

GRADUATE'S PERCEPTION OF THEIR RESEARCH EXPERIENCE: EVIDENCE FROM A PUBLIC UNIVERSITY OF BANGLADESH

Nowreen Yasmin

Research Associate, M.Sc., BRAC Research and Evaluation Division, BANGLADESH,
nowreenyasmin@yahoo.com

Abstract

This paper aims at exploring graduate students' research experience by investigating into their perception about different aspects of their pursuing research in a public University of Bangladesh. With response to that aim, it explains graduates' experience in six different aspects which together construct an effective research experience: a model proposed by Keith Trigwell and Harriet Dunbar-Goddet in 2005. It combines all the relevant findings from a rigorous quantitative study conducted with a sample of 101 graduates of that public university who graduated in the year of 2015 and 2016. Results ascertain that students' perspective of research experience is generally favourable and positive for four out of the six aspects. Additionally, considerable differences in perception were found with respect to different socioeconomic background of the students. Furthermore, overall student satisfaction with their experience for conducting academic research as graduates is found linked with some particular factors in juxtaposition with quality of thesis supervision, facilities and infrastructure of the university. Positive agreement on the availability of those factors significantly generates higher satisfaction with overall research experience. Therefore, the findings provide the evidences to initiate appropriate management strategies by the university administration with a view to facilitating students' research experience during graduate program. Additionally, the study introduces an effective approach evaluate research students' experience that combines both evaluation of the research facilities and scholastic actions.

Keywords: Research experience, Graduate's perception, university management, higher education, Bangladesh.

1 INTRODUCTION

The emergence of the knowledge based economy with the capital of information and opportunities has created students' need for research skill from an early stage of their higher education training. Therefore, conducting research is one of the key distinguish features of higher education institutions and. The way universities are preparing the students for research activities will decide the survival of the institutions in the long run (Munabi, Katabira, & Konde-Lule, 2006). Thus, undergraduate research and graduate mentoring have been given a great concentration in many countries within last few decades. However, in Bangladesh, by tradition, it was the prolonged institutional as well as individual academic prioritization on the teaching mission over the research mission in all universities, which becomes crucial and consequently results in a

long term knowledge production-based isolation from the international research community (Kabir, 2011). In line with this, Ahmed (2013) has argued little to no visibility of research works from Bangladesh in the bigger arena of research all over the world. However, such rigorous research has been found exploring the contribution of Bangladesh in the Research field in general whereas several under research domain has been identified separately (Research Hub, 2017). Additionally in a recent ranking of universities where one of the criteria was research work published per year, they identified that even after possessing over 2000 institutions providing university education in the country, it is a pity that none of the universities could make a position in the top 500 universities of the world on the QS World University Ranking 2018. Meanwhile, neighboring country India has three universities making position within top 200 world universities in the same ranking. Other Asian countries such as Singapore, China, South Korea, Japan, Hong Kong has multiple universities positioned within top 50 world universities (Research hub, 2017).

Therefore, there is an urgent need to improve the overall research practice and for this purpose universities can play a crucial role. Primarily, it is the responsibilities of higher education institutions to prepare graduates with research training along with knowledge production. It is a matter of hope that, with response to this situation, an increase attention has been observed to enhance the quality of higher education institutions of this country since the year of 2000 (HEQEP, 2010). In line with this, the national education policy has stated one of the major aims as *"To ensure quality of the higher education in all disciplines and motivate students in research and to create a congenial and necessary environment of research within the country through the cultivation of knowledge and sciences"* (National Education Policy, 2010, pp. 8). This policy focus shows the importance of preparing students for universities and also a call for action to the higher education institutions of Bangladesh with response to the implementation of such policies.

