	84	0.00
Unsuitable work/job conditions	1.35	84	0.18
Unsuitable organizational culture	11.54	84	0.00
Lack of collaboration with international scientific community	3.45	80	0.00
Non-controllable barriers	13.35	83	0.00

Given the p-value (<0.05), shown in Table 4, all factors, except work and job conditions, are related to low contribution of this particular university social/humanity scientists in ISI journals. Furthermore, non-controllable barriers show the highest t-value, thus they have the greatest adverse effects on publishing in ISI journals.

Discussion: The findings revealed that there are several personal, organizational and environmental factors that seriously undermine efforts to publish in ISI journals. Respondents clearly underscore the

importance of language proficiency in a foreign language, particularly in English. However, this barrier is not limited to the population under study. It is rather a world-wide problem for scientists whose first language is not English, but are expected to write in Standard English. Gosden et al. (1992) in their study found that the most often problem with papers written by researchers from non-English speaking countries is related to unfamiliarity with the codes of international scientific communication, such as inability to communicate the importance and the relevance of research, not knowing the written and unwritten "rules of the publishing game" and lack of competence in social communication. Clearly, this problem is more acute in non-European/less developing countries than in Europe where educational systems require foreign language skills training. In addition, there is often no provision, such as writing and editing services, to help academics improve the structure and readability of their papers. It is evident that lack of writing proficiency, particularly as it relates to limited English language vocabulary, poor grammar and unfamiliarity with sophisticated terms and expressions undermine the academics' desire to write in English. Finally, poor technology infrastructures in developing countries, including disruptive and low speed internet connection, censorship as well as lack of access to many scientific databases and services add to the frustration of academic search and writing. However, as Salager-Meyer (2008) suggests, an efficient information technology system requires vast resources and expertise, something that developing countries do not have.

The essence of two other sets of barriers, namely organizational culture and cooperation with the national and international scientific community, is the lack of *participation*, specifically as it relates, on one hand, to dominated university culture which is hostage to inefficient central planning and bureaucracy and restrict control, and on the other, dominated culture in the wider society which is highly politicized and polarized. Interestingly, this is in clear contrast to common perception of collectivist nature of occidental cultures, namely Iranian culture (1980). Javidan and House's (2004) research found that Iranian culture is characterized by "close circle or in-group trust", meaning that trust as a tenet of teamwork and collaboration in Iranian society is limited only to close family members and relatives. Clearly, this societal attitude puts Iranian scientists in a huge disadvantage in voicing their views and opinions in academic discourses and scientific development.

Finally, respondents seem to believe that it is the non-controllable barriers that are critical in their reluctance to publish in ISI journals. Perhaps, the most important of these barriers is the nature of social/humanity sciences that not only requires a much greater degree of proficiency in English language, due to the complexity and multi-dimensionality of social science contents, but more importantly the fact that they deal with highly sensitive and controversial issues in politics, religion and culture (O'Donohue and Redding, 2009). This seemingly insurmountable barrier often leads to some kinds of self-censorship when social scientists write for national or international readership. Another barrier is related to the topics that social/humanity scientists in developing countries may be interested in and write about, but have little or no global readership. These papers are often rejected outright by journal editors or reviewers. Finally, in the case of Iran, there are also security concerns. For example, Iranian social scientists over the last few years have been faced with various restrictions in their academic work due to the UN sanctions and other sanctions imposed by western governments on Iranian organizations, and a number of Iranian government retaliatory actions on scientific collaboration and exchange programs as well as travel restrictions to attend international conferences. Such wide and diverse uncontrollable barriers have created an atmosphere of suspicion, distrust and doubt to the extent that some scientists in Iran tend to take a conservative view by "playing it safe" and thus avoid publishing in international journals. A detrimental effect of such a charged political and ideological climate is deep, incalculable and unpredictable.

