Translational Social Science and Humanities Research in Malaysia

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Abstract

Research outputin Malaysia is shown through publications, funding, intellectual property and knowledge transfer. This paper studies the issues of translating knowledge of social science and humanities research into beneficial products. Data is gathered from primary and secondary sources. The findings show slower output and fair amount of publications, reasonable funding for research, lack of quantified knowledge translation between universities and industry, and relatively new research culture. Conclusively, more effort is needed to translate research into practice for social science and humanities research in Malaysia.

Keywords: Translational research; social science; humanities; research to practice

1.0 Introduction

The progress of Malaysian research could be tracked through products of research projects, namely: publications, grants, knowledge translation and intellectual properties (Ahmad et al., 2013). Universities and research institutions have the responsibility to enhance their research and innovation activities in accordance with the government plan towards knowledge based economy. A research isdeemed successful when the explicit and tacit knowledge derived from the research are applied to benefit society.

In Malaysia, the outcomes of medical, science and technology research translated into products that benefit the society are much publicised (Scopus, 2013; Web of Knowledge, 2013). However, there appears to be disconnections between social science and humanities research such as environmental behaviour research with the practice (Fernando, 2013; Khan, 2013; Lawson, 2013). The outcomes of social science and humanities research may not be in the form of physical products or published papers but rather in terms of unpublished policies and guidelines (Spencer, 2010; Uzzel, 2011; Ahmad, 2012). Henceforth, this paper aims to look into the issues involved in translating knowledge derived from the social science and humanities research into beneficial products for the society.

2.0 Literature Review

Translational research has always been associated with biomedical research. The National Institute of Health (NIH), defined translational research as "bench to bedside and back" (Schaffer, 2008) to bridge the gap between scientific discoveries and the application of these discoveries to improve the public's quality of life (Brekke et al., 2007).

In 2003, translational research wasthe top priority for the NIH intramural programme,which called for better contact between the medical research labs and clinics (Schaffer, 2008). Basically, translational research acts to make a connection between scientists and clinicians by translating fundamental knowledge into successful treatments.

2.1 Translational research in social sciences and humanities

According to Woolf (2008), the term translational research has been narrowly defined. If the outcome of translational research was to improve the society's quality of life, then the first part of translational research should include a wider context of sciences associated to the populace including economics and behavioural sciences. Furthermore, Brekke et al. (2007) defined translational science for social work and proposed a translational conceptual model and schedule activity for social work, which can be the driver for translational research agenda. In social science and humanities, the outcomes of translational research would benefit society through the development and application of better policies, programmes and initiatives (Busnaina et al., 2007).

2.2 Knowledge translation

Knowledge translation (KT) is defined as "knowledge utilization and knowledge exchange" (Jacobson et al., 2003). Knowledge transfer is also known as "transferring knowledge into action" (Ward et al., 2009). KT has continually existed in social science and humanities research in terms of knowledge dissemination through expert consultations in specialised areas of knowledge. These knowledge may not be accessible to the general public; hence the outcome cannot be quantified in terms of publication or intellectual property.

Ward et al. (2009), proposed a synthesis of 28 frameworks for knowledge transfer with five major components, namely "problem identification, knowledge development; analysis of the context, KT interventions and knowledge utilization" (Figure 1). This framework would also support the KT process for social science and humanities research.
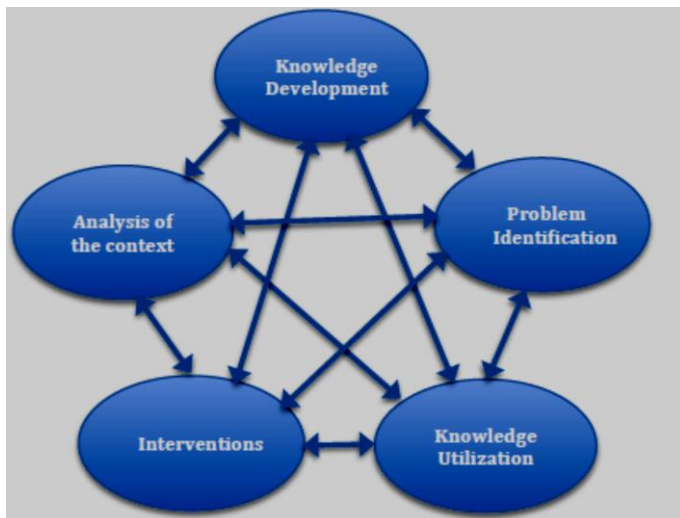

