

Final Report

Tracer Study on Graduates of Tertiary-Level Colleges

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Abbreviations

| | |
|------|--|
| BIDS | Bangladesh Institute of Development Studies |
| BBS | Bangladesh Bureau of Statistics |
| BDT | Bangladeshi Taka |
| CEDP | College Education Development Project |
| GM | Government Masters |
| GOB | Government of Bangladesh |
| GH | Government-Honours |
| HH | Household |
| ICT | Information and Communications Technology |
| NU | National University |
| NGO | Non-Government Organization |
| NGH | Non-Government Honours |
| NGM | Non-Government Masters |
| STEM | Science, Technology, Engineering and Mathematics |

Executive Summary

1. Introduction

Efficient and productive human resources are the crucial prerequisites for economic growth and social development of Bangladesh, more particularly in the context of global technological advancement. Productive and efficient utilization of resources is ensured when the entire labour force of a country contributes as human capital. Higher education has a significant contribution in transforming the human resources of a country to human capital through facilitating knowledge creation and fostering the skills of individuals. The national university (NU) affiliated college sub-sector comprises the largest segment (about two-thirds) of tertiary-level students in Bangladesh, and thus has a critical role to play in fostering a skilled workforce and promoting growth agenda in the country.

The government of Bangladesh (GOB), with support from the World Bank, has been implementing a project to strengthen the strategic planning and management capacity of the college education subsector and improve the teaching and learning environment of the National University (NU) affiliated colleges in the country. The College Education Development Project (CEDP) contracted the Bangladesh Institute of Development Studies (BIDS) to conduct a Tracer Study of Graduates of the NU affiliated tertiary colleges. The main purpose of this study is to trace the graduates from a sample of NU affiliated tertiary colleges. The tracer study will assess the labour market outcome and relevance of the tertiary college-level education.

However, since March 2020, almost all countries in the world are combating the SARS-CoV-2 (COVID-19). This pandemic has unfolded many challenges to the education sector along with other century-old systems. After the declaration of the COVID 19 outbreak as a global pandemic by the World Health Organization (WHO), many countries, including Bangladesh, have undertaken extreme measures, such as restricting outdoor activities, physical interaction, meetings, and social gatherings. As a result, Bangladesh announced the closure of all the educational institutions from mid of March 2020 to enforce social distancing and restrict disease transmission. According to the BANBEIS (2018), over one million university-level students enrolled in colleges or universities in Bangladesh are now being locked out of their campuses due to the ordinance creating legitimate worries about session jams and the future career development of the students. In order to avoid this unexpected outcome, the University Grants Commission (UGC) asked universities to begin online classes. Now, both private and public universities are adopting this new method of learnings amidst fears that students from disadvantaged backgrounds will be left behind due to the digital divide. According to Bangladesh Telecommunications Company Limited (BTCL) (BTCL 2019), the total number of internet subscribers in Bangladesh has reached 93.102 million at the end of March 2019, including 87.310 million mobile internet subscribers. However, it is obvious that not all the students from both public and private universities presently do not have stable access to the internet and suitable smartphones or laptops

for participating in online classes. Moreover, distance learning through conducting classes in online platforms is not very common in Bangladesh, and students and teachers are not habituated or do not have any training, experience or prior knowledge to adopt such a learning approach.

Hence, we attempted to assess the overall situation, by identifying the preparedness, acceptability, and satisfaction, and exploring the constraints faced by the national university students, as well as course instructors, in participating and conducting online classes during the pandemic. We take an account of assessments of students and teachers about the utilization, effectiveness, constraints and limitations, need for improvement, and sustainability of the existing facilities and investments. The specific objectives are to explore the modalities and effectiveness of online classes and document the availability and access to online academic resources on institutional websites. Also, we attempt to document the impact of the pandemic on economic activities, job opportunities, and changes in career development strategies among graduates by measuring the income, employment mobility, and career progress of graduates.