5. Conclusion

There is little doubt that Iranian government with its development targets in mind, particularly its vision of becoming the top ranking country in region in terms of scientific, technological, political and social development in 2025, has been instrumental in encouraging academics to publish papers in ISI journals. The key government initiatives include financial and promotional incentives for academics with papers published in ISI journals, development of higher education sector, establishment of science and technology parks and research centers, allocation of research budgets or financial incentives to organizations, emphasis on joint university-industry projects, and development of science and technology in key strategic sectors, such as aerospace, nuclear science, and medical sciences.. However, this country, despite its considerable advances in science and technology in the past decade, has made very little

progress in social science fields, including the number of papers its scientists have published in ISI journals (ISI, 2010). This underdevelopment seems to have financial, administrative and political causes (Kuhnen, 1987). The financial causes include lack of resources as the result of public/foreign debts and budget deficits, unattractiveness of allocating budget in social/humanity science research that has low rate of return in short to medium term, and weak research culture in higher education institutions. The administrative causes are related to centralized planning, highly inefficient bureaucracy and unstable or incompetent management. Finally, the political causes include international sanctions, government control/restrictions, isolation from the world academic community, and politically-charged universities atmosphere. These causes are all important and thus should be attended to if a country intends to raise its profile in scientific contribution and position in the community of nations, but as the findings of this research revealed, when uncontrollable causes and exceptions are put aside, it is likely that the ability to write scientific papers in a standard foreign language that has the greatest effect on academics' decision whether to publish in ISI journals. The results show that social/humanity scientists in the university under study do attend and present papers in international conferences where the medium of writing and presentation is in a foreign language, meaning that they are semi-proficient in writing in a foreign language and "can-get-by" in a 10 to 15 minutes of oral presentation or even answering some questions. The experience of participating in such international forums has a decisive effect on encouraging academics to write papers for international journals.

To reduce or remove the barriers to publish in ISI journals, as identified in this paper, it is recommended that a *translation unit* in universities or faculties is established to translate academic papers entirely or edit the draft of their papers. The staff at these units should not only be professional translators with extensive experience in translating academic papers, but also have typing and computer skills to prepare scientific papers to the standard required by ISI journals. Further, faculty members with command in the language the papers are written in should assist the authors on the structural and grammatical aspects of their papers. A similar program, named Author AID, has been set up by a Canadian consortium, providing developmental editing assistance for inexperienced and "would be" authors from developing countries, who want to publish their health-related research in widely read (English-medium) journals (Robbins and Freeman, 2007). The cost of such services should be borne by both the university and the academics. While the university can justify allocating fund for such a service on the development ground, academics can use part of financial rewards they receive from publishing papers in ISI journals to pay for translating or editing services. However, the real problem is to find suitable staff for such units, as there are very few people who have the necessary foreign language skills to meet the requirements of such a demanding job. Ironically, the only place that recruitment of such skilled people is possible is within the universities, namely foreign languages departments, where there are plenty graduates who have the core competence to write in at least one foreign language and are eager to find employment within their own university. A combination of good education, training and experience will make these new recruits competent and professional to do their job well. However, despite praiseworthiness of these programs, some critics suggest that the translating/editing services may support and strengthen linguistic imperialism (Swales, 2000) and standardization of Anglo-American academic rhetorical practices (Mauranen, 1993; Phillipson, 1992).

Furthermore, *training* of social/humanity science academics in acquiring computer, writing and research skills should become mandatory. Academics should be able to work with Microsoft Word, Excel, and PowerPoint, SPSS, internet and database surfing, paper writing and research methodology and statistical analysis. If academics training programs in these areas are planned early in their employment and they are given credits for their attendance and successful completion, some of the major barriers that they consistently encounter in research and paper writing and preparation, will be removed or substantially reduced. Finally, collaboration within and across universities and with international scientists in undertaking joint research and co-authorship should be encouraged and expanded. The research shows that there is a positive relationship between academic co-authorship and quality and quantity of papers published in international journals (Bayer and Smart, 1991; Stokes and Hartley, 1989; Rumsey-Wairepo, 2006). Governments can promote collaboration among scientists through joint university-university research projects or grants, incentive schemes for co-authorship, particularly with international researchers, and removal of barriers to attend international conferences and sabbatical postings. Individual academics, on the other hand, should actively seek the collaboration of other researchers in their field of expertise both inside and outside of their own country through identifying potential collaborators at conferences, inviting respectable researchers to review their papers and offering them joint-authorship, and forming intra-departmental and inter-faculty research and co-authorship teams.

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