In addition to this, since 2007, Bangladesh has had more people of working age than non-working, known as demographic dividend. This current growth in human resource demands appropriate initiatives of human resource development and again higher education sector has the major responsibility in this context. In order to exploit the full potential of this phenomena, large-scale investments in education is one of the important measures suggested (Roy & Kayesh, 2016). Additionally, equipping youth with adequate analysis and research skill can help them to be prepared for the job market more profoundly. Thus, the recent report of Asian development Bank on higher education sector of Bangladesh provides several recommendations for further development of this sector and developing research capacity is mentioned as one of the key priorities along with other initiatives (ADB, 2015). The role of University Grant Commission (UGC) has also been identified for the development of public universities where both education and research has been kept as priority.

With response to the call of knowledge based economy and current growth in demographic dividend (El-Saharty, Ahsan & May, 2014), it is high time to bolster the research practice of universities of Bangladesh, and therefore, the present situation should be investigated. For that reason, in this study, effort has been made to explore the research practice of the oldest public university of this country. In developed countries, there is long practice of exploring students' perspective to investigate the status and for the development of the services given by higher education institutions. For example, in Australia, since 1992 the nationwide use of surveys of coursework degree graduates regarding their degree experiences. This practice assisted universities to identify the strengths and weaknesses in their offered courses. However, in Bangladesh no such practice has been initiated yet. The perspective of students is getting more attention now a days and their perceptions about their studies and learning become a central issue for educators. Concern has also been raised saying that the lack of exposure to such research activities results in a lack of student confidence with respect to doing research in future (Munabi, Katabira, and Konde-Lule, 2006).

Considering all the facts discussed above, this study also aims to initiate the idea of implementing research based systematic approach of utilizing student's perspective for the development of research and teaching practice in universities in the context of Bangladesh. Taking into account everything that has been explained so far, this study aims at filling the gap in the literature by answering the following research question: "To what extent graduates perceive that the University provide a supportive research environment in which students can gain a positive research experience?"

Accordingly, this study aims to explore the perceptions of graduates on their research experience in their respective master course in a public university of Bangladesh. This is the oldest and biggest public university of Bangladesh with several faculties pertaining different subjects. The analysis of this study is guided by the framework of research experience which aims to structure the important factors to impart effective research experience at university level and foster the link among research experience in university, development of research skill and the demand of labor market (World Economic Forum, 2014; OECD, 2009).

Specifically this study employed the research experience framework developed by Keith Trigwell and Harriet

Dunbar-Goddet elaborated in 42 indicators under major six factors: Supervision, general infrastructure facilities of university, departmental infrastructure facilities, prevalence of intellectual climate within department, self-efficacy of the students and development of research the skill (Trigwell & Dunbar-Goddet, 2005). This framework was designed to measure the perception on research experience of the post graduate students of Oxford University. This tool is piloted and tested in the context of Oxford University and therefore while using in Bangladesh the researcher tested and contextualized some of the statements keeping the original theme intact. The exploration of student's research experience in public universities of Bangladesh is massively under researched. Thus, this study will definitely initiates the discussion for further investigation.

2 METHODOLOGY

The main discussion of this paper is the perception of graduates with respect to their experience while pursuing research during their respective master study. Relevant results of the study were utilized to analyze their perception and quantitative method has been employed for data collection and data analysis. This study was conducted in 2016 and for that purpose, a questionnaire was sent out to a sample of 142 students, of which 101 completed it successfully. Participants were asked to provide answer referring to the background and to indicate their perception to a set of 30 statements under six sub factors of effective research experience. Statistics tests confirmed that the instrument was both reliable (Cronbach's $\alpha = 0.908$) and sufficiently valid (Factor Loading, PC test $<.3$). The study is based on data collection from only one public university. Therefore, generalization of study findings for the whole country may not be appropriate, but it would provide guiding principle regarding master student's research experience and its relation with research skill development. It also suggests a systematic approach to collect student's opinion to facilitate further management activities by the university administration.

3 DATA ANALYSIS

3.1 Demographic Background of the Graduates

To explore demographic information of the graduates following different indicators were considered: gender, age, accommodation status during thesis, previous educational experience, employment status during thesis, present employment status, time spent for thesis work, supervision type, frequency of meeting supervisor during thesis and previous research related work or study experience (Detail in Table 1). Missing data and incomplete responses were filtered before the analysis, resulting in $n=101$ respondents¹.