Figure 1: Conceptual framework for knowledge transfer process with five major components
(Source: Ward et al., 2009)

3.0 Methodology

This study is mainly a review of secondary data on the specified parameters of research output with focus on social science and humanities research output. Data for academic publication is derived from recognised indexed publication portals such as SCImago, Scopus and Thomson Reuters' Web of Knowledge, mainly from its Social Sciences Citation Index and the Arts & Humanities Citation Index. Data of funding, intellectual property and patents as output of research are gathered from questionnaires, published reports from

universities, the Ministry of Science and Technology, the Ministry of Higher Education and various government agencies as a methodology. The data is compiled, and trends in research output are analysed.

4.0 Results and Discussions
The development of social science and humanities research is normally gauged through research indicators, namely, publication, funding, intellectual properties (IPs) (including innovative products), and knowledge transfer.

4.1 Publication
Globally, between 1996 and 2011, the performance of social science and humanities research in publication has been slowly increasing. From the global total of 23.4 million citable documents, 1.1 million (1,101,042) documents or 4.3% were from the social science and humanities area. In the same period, the US has a total of 5,885,041 citable documents (SCImago, 2013). In the Asiatic region, a total of 724,239 articles were published; of which 84,502 articles or 11% were categorised as social science and humanities.

Malaysian researchers published 82,425 articles (out of the 23.4 million publications worldwide) and only 2,862 were classified as social science and humanities which account to 3.5% (SCImago, 2013). When the categories of business, management and accounting were combined with SSH, the total percentage of the non-science and technology publications rose to 5.2%.However, another 4.8% of the publications came under multidiscipline category, which may comprise of some social science research. These percentages fell below the Asiatic average of 11% ratio for social science and humanities articles over the Asian publications.

Hence, although the number of articles is slowly increasing, only a small percentage (3.5%) of Malaysian publications is in the area of social science and humanities. In the next section, the relationship between research funding and publication is explored.

4.2 Research funding and expenditure
Malaysia's gross expenditure in research and development (GERD) has increased steadily for the past twelve years. The percentage of GERD divided by the gross domestic production (GDP) has almost quadrupled from 0.22% in 1996 to 0.82% in 2008 (Table 1). In 2007, the Asian average ratio of GERD/GDP was 1.6% in 2007 (UIS, 2010). Meanwhile, the OECD (Organisation for Economic Co-operation and Development) twenty countries' GERD average was 2.3% in 2011 (OECDiLibrary, 2013).

Table 1: National R&D expenditure by sector, 1996-2008

	1996	1998	2000	2002	2004	2006	2008
R&D Expenditure (RM Million)							

Total GERD	549.3	1127	1671.5	2500	2843.7	3646.7	6070.8
Ratio GERD/GDP (%)	0.22	0.39	0.50	0.69	0.63	0.63	0.82
GRI	108.7	247.3	417.5	507.1	296.9	189.5	603.1
IHL	40.4	133.6	286.1	360.4	513.3	360.8	1188.3
Business Enterprise	400.1	746.1	967.9	1633.1	2033.5	3096.4	4279.4
Proportion of R&D Expenditure (%)							
GRI	19.8	21.9	25.0	20.3	10.4	5.2	9.9
IHL	7.4	11.9	17.1	14.4	18.1	9.9	19.6
Business Enterprise	72.8	72.8	57.9	65.3	71.5	84.9	70.5

(Source: MOSTI, 2012)

The Institute for Management Development (IMD) WCC's World Competitiveness Yearbook 2012 gave a slightly lower figure of Malaysian GERD/GDP at 0.79% for 2010 and ranked Malaysia at 42th place out of 59 countries (IMD, 2012). The Malaysian government aimed to increase GERD to 1% of GDP by the end of the Tenth Malaysia Plan in 2015 (EPU, 2010).

