Perception of Research Culture among Undergraduate Students in a Malaysian Public University

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Abstract

Studies on research culture often focus on how administrators and academics inculcate this culture and what impact it has on undergraduates. Evidently, literature information on undergraduates' perception of university research and publication agenda is lacking. Considering the fact that the campus community comprises largely of an undergraduate population and their activities, facts and conjectures alluding to research culture can be misleading without the views of undergraduate students. The study investigated the perception of research culture among undergraduate students in a Malaysian public university. The objectives of the study were to examine the students' awareness of the research culture of the university, ranging from the research culture of the university as per the lecturers to the research reputation of the university. A survey was carried out using questionnaires incorporated within the e-learning platform (Morpheus) of a taught course on scientific communication. The analysis of questionnaire data from 56 students showed that undergraduates are more aware of research than publication matters. They do not think that good research correlates with better teaching. Local students are also indifferent to issues of university ranking. Our findings provide the basis for rethinking and deriving more accurate explanations of research culture appreciation in local public universities.

Keywords: *Perception, research culture, undergraduates*

Introduction

The research agenda in a university is a major concern of academics, and to a certain extent, university administrators. It is deeply rooted in the "ivory tower" paradigm whereby higher learning institutions embody the tradition of intellectual pursuits at the highest level. This pursuit, many academics believe, places them as purveyors and custodians of knowledge mainly acquired from evidence-based studies. The practice of this belief is often translated as an inculcation of research culture. Intrinsic to this culture is the activity of publication in academic journals and/or books. Comprehensively, a research culture connotes the tradition of understanding natural phenomenon using published and refutable empirical findings, rather than experiential knowledge or common sense (Mnookin et al., 2011).

Research culture appreciation is commonly assumed for academics and university administrators. However, whether undergraduate students influence this culture, and how they are affected by it, is poorly studied (if at all). For instance, discussion on the creation of a research community that can foster educational scholarship via a scientific culture emphasises the participatory roles of researchers (academics), and administrators only (Feuer, Towne, & Shavelson, 2002). When ethical standards and values for this culture were discussed, the relevant stakeholders targeted ranged from researchers to journal editors (Nosek et al., 2015), but not students. In a report on unhealthy elements that have permeated this culture (Shi & Rao, 2010), consideration of effectors and those affected did not include students. An investigation on elements of research culture in undergraduate programmes (Garde-Hansen & Calvert, 2007), including "deep" reading strategy versus plain information literacy (Cain, 2002), lacked a consideration of the students' viewpoint on the strategy. Studies to explain relationships between research culture and effective teaching of undergraduate courses are not unprecedented (Hattie & Marsh, 1996; Marsh & Hattie, 2002; Sim, 2010; Anderson et al., 2011). Nevertheless, these efforts had instructor-centred implications, and did not address the students' point of view. It is clear that in the context of academia, the understanding of research culture situates students as outsiders. Considering the fact that the campus community comprises largely of an undergraduate population and their activities, facts and conjectures alluding

to research culture can be misleading without the views of undergraduate students. Currently, the definition of university research culture anchors on the viewpoint and experiences of academics and administrators. This is an irony, since they represent the minority portion of stakeholders.

The marginalisation of students from university research culture is questionable when they represent the largest proportion of internal stakeholders. Since it has been argued that research and teaching are mutually inclusive, and each functions more effectively when in collaboration (Anderson et al., 2011), addressing and studying the connection of students with research acculturation in university is necessary. This paper provides novel empirical findings on this issue, and enhances the understanding of university research culture appreciation.

Purpose of Study

The study investigated the perception of research culture among undergraduate students in a Malaysian public university. The objectives of the study were to examine the students' awareness of the research culture of the university, ranging from the research culture of the university as per the lecturers to the research reputation of the university.

Methodology
Study Participants

The respondents (n = 56) were second year undergraduates at the Resource Biotechnology programme of the Faculty of Resource Science and Technology, Universiti Malaysia Sarawak – a comprehensive public university. They were the cohorts that enrolled in a scientific communication course in 2015.