Among the respondents, there were 52.5% female and 47.5% male graduates who have carried out master thesis during the year of 2014 and 2015. The age distribution of the graduates shows that 31.7 % were 20-24 years old and 68.3 % were 25-29 years old. Among these 101 participants, 27.8% students were living in university dormitory or private hostel and around 72% were staying with their family during their thesis work.

Among different educational tracks of higher secondary school in Bangladesh, there were 69.3% students who came from science track, 13.9% from business studies group, 13.9% from humanities and only 3% from A level background (English medium). Data shows that majority of the participants came from science track which replicates the national statistics that every year higher number of students from science track get enrolled at this public university.

Table 1 The proportion of graduates by different demographic variables

Demographic Indicators	Categories	%	Demographic Indicators	Categories	%
Gender	Male	47.5	Reason for choosing research master	Did not Choose	1.0
	Female	52.5		Part of the curriculum	31.7
Age	20-24 years	31.7		To learn about research	26.7
	25-29 years	68.3		To pursue a research career	40.6

¹ For this part of the paper, the number of people for each percentage ($n = x$) has been provided, to show the proportion between the percentages and the sample size. In the following parts, the number of people has been omitted and only percentages have been given, because this proportion has already been made

Accommodation status during master thesis	Dormitory	21.8	Type of supervision	Single supervisor	86.1
	With family	72.3		More than one supervisor	13.9
	Sublet room	6.0	Involvement with research activities before pursuing thesis	Yes	34.7
Frequency of meeting supervisor per month during thesis work	At least once	15.8	Research responsibilities at work	Yes	54.5
	2-3 times	40.6	Research course during masters	Yes	55.4
	More than 3 times	43.6	Research course during bachelor	Yes	57.4
Employment sector	Public	13.9	Employment during thesis	Full time	9.9
	Private	86.1		Part time	23.8
Want to pursue academic career	Yes	52.5		Current Employment status	No involvement
	May be	20.8	working full-time		47.5
	No	16.8	working part-time		11.9
	I don't know	9.9	Not employed, looking for work		25.7
Contribution of research experience to current work/study	Not at all	9.9	Not employed, NOT looking for work	10.9	
	Very little	29.7	MA student and Intern	4.0	
	Somewhat	23.8			
	To a great extent	36.6			

There were around 31% graduates from faculty of social science and the second highest number of students were from faculty of biological science (23%). There were also graduates from faculty of business, faculty of law, faculty of education, faculty of science and pharmacy. They have mentioned different reasons of their choosing that particular master program with thesis. However, for majority of them pursuing thesis was part of the curriculum (31.7%) and to opt for research career (40.6%). Among the graduates 86% had received supervision from one supervisor during their thesis. Rest 14% had two or more supervisor. In case of frequency of meeting with their supervisor, around 44% graduates mentioned more than three times meeting per week and 40% had met their supervisor two or three times in a week to discuss their thesis. Around 65% of the sample had no research exposure or involvement with any type of research work before pursuing this study for their thesis. Analysis of data also revealed that 57% graduates had research related course during their bachelor and 55% had such courses during their masters. Among these, 30% graduates have received research related course in both bachelor and master. During thesis work, 10% of the students were involved with full time work and 24% were in part time job.

On the other hand, the current employment status of those graduates shows that 48% were employed full time and 12% were doing part time job. Among the employed graduates 55% had been involved with research related activities. In terms of employment sector, around 14% were in public and rest 86% were in private sector. Around 60% of the graduates perceived that the research experience they have during their master thesis helped them in their job place. Additionally, 52% expressed their aspiration to pursue academic career in research and teaching.