However, the extend of funding for social science and humanities research could not be captured from Table 1 as it only shows the figures for overall funding without any breakdown of the research cluster. Most of the funding for Malaysian social science and humanities research came from the Ministry of Education (MoE) under the Research Grant Scheme (RGS) and the Ministry of Science Technology and Innovation (MOSTI) under the Science Fund. FRGS is the biggest grant scheme offered by MOE. Table 2 summarises the FRGS approval statistics according to research cluster between 2011 and April 2013.

The amount of funding given to social science and humanities between 2011 and 2013 was RM32.5 million per total funding of RM178.59 million. In terms of percentage, SSH funding came to almost 18%, which was higher than the country's percentage of SSH publication at 3.5%. Thus, funding for SSH did not equal the publication output.

The average success rate of FRGS application for SSH was 27.5% over the total average of 24.2%. This shows SSH proposals were as competitive as the other applications. Further investigation is needed to find ways to mitigate this inconsistency.

Table 2: FRGS approval statistics according to cluster (2011-2013)

Cluster	FRGS 2011-2013			
	# of Apps.	Approved	Amount (RM mil)	Success rate%
Pure Science	750	200	18.91	26.7

Applied Science	1572	365	35.8	23.2
Technology & Engineering	3037	545	48.4	17.9
Health Science & Clinical	862	137	16.61	15.9
Social Science	1490	406	19.57	27.2
Arts & Applied Arts	1007	238	12.93	23.6
Natural Sc.& Nat'l Heritage	842	220	21.01	26.1
ICT	212	69	4.84	32.5
TOTAL	9772	2180	178.07	24.2

(Source: MOHE, 2013)

4.3 Intellectual property

According to MyIPO (2012), intellectual property (IP) is classified into three, namely trademarks, patents and industrial designs. In 2012, the trend for trademarks and industrial designs applications increased by 10.6% and 11.3% respectively from the previous year as shown in Fig. 2. Meanwhile, there was increasing trend for patents applications from 2008 onwards with 7.1% growth in 2012. According to World Intellectual Property Organization (WIPO) reports, these increasing trends since 2010 were considered as remarkable, considering the instability of the world economy in recent years.
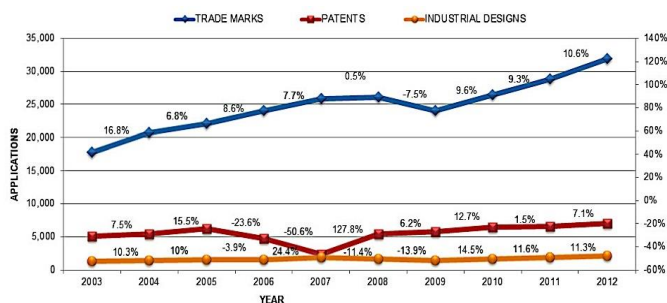

Figure 2: IPR applications and growth 2003-2012
(Source: MyIPO, 2012)

There are eight sections for patents granted according to the International Patents Classification, for patent applications. Since 2002, section C, Chemistry and Metallurgy, has been receiving the most number of patent applications. The lowest applications for patents came from section D, textiles and paper (Table 3).