Survey Instrument

The students filled in a survey questionnaire via the university online e-learning platform, Morpheus. The survey consisted of two questionnaires. The first questionnaire consisted of 10 items (Table 1), and intended to gauge students' perception of research culture prior to being taught the subject matter. Items 1 to 7 of the questionnaire gauged students' knowledge of research and research communication. Items 8 to 10 were on the students' awareness of the research culture of the university, ranging from the research culture of the university as per the lecturers to the research reputation of the university. The second questionnaire consisting of 10 items explored the students' understanding of the academic publication agenda in the university (Table 2). Items 1 to 5 and Item 9 gauged the students' perception of the publication culture, while Items 6, 7, 8 and 10 were on the research culture of the university according to the lecturers. Questions on the research culture of the university as per the lecturers in both questionnaires were adapted from Sim (2010).

Both sets making up the questionnaire sought either a positive (yes) or negative (no) response for every item. Students' participation in this survey was on a voluntary basis. Altogether 56 students participated in the survey: 25 filled in the first questionnaire, and 31 filled in the second questionnaire.

Data Analysis

Data were recorded and tabulated for both instruments using the Microsoft Excel (Office version 2013) software. Percentages of yes and no responses were calculated. Results are analysed and presented using descriptive statistics. Generation of a 100 percent Stacked Bar Chart was carried out using the same software. Tables 1 and 2 show the results from the two questionnaires. The results were further analysed and presented according to two categories. The first category (Figure 1) pertained to the intrinsic concerns, as in the students' perception of the research culture, comprising items 1 to 7 of the first questionnaire and items 1 to 5, and 9 of the second questionnaire. The second category of the results (Figure 2) pertained to extrinsic concerns ranging from the research culture of the university as per the lecturers to the research reputation of the university. For this purpose, items 8 to 10 of the first questionnaire were put together with items 6 to 8, and 10 of the second questionnaire.

Results

The first part of the survey (Table 1) indicated that a majority (76%) of the students could not clearly define research prior to being taught about it. A larger majority (92%) were ignorant of proper research communication. By comparison, more students claimed to lack competency in research communication rather than research itself. This observation was expected since 96 percent of the respondents did not receive any form of formal training on the subject matter (research and research communication) before this. Interestingly, many of the respondents (72–80%) had heard of research before they entered university, but had poor understanding of it (items 4 and 5, Table 1). Likewise, most of them (84–92%) were aware of technical reports, theses, or journal papers prior to university education, but did not use or read them (items 6 and 7, Table 1).

On the students' perception of their lecturers, a notable majority (88%) knew that academics were meant to play an active role in research, and that this was not less than their teaching responsibilities (item 8, Table 1). In fact, 72 percent of respondents would assess the research credentials of lecturers when choosing supervisors for their final year research projects. However, when it came to the reputation of the university as a whole, students were impartial. Eighty percent of respondents did not care about institutional ranking (QS World University Ranking) *per se* when choosing their university-of-choice (item 9, Table 1).

Table 1. Items and Survey Data of First Questionnaire

No.	Items in Questionnaire	Yes	No	% Yes	% No
1	I have a good idea of what scientific research means before attending this course.	6	19	24	76
2	I already know how to write scientific report and thesis, and also how to present research data before attending this course.	2	23	8	92
3	Before attending this course, I have already received formal training in research methodology and scientific communication.	1	24	4	96
4	I have NEVER heard of scientific research before coming to this university.	7	18	28	72
5	Before coming to this university, I have heard of research but do not know what it means.	20	5	80	20
6	I have NEVER heard of a research thesis/report/paper before coming to this university.	2	23	8	92
7	Before coming to this university, I have heard of research thesis/report/paper but do not know what they are.	21	4	84	16
8	Before coming to this university, I am aware that university lecturers have to do research besides teaching at the university.	22	3	88	12
9	I considered the research capability of this university via studying information on QS World University Ranking in the internet when I was choosing which university to apply to.	5	20	20	80
10	I would consider the research credentials of lecturers before choosing which one to be my supervisor for final year research project.	18	7	72	28

While most of the students (92%) knew about the existence of research communication media (thesis/report/paper) (item 6, Table 1), almost none was aware of publication quality. Only two of the 31 respondents knew about the peer-review process (item 1, Table 2). One student was aware of the journal indexing system prior to formal training (item 2, Table 2). However, after being taught, 70 percent of the students were conscious of the journal impact factor (item 3, Table 2). Despite this, less than 50 percent could discern the different categories of journals (item 3, Table 2).