2. Methodology of the Study

The study uses a quantitative approach, using structured questionnaires to assess the perspective of higher education and its relevance from graduates, students, teachers, and prospective employers of national university graduates. A total of four separate surveys were carried out, one each for graduates, current students, institution heads (teachers), and employers. The data collection took various steps, from tracing survey participants to conducting the actual interviews. Respondents were all first contacted over the phone, and all surveys, except the employers' survey, were conducted over phone or email. The planned and post-survey sample distributions are given below to provide a clear idea of the initial sample design and attrition. Given the ongoing pandemic and lockdown situation, the attrition rate was 20 percent on average for students and graduates; however, we could achieve the target for teachers (4 percent attrition) and employers.

We chose a purposive sample of tertiary colleges and collected data from the selected colleges using structured and semi-structured questionnaires. The study design and the implementation plan were made in early 2020 when the study timeline was also set as February- July 2020, in line with specific terms of reference. However, we had to face inevitable challenges and difficulties with the commencement of the study as per the initial study design and implementation plan. Due to the general holidays and closure of educational institutes for a long period, some practical changes in the design and the implementation plan were made, with the concurrence of the project monitoring unit and the respective authority. Therefore, it was almost impossible to proceed with the field investigations considering the movement restrictions and the exigency of maintaining “social distance”. This section describes the methodology in two different parts; the first part depicts the methodology that we designed in a pre-pandemic ambience with the expectation to conduct the study addressing all the difficulties of the “normal world”. The second part delineates the actual methodology that was followed, taking into account all the challenges, difficulties and “new normal realities” after the outbreak of the pandemic.

We planned to conduct four different surveys with four different samples: graduates, current students, institution head/teachers and employers. We have managed to conduct each of these surveys but have to consider the attrition of our sample size that we actually planned. The survey consists of:

- (i) **Graduates:** Students who graduated (Degree/ Honours/Masters programs) in the year 2017
- (ii) **Students:** Students (Degree /Honours/Masters programs) currently studying at the 3rd and 4th year-level
- (iii) **Institutions' head:** Principals, Vice Principals, heads of departments who possess sound knowledge about college and student affairs
- (iv) **Employers:** Employers of college graduates (who passed in 2017) and prospective employers of NU graduates

The selection criteria of colleges were as follows. As per the ToR, the inclusion criteria for a college to be enlisted in the population were:

1. The colleges must be affiliated with National University since 2014
2. The colleges have the capacity of at least 150 intakes at the Honours level

CEDP provided the list of colleges based on the inclusion criteria, and 61 colleges had to be selected in total as per the condition of the ToR. Among these 61 colleges, 17 government colleges and 44 non-government colleges were to be selected. From the 17 government colleges, 9 colleges would be selected for the Honours program and 8 colleges would be selected for the Master's program. From the 44 non-government colleges, 40 would be selected for Honours and 4 would be selected for the Master's program. The sample colleges selected as "Honours College" were to be different from the colleges selected as "Masters College".

CEDP provided information on the year of establishment of colleges instead of the year of affiliation with NU. Hence, the colleges established before 2014 had been listed in the population. About 515 colleges met the above two inclusion criteria among the 801 colleges in the list provided by CEDP. Hence, the population size came to 515 after excluding the 286 colleges that did not meet any of the two inclusion criteria.

In order to have as much of a representative sample of colleges in the country, we aimed to select the required number of colleges from the eight administrative divisions. Two government (Honours) colleges from the Dhaka division and one government (Honours) college from each of the seven districts (Chattogram, Khulna, Barisal, Sylhet, Mymensingh, Rangpur and Rajshahi) were initially randomly selected in the category of "Honours College". On the other hand, one government college having Masters program from each of the eight districts (Dhaka, Chattogram, Khulna, Barisal, Sylhet, Mymensingh, Rangpur and Rajshahi) had been selected randomly as "Masters College".

Similarly, five non-government colleges (Honours) from each of the eight divisions (Dhaka, Chattogram, Khulna, Barisal, Sylhet, Mymensingh, Rangpur and Rajshahi) had been randomly selected as “Honours College”. On the other hand, two non-government colleges from the Dhaka division (having at least six departments with a Masters program) and one non-government college (having at least six departments with a Masters program) from Chattogram and Khulna had been selected randomly as “Masters College”. It should be noted that no colleges in Barisal, Sylhet, Mymensingh, Rangpur and Rajshahi have at least six departments at the Masters level.