3.2 Graduate's Perception of Their Research Experience

This subsection explains graduates' perception of their research experience in two broad titles: (a) their level of agreement in terms of the availability of different factors of effective research experience, (b) their satisfaction level of the quality of research experience. The respondents were asked to marked their opinion of different aspects of research experience on a 5 point likert scale (1= 'strongly disagree', 2= 'disagree', 3=

'neutral', 4= 'agree' and 5= 'strongly agree') and then they also mentioned their level of satisfaction. The majority of the participants (more than 50% of respondents) have either strongly agreed or agreed that they have positive experience on 21 aspects (70% of 30) of their research experience in this public university.

Among all these aspects, following five were marked with high level of agreement by more than 70% participants: 'I consider that developing a wider range of skills is a valuable part of my master program [21]' (82.3%); 'My research supervisor provides me with helpful feedback on my progress [10]' (80.2%), 'My research studies have helped to develop my awareness of what I need to manage my own career progression [19]' (78.1%); 'As a result of my research studies, I feel confident about managing a research project [20]' (77.1%); 'I usually try to discuss with others new ideas I have in my research [27]' (76%).

The Percentage of graduates by their level of agreement to the different aspects of research experience

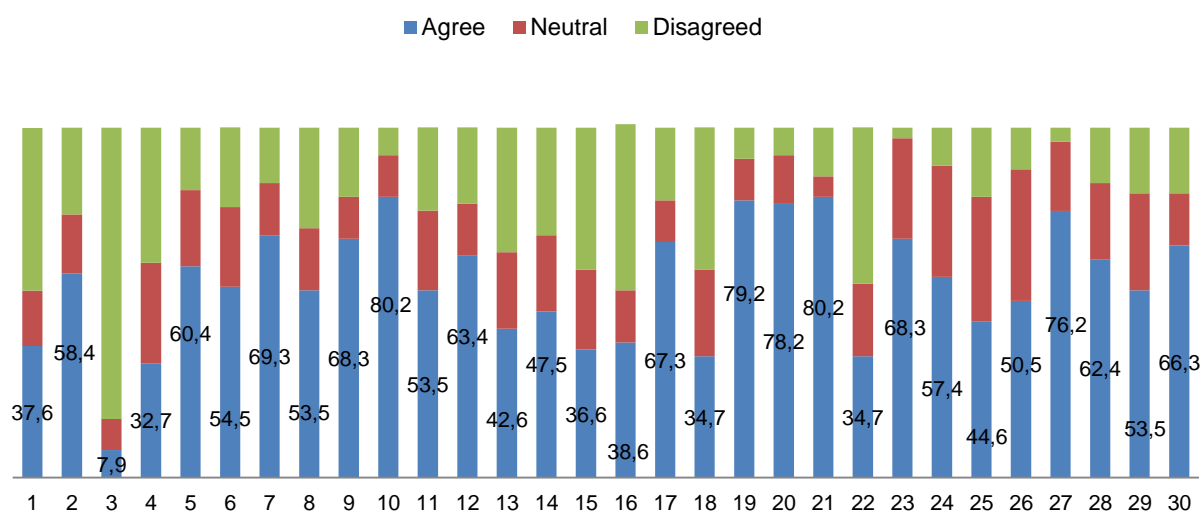


Figure 1 The Percentage of graduates by their level of agreement to the different aspects of research experience Own illustration: Yasmin, N. (2016)

On the other hand, there was nine aspects to which less than 45% of the graduates did not show their agreement. These were: 'The university administration is effective in supporting my research [4]' (31.2%); 'The department/faculty provides opportunities for me to become involved in the broader research culture [31.9%]; 'The department administration is effective in supporting my research [22]' (34.7%); 'The department provides clear, comprehensive and up-to-date guidance for thesis work [15]' (36.5%); 'I have good access to the computing facilities in my department [16]' (37.5%); 'The library facility at university support my research [1]' (38.3%); 'I am able to have good access to necessary equipment for my thesis activities [13]' (43.6%); 'The research environment in the department stimulates my work [25]' (42.7%). These findings show that students did not perceive that most of the infrastructure facilities they received in their department was not that much favourable to their thesis work. There were places for improvement in terms of infrastructure facilities Their level of disagreement reveal the issues to be dealt with in future by the university management.