Table 3: Patents granted 2012 according to the International Patents Classification

YEAR	SECTION								Total
	A Human necessities	B Performing Operations	C Chemistry; Metallurgy	D Textiles; Paper	E Fixed Constructions	F Mechanical Eng.; Lighting; Heating; Weapons; Blasting	G Physics	H Electricity	
2000	61	59	110	8	19	42	36	70	4051
2001	155	233	288	18	44	102	231	399	,4701
2002	206	236	334	19	42	104	228	323	,4921
2003	224	242	396	28	38	119	190	341	,5782
2004	325	377	625	25	50	132	321	492	,3472
2005	333	452	600	30	82	164	316	531	,5086
2006	948	1,155	1,275	101	197	448	1,042	1,583	,7496
2007	1,179	1,213	1,748	109	221	407	883	1,223	,9832
2008	423	421	451	33	98	159	293	364	,2

Year									Total
2009	656	633	837	53	119	185	488	497	3,468
2010	364	390	599	22	75	125	274	328	2,177
2011	404	402	693	28	90	126	283	366	2,392
2012	445	424	722	25	72	101	328	384	2,501
TOTAL	**5,940**	**6,391**	**9,108**	**511**	**1,187**	**2245**	**5,008**	**7,040**	**37,430**

(Source: MyIPO, 2012)

These classifications show no obvious indicator for social science and humanities patents andreflect engineering and science and technology (S&T) products. Even section A, Human Necessities, relates to S&T products. Hence, using MyIPO's definition, the output of SSH research under IP is unclear. This could be due to SSH research products not being sent for IP registration as they could be in a form of policies and guidelines.

4.4 Knowledge translation

Malaysia's standing at 17th position over 144 countries for innovation capacity in global ranking was admirable (Schwab, 2012). As for university-industry collaboration on R&D, Malaysia fell at a worthy 16th position (Table 4).   Most admirable is that the government procurement of advanced technology is reported at fourth position globally.

Table 4: Malaysia's innovation capacity in global ranking, 2012-2013

Indicator	Rank/144	Value	Mean Score
Capacity for innovation	17	4.6	3.3

Quality of scientific research institutions	28	4.9	3.8
Company spending on R&D	16	4.7	3.3
University-industry collaboration in R&D	18	5.0	3.7
Gov't procurement of advanced tech products	4	4.9	3.6
Availability of scientists and engineers	20	4.9	4.1
PCT patents, applications/million population*	34	9.6	-

*Notes: Values are on a 1 -to -7 scale unless otherwise annotated with an asterisk (*)
(Source: Schwab, 2012)

However, empirical data on the quantity of knowledge translation from research to practice for social science and humanities research has not been published nor made accessible. Closer to home, the MoE launched the Knowledge Transfer Programme in 2011. This programme's objective was to encourage the transfer of knowledge by exchanging of ingenious and state-of-the-art research outcomes and expertise between stakeholders, such as universities, industries and the community (PSPTN, 2011). This programme is now on its third cycle; funding researchers to bring their research findings closer to the industry and the community.

4.5 Research culture
Malaysia is fairly a young country in terms of research experience when compared with other developed nation. The drive towards research development and innovation excellence in Malaysian universities was only felt since the onset of the research university programme in 2006. Four universities, namely UM, UTM, USM and UPM, were designated as research universities that came with increased research funding.

Three years on we observed a rise in research publications from these universities. Three quarters of Malaysian publications this past decade came from the research universities. Research programmes sponsored by various government ministries also played a role to inculcate research culture in Malaysian universities for the past 20 years. In lieu of the government's commitment to increase GERD to 1% by 2015, it is expected that the Malaysian research culture in all areas of research including the social science and humanities will prosper.

5. Conclusion
The findings showed three main issues: the first was the rather low social science and humanities publications, namely at 3.5% of the national publication output. Secondly, there

were reasonable amount of funding where SSH researchers had to equally compete with other researchers. However, the amount of money spent on research over the national GDP should at least double the current ratio of 0.82%. Thirdly, there was a lack of quantified knowledge translation between universities, industry and community. A missing link exists, as it is very difficult to capture data on the output of SSH research especially under knowledge translation.

Improved knowledge translation and research to practice activities are expected within the next ten years as the research culture itself is still being inculcated at the universities. In summary, more funding and effort is needed to translate research into practice for social science and humanities research in Malaysia.

Acknowledgement

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