We faced difficulties while taking phone interviews as some of the interviewees who had consented to participate in the interview earlier during the tracing process showed reluctance to participate later, and we had to proceed with the attrition. The details of sample distribution as planned in the pre-pandemic period, the actual sample distribution after completion of the survey, and the extent of attrition are described in the following table.

Table 1.1: Study Sample

| | Sample Distribution (planned at pre-COVID period) | | | | | Number of respondents approached | Sample Distribution (after survey) | | | | | Attrition Rate | Reason of Attrition |
|----------------------------|---|-----|-----|-----|-------|----------------------------------|------------------------------------|-----|-----|-----|-------|----------------|---------------------------|
| | GH | NGH | GM | NGM | Total | | GH | NGH | GM | NGM | Total | | |
| Graduates | 450 | 800 | 560 | 240 | 2050 | 4636 | 368 | 575 | 480 | 216 | 1639 | 20.05 | Reluctance to participate |
| Current Students | 250 | 400 | 280 | 120 | 1050 | 1200 | 180 | 333 | 221 | 100 | 834 | 20.57 | Reluctance to participate |
| Institution Head/ Teachers | 65 | 120 | 53 | 28 | 266 | 210 | 44 | 94 | 40 | 24 | 202 | 24.06 | Reluctance to participate |
| Employers | 200 | | | | | | 233 | | | | | | No attrition |

Data collection challenges

The COVID-19 pandemic largely obstructed the more convenient face-to-face interviews. Closure of education institutions also prevented us from visiting teachers and students at the colleges for interviews. Only employers were willing to give face-to-face interviews. Convincing graduates for phone interviews was a big challenge, as was conducting interviews over the phone, sometimes in multiple sessions for a single respondent that caused significant delays in survey completions at higher costs.

3. Findings of the Study

3.1 Graduate Survey Findings

For the Graduates' Survey, 1639 graduates were interviewed from 54 colleges across all administrative divisions of Bangladesh. These graduates are coming from four types of colleges under the National University affiliation: Government-Honours (GH), Non-Government Honours (NGH), Government Masters (GM) and Non-Government Masters (NGM). The current status of employments of these graduates shows that 343 (21%) graduates are salaried employed, while 1078 (66%) are unemployed; 23 (1.5%) are self-employed, 112 (7%) are involved in full-time/part-time study and 82 (5%) graduates do not belong to the labour force. The proportion of females among salaried graduates is 11.64%, while it is 30.74% for males; the proportion of females not in the labour force is 9% which is only 0.6% for males. But the proportion of unemployed females and female graduates in part-time/full-time study are higher than unemployed males and male graduates (70.3% vs 61%; 8.55% vs 5.14%). It may mean that females in the sample are finding it more difficult than males to land a job, and more females are involved in further study to increase their job opportunities. Around 80% of the graduates' household income is within BDT 30,000. The majority of the salaried employed graduates at Bachelor level (20%) are from Business Studies faculty and at Masters level (32.74%) is also from the same faculty. Unemployed proportion is above 62% in all faculties except in Business Studies at Masters level. The majority of self-employed graduates are from a Business Studies background.

Seventy percent of respondents reported the need for a certificate to find a good job as one of the reasons for studying in their respective college; 40% of graduates stated this as the first reason. Graduates were asked to reveal their perceptions regarding the education provided by their colleges. NGH graduates were found more satisfied with the level of education provided by their colleges, on average, compared to their GH graduates, when considering the relevance of education to professional needs and applying the gained knowledge at the workplace. However, GM graduates agreed more than NGM graduates regarding the relevance of education to professional needs. On the other hand, both NGH and NGM graduates agreed more than GH graduates and NGM graduates that despite the effective education received at their colleges, they could have also excelled at their workplace if they had the opportunity to study in another college.