Research impact of academics based on citation records (*h*-index) was a concern to only a minority group of the student (13%) (item 5, Table 2). In contrast, 84 percent knew of Google Scholar Citations (item 9, Table 2), but only 39 percent would use it to check the research credibility of their lecturers (item 10, Table 2). In spite of this, students were generally aware that research activity was essential among lecturers (item 8, Table 1). They were certain (100%) that scholarship attributes of

lecturers entailed a publication culture (item 6, Table 2). Many (81%) were also aware that research and publication could influence the career advancement of lecturers. Nevertheless, only 58 percent of respondents were willing to consider the competency of a lecturer based on the publication record (item 8, Table 2).

**Table 2.** Items and Survey Data of Second Questionnaire

No.	Items in Questionnaire	Yes	No	% Yes	% No
1	Before attending this course, I already know the meaning of refereed and non-refereed journals.	2	29	6	94
2	Before attending this course, I know the meaning of indexed and non-indexed journals.	1	30	3	97
3	Now I fully understand the different categories of scientific journal to the extent that I can explain them well to others.	15	16	48	52
4	I know about journal impact factor and what it implies.	24	7	77	23
5	I know about h-index and what it implies.	4	27	13	87
6	I am aware that lecturers are not just university teachers but also need to do research and publish their research findings in academic journals.	31	0	100	0
7	I think lecturers do research and publish in order to improve their resume only, and these activities do not affect their career development in university.	6	25	19	81
8	I consider a lecturer good in his/her job if he/she has a good publication record.	18	13	58	42
9	I know about Google Scholar Citation, and what it implies.	26	5	84	16
10	I often check out the Google Scholar Citation records of the lecturers who have taught me before.	12	19	39	61

When the data were re-categorised to differentiate between intrinsic (self-concern by students) and extrinsic (external concern to students) factors, 13 (Figure 1) and 7 (Figure 2) issues were grouped to represent the intrinsic and extrinsic factors, respectively. It was found that an intrinsic reaction of ignorance on research culture was prevalent prior to formal training, despite an awareness before entering university (items 1 – 9, Figure 1). Students also admitted that formal training did not give them competency in defining different types of journals (item 10, Figure 1). In terms of publication quality, the students knew about the journal impact factor (item 11, Figure 1), and how to check them (item 13, Figure 1). However, the issue of their lecturers' h-index was not a concern for them (item 12, Figure 1).
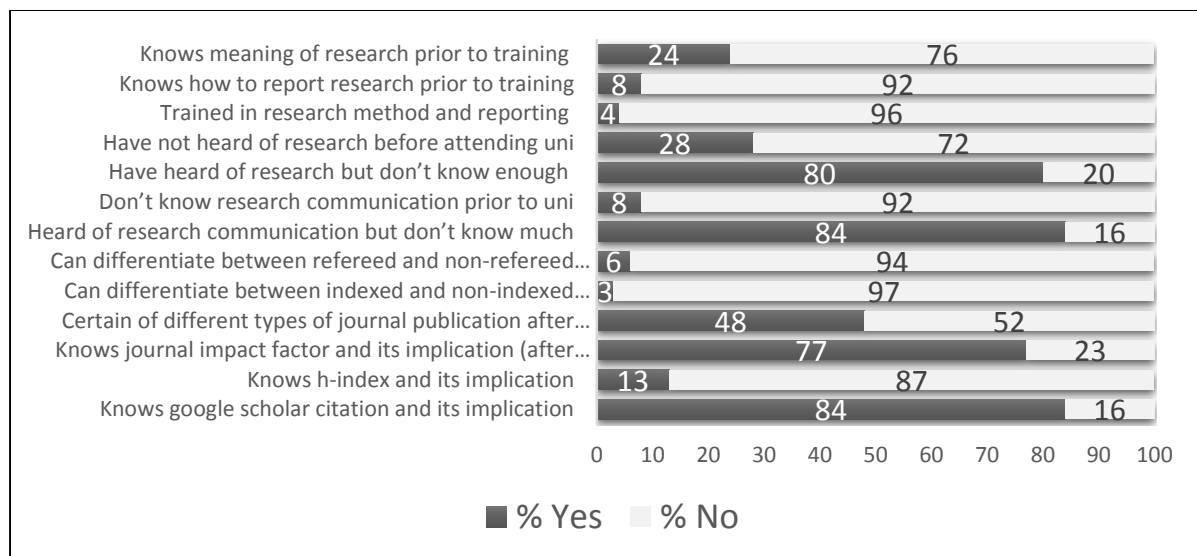
Figure 1. 100 Percent Stacked Bar Chart of Intrinsic Concerns in Students' Perception of Research Culture