3.3 Graduate's Perception vs. Socioeconomic Factors

The variation in graduates' perception of research experience with respect to their demographic indicators has been explored. Graduates' perception of the availability of the departmental infrastructural facilities to assist their research is significantly higher for the female graduates compared to their male counterpart ($p < .05$). In addition, for respondents who indicated having no prior experience of research work, the perception of having general infrastructure ($p < .001$), departmental infrastructural facilities ($p < .05$), supervision facilities ($p < .01$), availability of intellectual climate ($p < .001$) are significantly more positive than the group who had prior experience.

On the contrary, students not having research related courses during bachelor or master level demonstrate more positive perception about their experience. In addition to this they had more positive perception of the availability supervision, general infrastructure than the graduates who did have such courses ($p < .01$).

Furthermore, respondents who indicated being employed rated their mean perception of overall skill development due to performing research at master level studies, is significantly ($p < .001$) higher than who were not employed.

3.4 Graduate's Satisfaction Level of Their Research Experience

The respondents were asked to rate their level of satisfaction on a 5 point Likert scale (1= 'Very dissatisfied', 2= 'Dissatisfied', 3= 'Neutral', 4= 'Satisfied' and 5= 'Very Satisfied') for three aspects: The overall quality of the service and facilities for research of the university, the overall quality of the research supervision, and the overall quality of their research experience. It reveals that 71.9% of the graduates have marked their satisfaction level as very satisfied or satisfied in terms of the quality of research supervision. The aspect of service and facilities of university got the highest level of dissatisfaction based on the percentage of students among these three aspects (45.8%).

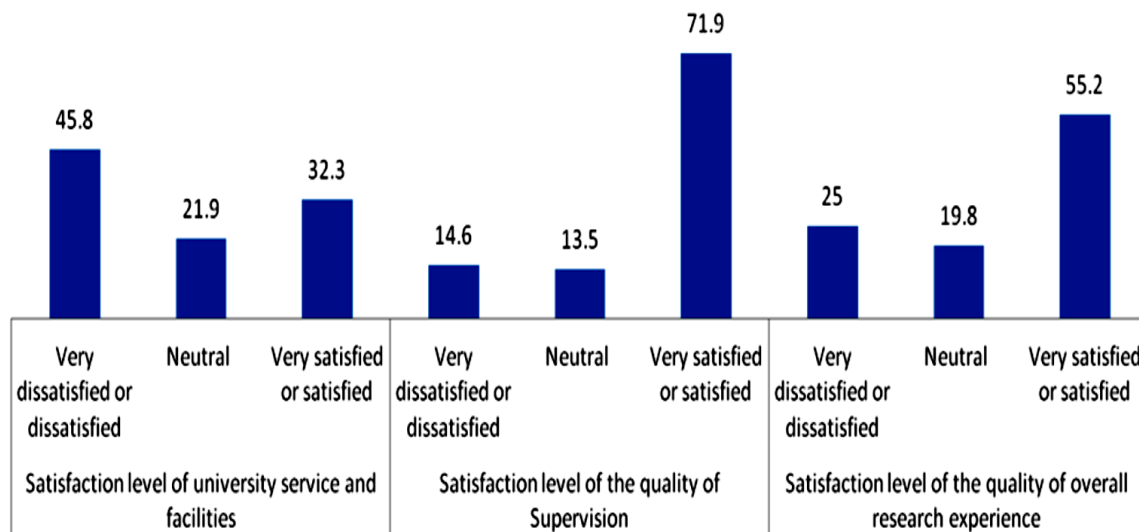


Figure 2. Percentage of graduates by their satisfaction level. Own illustration: Yasmin, N. (2016)

3.5 Factors Influencing their Level of Satisfaction

3.5.1 The Satisfaction Level of the Service and Facilities for Research Within the University

In terms of the graduates' satisfaction level of the overall service and facilities, following factors were identified which have significantly positive relationship with this satisfaction level. Significant positive association has been identified between the gender variable and graduates' satisfaction level of the quality of service and facilities for research work provided by the universities (Table 2). This means, the satisfaction level of the graduates for the quality of service and facilities is dependent on the gender factor along with all the factors listed in the following table.