Graduates also reported about the additional training they received apart from academic training at their colleges. Around 50% of graduates reported that they received training while being at their Bachelor/Masters colleges, and 10% of graduates stated that they received training after leaving their colleges. Around 75% of those graduates (who received additional training while being in colleges or after leaving colleges) stated that they received training on ICT, whereas 13% stated that they received technical and vocational training on trade/business.

Graduates reported different type of job search activities they have used so far; 84% of graduates reported that they applied following the notice of "job opening" through the internet or in newspapers. Around 75% of graduates have used different "job sites", and 57% have used social

media to look for a job. When graduates were asked about support by colleges in searching jobs, 97% of total graduates reported that their colleges do not have the provision of search support. This proportion is 96.4%, 97.6%, 96.5% and 98.7% across GH, NGH, GM and NGM graduates. Garment and Education absorb the highest proportion of full-time graduates across both genders, and Health and Education absorb the highest total proportions in part-time work.

About 58% of total “salaried employee” graduates reported alignment of their jobs with their academic training and expertise, whereas 42% stated that their professional field has minimum or no relevance to their academic specializations. Around 80% of those graduates identified “lack of relevant job” as one of the main reasons for not being employed in relevant areas. The average duration of getting a job is around 20 months for the graduates who started their first job after graduation and 4.5 months for the graduates who started their first job after post-graduation. It is in line with past graduate tracer studies of 2016, 2017, and 2018, which showed that most graduates after graduations have to wait around 1-2 years before getting a job, and many graduates start masters level study rather than wait too long.

Overall, the majority (30%) of total unemployed respondents stated that they do not have any definite time-span for searching for a job, whereas 23% of them stated that they search for a job once a week. On average, GH and NGH graduates have been unemployed for 31 and 33 months, respectively, after graduation. However, the duration of being unemployed is higher for GM graduates compared to NGM graduates. Moreover, the duration of searching for job is higher for NGH graduates compared to GH graduates. It is lower for NGM graduates compared to GM graduates. According to past Graduate Tracer Surveys of 2016, 2017, and 2018 (reported in World Bank (2019)), more than a third of graduates are found to have remained unemployed one or two years after graduation. This general long period of unemployment of graduates, found from past tracer studies, is also aligned to our current study findings. The unemployed graduates were asked if there was any case where “they received a job offer but did not join the respective job”. Among 1,078 unemployed graduates surveyed, only 119 unemployed graduates (11% of total unemployed graduates) reported that they did not join a job despite having the offer from the employer. Among these 119 unemployed graduates, only 39 unemployed graduates stated that “lower wage offered by the employer” was the reason for not accepting the job offer. Therefore, a very negligible proportion of unemployed graduates received any job offer in the recent past, which reveals that “reservation wage” was not the issue of this prolonged unemployment as more than 89% of unemployed graduates stated that they have never been offered a job despite their frequent job searches. The unemployed graduates are also akin to accept any offer to work despite lower payment, and look for further training opportunities.

Self-employed graduates comprise only 1.4% of our graduate’s sample (23 out of 1639). More than 90% of self-employed graduates opened a new business with their initiatives, while others (9%) joined an already established family business. On average, the enterprises have been operating for five years. The average number of employees of the enterprises is six. About 60% of

self-employed graduates stated that they work in the area of their academic specializations. About 70% of these respondents stated that “the knowledge and skills they gained from college” was useful in starting their business. The majority of the respondents (26%) started wholesale and retail trade, while 13% of self-employed graduates’ businesses belong to the garment industry. Manufacturing (8.7%), ICT (13%), transportation (4.35%) and health (4.35%) are the other sectors where self-employed graduates have invested. Around 48% of self-employed graduates have received training on entrepreneurship/ business startups. About 57% of the self-employed respondents stated that they started a business out of their own interest, and 22% stated that “availability of business opportunities” was the motivating factor of starting a business. However, 30% of the self-employed graduates reported that “unavailability of alternative employment opportunity” induced them to get involved in businesses.