Results on extrinsic factors indicated that the lecturers' involvement in research culture for the organisational and personal benefits was acknowledged by students (items 1 – 3, Figure 2). They (students) also considered research-active lecturers as effective supervisors (item 5, Figure 2). Interestingly, only 58 percent of students thought that a lecturer's research capability was aligned to job competency (item 4, Figure 2). In fact, only a minority of students would check the citation impact of lecturers (item 6, Figure 2). In addition, only 1 of 5 students considered the world ranking of the universities when choosing their place of study (item 7, Figure 2).
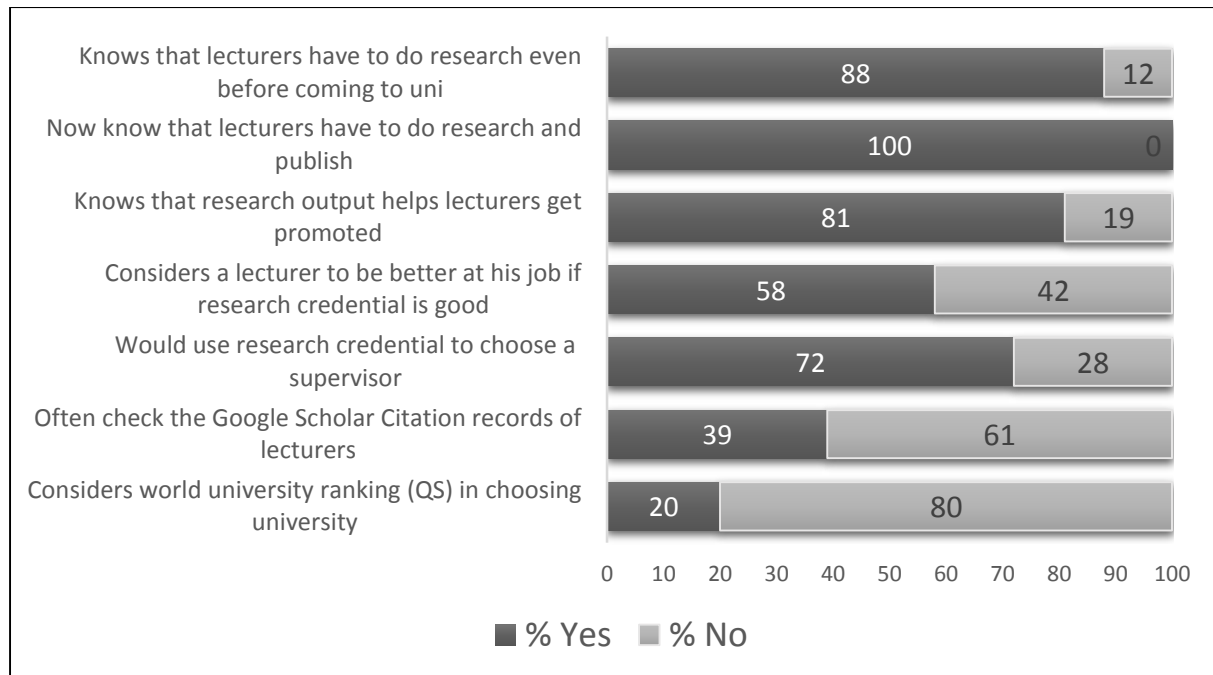
Figure 2. 100 Percent Stacked Bar Chart of Extrinsic Concerns Ranging from University's Research Culture as per Lecturers to University's Research Reputation