3.5.2 The Satisfaction Level of the Quality of the Research Supervision

Statistically significant positive relationship was also identified between several factors and the satisfaction level of research supervision. Table two shows that the level of satisfaction of the graduates for the quality of supervision has significantly positive association with their reason of choosing research master programs, their frequency of meeting with their supervisor, having research course at bachelor level, their working status during thesis, faculty of master program, and type of supervision. To specify, this results suggest that any changes in the number of graduates for the group of variables will positively influence the level of satisfaction.

3.5.3 The Satisfaction Level of the Overall Quality of the Research Experience

Furthermore, test results have demonstrated statistically significant positive relationship for the satisfaction level of the quality of research experience with several factors. In the following table, all these factors have been listed with the respective p value. By analyzing results of Pearson Chi Square and Likelihood ratio tests it appears that statically significant differences between respondents for all three aspects of satisfaction level; generally refer to factors pertaining to graduates' personal aspects (gender, age, accommodation and

working status during thesis), prior knowledge and experience of research (having research course, prior exposure to research task), and supervision factor: (type of supervision, frequency of meeting with supervisor).

Table 2. Factors influencing the graduates' satisfaction level

Factors influencing the satisfaction level	Pearson Chi Square	P value (<0.05)	Likelihood ratio*, p value (<0.05)
<i>Factors influencing the satisfaction level of the service and facilities for research of the university</i>			
Female graduates	12.630	0.013	0.011
Age	8.7920	0.067**	0.019
Stayed with family during thesis work	19.278	0.076**	0.002
Frequent meeting with supervisor	19.278	0.013	0.010
Prior exposure to research activities	14.471	0.006	0.002
Research course at Bachelor level	9.627	0.047	0.027
Faculty of master program	33.712	0.000	0.027
Employment status during thesis	28.205	0.000	0.007
Longer study hour per day during thesis	23.974	0.0002	0.001
<i>Factors influencing the graduates' satisfaction level of the quality of research supervision</i>			
Reason for choosing research masters program	19.346	0.013	0.006
Frequency of meeting with supervisor	25.058	0.02	0.001
Prior exposure to research activities	16.615	0.002	0.001
Research course at Bachelor level	12.424	0.014	0.007
Working status during thesis	14.281	0.075**	0.035
Faculty of masters program	13.630	0.092**	0.007
Type of supervision	28.066	0.000	0.000
<i>Factors influencing the graduates' satisfaction level of the quality of overall research experience</i>			
Frequency of meeting with supervisor	17.616	0.024	0.008
Prior exposure to research activities	16.214	0.003	0.001
Research course at Bachelor level	11.028	0.026	0.022
Research course at master level	9.485	0.050	0.046
Willingness to pursue academic career	19.190	0.084**	0.020
Accommodation	10.910	0.028	0.020

* Because the computed table is more than 2*2, Likelihood ratio test is computed instead of Fisher's Exact

** the p value of Likelihood ratio has been considered to measure the significant level of association

3.5.4 Graduate's Satisfaction Level: Differences between the Group

For respondents who indicated having no prior experience of research work, rated higher level of satisfaction for the quality of service and facilities of university, the quality of supervision and overall quality of research experience than the group who had not such exposure. Similarly, graduates who did not had any research related course during bachelor have expressed higher level of satisfaction for the quality of supervision and the quality of their overall research experience. Moreover, graduates who had taken research related course during their master level study had demonstrated higher level of satisfaction for the quality of supervision and research experience.