Almost all of the graduates (99%) involved in full-time/part-time study are currently pursuing the master’s programme. About 73% of the respondents stated that they searched for a job before they got enrolled in the study, and 16% of total respondents had received offers to work before starting the part-time/full-time study. Around 67% of the respondents enrolled on part-time/full-time study after graduation/post-graduation with a view to getting an expected job with higher attainment of academic training. Forty-two percent of the respondents perceived that an undergraduate degree is not adequate to get an expected job, and hence they decided to pursue advanced studies. Ninety-one percent of the graduates pursued their higher studies in those disciplines highly relevant to their previous training attained at honours/masters colleges. Business and management came up as the preferred discipline by graduates to pursue higher studies as a major portion (29.2%) of the respondent opted for this subject to continue further studies. The future plan of the graduates who are continuing further studies includes finding employment in expected enterprises (68%), pursuing full-time studies (23%) and establishing business at their own initiatives (3%).

Sixty-seven percent of 82 graduates (55 graduates out of 82) who do not belong to the labour force are currently involved in household chores, and 27% of these 55 graduates are engaged in taking care of children or elderlies of the households. On the other hand, 37% of 82 graduates previously searched for a job at least 4-5 times on average, and the average duration of searching for a job by these 37% graduates is around 17 months. Fifty-four percent of the respondents have a plan to work in future, 22% are uncertain about looking for a job in future, and 24% do not plan to work at all. Among the graduates who plan to work in future, a considerable proportion (54%) wants to get involved in full-time work in public/private enterprises. Sixty-one percent of the respondents expressed their willingness to receive further advanced training for improving their skills. Around 61% stated that they need to get ICT training, 27% of these respondents are interested in attaining the “technical and vocational training on trade”.

We looked at the key drivers of labour market outcome (employed, unemployed and not in the labour market) in 2021 of graduates of the class of 2017 from NU Affiliated Colleges (Table 1.2). Although the result shows that graduates with higher CGPA have a higher probability of being

employed, the effect is insignificant. The employability of graduates cannot be explained by the type of faculty (Science, Social Science, Arts, and Business Studies) or type of college (government or non-government) as the coefficients are insignificant. The chance of being employed is higher for males compared to females; the coefficient is statistically significant. The graduates who had prior experience working during studying bachelor have higher chances of being employed than the graduates who have no prior experience. The graduates who had received additional training after graduation (ICT/language) have higher chances of being employed than the graduates who do not have any additional training. The graduates with high household income (above BDT 40,000) and medium household income (between BDT 20,001 and BDT 40,000) have higher chances of being employed than the graduates with low household income (below BDT 20,000). The chances of being employed are higher for graduates with lower household sizes.

Table 1.2: Explaining Graduates' Employment Outcomes: Probit Estimates

| Explanatory variables | Probit coefficients | | Marginal Effect (dy/dx at means) | |
|---|--|-----------|--------------------------------------|-----------|
| | Coefficient | Robust SE | Coefficient | Robust SE |
| | CGPA obtained in last academic degree (Bachelor/Masters) | 0.008 | 0.153 | 0.002 |
| Type of college: Govt College (base=Non-govt. college) | -0.074 | 0.095 | -0.022 | 0.027 |
| Gender: female (base=male) | -0.730*** | 0.094 | -0.207*** | 0.025 |
| age | 0.024 | 0.033 | 0.007 | 0.010 |
| Income: medium (base=low) | 0.580*** | 0.096 | 0.165*** | 0.028 |
| Income: high (base=low) | 1.154*** | 0.145 | 0.384*** | 0.052 |
| Faculty: Science (base=arts faculty) | -0.114 | 0.155 | -0.032 | 0.043 |
| Faculty: Social Science faculty (base=arts faculty) | -0.002 | 0.119 | 0.000 | 0.035 |
| Faculty: Business studies (base=arts faculty) | -0.051 | 0.124 | -0.015 | 0.036 |
| prior work experience while studying bachelor (base=no prior experience) | 0.298*** | 0.086 | 0.089*** | 0.026 |
| additional skill training (language/ICT) received (base=no additional training received) | 1.725*** | 0.196 | 0.611*** | 0.055 |
| 1 if father's occupation is salaried employment | -0.413 | 0.406 | -0.107 | 0.092 |
| 1 if father's occupation is business | -0.314 | 0.399 | -0.086 | 0.102 |
| 1 if father's occupation is self-employed | -0.243 | 0.397 | -0.069 | 0.109 |
| 1 if father's occupation is others | -0.452 | 0.407 | -0.114 | 0.088 |
| fathers' education: class 8 passed (base=below class 8) | 0.003 | 0.100 | 0.001 | 0.029 |
| mothers' education: class 8 passed (base=below class 8) | -0.142 | 0.106 | -0.040 | 0.029 |
| HH size | -0.032** | 0.016 | -0.009*** | 0.005 |
| Regional dummies | included | | | |
| constant | -1.065 | 1.043 | | |
| Observation | 1388 | | | |
| Wald chi2(25) | 260.49 | | | |