Discussion

First and foremost, this study revealed that students were aware of research activity in academia even before they entered university. However, their knowledge on this matter was superficial. They were unable to accurately define research culture. Although this was expected, the more interesting issue here was how they knew of research prior to participating in university education. It is generally assumed that the university research agenda is beyond the knowledge and concerns of those who have yet to attend tertiary education. Disconnection between the public and scientific research is a common observation that has been explained to be largely due to the neglect of the general public by the scientific community (Wynne, 1992). Nevertheless, the findings in this paper refute this assumption albeit for reason(s) that are unclear. Did the students hear about research in school, at home, or via mass/web media? Unless proven otherwise by future research, at present and within the limits of this study, it seems that pre-university students are somewhat informed on the fact that universities also function as research hubs.

Formal instruction has limited effectiveness in empowering students with the ability to evaluate publication quality, and their lecturers' credibility in these matters. Perhaps, without direct involvement, it is challenging for students to fathom the academic publication process and associated quality control. Taught courses somehow failed to provide a satisfactory foundation. Exhaustive literature search has not found any similar or related report elsewhere. Hence, our findings on this are novel. Interestingly, this study also provides the first empirical evidence that students are more knowledgeable on the journal impact factor than on the *h*-index system. The reason(s) for their

differential comprehension between the two citation-based quality metrics of academic publication is unclear until further research is done.

The opinion of students on the research culture among lecturers was somewhat mixed. Firstly, they readily perceived lecturers to be actively involved in research, more so when they were already in a university environment – a finding corroborated by a previous study (Sim, 2010). Their preference for research-active academics as supervisor attests to their belief in the beneficial implication of such educators. Nevertheless, most students were not fully convinced that an active researcher equates with a competent educator. The argument that teaching and research excellence represent independent constructs that do not necessarily complement one another is not unprecedented, and has been strongly suggested (Hattie & Marsh, 1996; Marsh & Hattie, 2002). However, it has also been argued that placing research and teaching as two separate constructs in the university context is questionable and artificial, where in fact, research and teaching should be two intermingling activities in a single facet of erudition (Anderson et al., 2011). Despite this, the results from this study still support a distinction between research and teaching excellence, as far as students' perception is concerned. In fact, students were not interested to check their lecturers' publication standing via Google Scholar Citations. It seems that for them, research activity was not the main criterion that indicates competency of academics. Indeed, a previous study revealed that students perceived oratory or delivery/presentation skill (rather than research excellence) as a foremost criterion that characterized a good lecturer (Sim, 2010). The irony here is that students may seek a research-enriched educational environment but reckon that a good learning experience is not necessarily facilitated by research-active educators.

Lastly, a noteworthy point was the students' general indifference towards the ranking of universities as one of the reference criteria for their university-of-choice. The reason to this is unclear for now. Could it be due to their ignorance of world university ranking system? Further studies are required to investigate whether this observation is nationwide, and only a Malaysian phenomenon? A study of factors that influence university-of-choice among prospective undergraduates in Australia found that priorities between different applicants vary significantly, and the only reliable determinant of choice was the preferred field of study (James, Baldwin, & McInnis, 1999). To the undergraduate, therefore, university ranking based on overall reputation may not be as important as how well the university fared in specific programmes of study. Whether a similar scenario is relevant for Malaysian students remains to be studied. In the context of research culture, it seems that local students were only appreciative of a research environment which focused on credibility of lecturers as research project supervisors. A more extensive manifestation of this culture towards the standing of their university was unimportant to them.

Conclusions

Malaysian undergraduate students at a public university in Sarawak were attuned to the university research culture albeit to a superficial extent. They were less familiar with academic publication matters despite knowing about some associated quality measurement systems. These students recognised the mandatory role of university educators in research and publication activities, and preferred research-active supervisors. In contrast, they were impartial to the research and publication standing of lecturers, and did not associate research culture as part of a pedagogical ethos. University reputation was also not important for students at this location in Malaysia. The limitation of this study is that it is conducted in a comprehensive university rather than a research university. In addition, this type of research was not conducted in private universities. Similar investigation in these types of universities would provide a more complete scenario of university research culture in Malaysia.

Acknowledgment

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