4 DISCUSSION AND CONCLUDING REMARKS

This paper made effort to enrich the existing body of literature on student's experience by exploring graduate's perceptions of the research experience in the context of a public university in a developing country like Bangladesh. To achieve this objective, relevant results of one rigorous quantitative study on exploring students' perception were utilized.

Based on the major findings, it is evident that the graduates of Dhaka university possess a positive perception about their overall research experience with some reservation of few aspects. Among all the aspects of research experience described in the theoretical framework, graduates have the highest level of agreement upon the prevalence of facilitative supervision. GroupWise comparison also illustrates similar level of agreement for the supervision aspect. Furthermore, when the frequency of meeting with supervisor is highest, graduates describe a more supportive supervisory, intellectual climate and higher level of overall

satisfaction. It is worth mentioning here that, this finding replicates the study done in the University of Oxford using the same tool (Triggwell & Goddett, 2005).

In addition, the findings also suggest that in Dhaka University, the supervision of the research experience is significantly more favorable than any other aspects of research experience according to the respondents. Supervision is one of the few aspects, for which students with prior research experience have expressed significantly higher level of agreement than their counterparts. Additionally, faculty wise comparison also reveals the prevalence of supervision facilities according to the respondents. As the "frequency of meeting with supervisor" variables have significant association with the overall supervision aspect, it demonstrates the importance of this factor in order to enhance the overall supervision quality.

On the contrary, for the aspect of both general and departmental infrastructure, the respondents demonstrated lower level of agreement which can be taken as the direction for changes that need to be done to improve the research experience. Their response explains that these two dimensions are not as much facilitative as other dimensions. The Faculty wise analysis of the perception shows the variance among the faculties. Thus, it calls for further investigation to find out the needs of research environment by focusing the faculties particularly. Similar conclusion has been drawn in the study carried out by the University of Western Australia and in that survey, similar questionnaire has been utilized (SPORS, 2011).

The graduates have expressed their strong agreement about the availability of different facilitative aspects of research experience (e.g. supervision, infrastructure, intellectual climate). As this study is the first kind of such research initiative in the context of Bangladesh, there was hardly any data to compare the status. In this case, the missing part is past experience as for most of the respondents, this was the first exposure to research. Hence, exploring the perception of graduates can be criticized from this point of view. However, considering that when students reach to higher education level, they already have had considerable experience in investigation, project research and inquiry based learning experience (Brew, 2006) which can be as primary exposure to the orientation process of research.

The findings of the study also suggest the prevalence of different factors that influence the research experience in general and also different dimensions particularly. One of the influential factor is prior research experience which significantly influence graduate's perception of the availability of the general infrastructure facilities. Moreover graduates with some sort of prior exposure to research work were inclined to be more critical while rating their level of agreement. These findings suggest the need of prior research experience for the students which will allow them to compare the status more carefully. One study done in Makkere University has identified similar influence of prior research experience on the students overall practice of research (Munabi, Katabira, and Konde-Lule, 2006). About 41% (176/424) of the respondents reported having had a previous research experience. Among the postgraduates 74% (37/50) reported having had a previous research experience compared with 68% (139/342) of the undergraduates [OR=4.16, 2.07-8.57]. Additionally, sum of individual undergraduate experiences had the strongest positive correlation with the total number of studies done by an individual [R=0.801] (Munabi, Katabira, and Konde-Lule, 2006). Thus, it emphasizes on the importance of students' prior exposure to research. Therefore in the context of Dhaka University, initiatives should be taken to integrate some research related activities at the undergraduate level.

As higher education institutions are the incubator of preparing or inspiring future researchers, the outcome of this study can be considered as a valued addition to the ongoing discussion to improve the research environment of higher education institutions further and to train students more effectively with relevant skills (HEQEP, 2010). On the basis of graduates' perception, it can be inferred that among the various aspects of an effective research experience, some aspects are seemed to be very explicit in this university and some aspects need more concentration. Therefore, this paper suggests to consider initiating more rigorous application of student evaluation method for the development of service and facilities by the university.

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