Covid-19 Impact

The COVID-19 pandemic caused the average earnings of salaried employee graduates to take a dip during April-May 2020 (strict lockdown period), which returned to pre-COVID levels in October-December. More than 80% of total unemployed graduates looked for a job during COVID-19 between April 2020 and December 2020 but could not find any job. Self-employed graduates reported that, on average, 62.5% of employees have faced a wage or salary reduction, and 83% of employees faced other benefits cut down, during this period, to sustain the viability of the enterprises. Fifty-four percent of the graduates who are pursuing full-time/part-time study stated that their educational institutions have shifted to online classes. More than 85% of the respondents stated that COVID-19 has disrupted their concentration to study and put them in difficulties to complete the courses in due time. Around 50% of the respondents “strongly agree” and 38% “somewhat agree” that COVID-19 has limited the duration of studies, as respondents are now involved in other activities. Around 96% of respondents agree that their concentrations have been diverted from study after the pandemic outbreak. Moreover, 93% of respondents stated that lack of access to online classes reduced respondents’ participation at classes.

3.2 Students Survey Findings

For the Students’ survey, a total of 834 students were interviewed across four faculties, Science, Social Science, Arts, and Business studies, from the selected 54 colleges in all administrative divisions in the country. Around 48.5% of students’ household income fall in the income level of BDT 10,000-20,000, whereas around 13.1% of students’ monthly household income is less than BDT 10,000. We attempted a mapping exercise between academic performance at higher secondary and tertiary levels across different academic disciplines. The graduates who were in the science division at HSC performed better at the bachelor level in terms of higher CGPA compared to graduates who studied humanities and business studies in HSC. However, it should be noted that the mean CGPAs of graduates in HSC from all the three divisions (Science, Social Science and Business Studies) were very low. It suggests that the graduates from the Science faculty in our sample do not have sound academic backgrounds in their higher secondary level. When graduates from Social Science and Arts faculty are considered, the scenario is somewhat different. Unlike the graduates from the Science faculty, the mean CGPAs of graduates are more or less the same (2.8 for both faculties) irrespective of the divisions in which they studied at their higher secondary level. Moreover, the mean CGPA of these graduates at HSC is satisfactory. The mean CGPA of graduates from the Business Studies Faculty is not so satisfactory. The mean CGPA at the bachelor level is almost the same (CGPA 2.9) among the graduates who studied Science and Business Studies at their higher secondary level.

Almost all the Master’s graduates from the Science faculty (except two graduates from Madrasa) are from the Science division at the HSC level. In the case of Masters graduates from the Social Science faculty, the mean CGPA of the graduates is slightly higher among the graduates who were in the Science division in HSC compared to the graduates who were in Business studies, Social

Science and Humanities divisions in HSC. On the other hand, the mean CGPA at the Masters level of the graduates from the Business Studies faculty are more or less the same (CGPA around 3) irrespective of the divisions in which they studied at their higher secondary level.

Our sample shows that comparatively more students from non-government colleges are employed while studying. The daily working hours of students on average is quite long. On average, a student spends 5.4 hours at work daily. Students from non-government colleges get involved more in paid work compared to government-college students. These non-government college students likely become engaged in part-time work more to finance their studies and expenses. More than 95% of total students (and 100% of non-government college students) reported that they do not receive any stipend from their respective institutions. It suggests the students would need adequate financial support to continue their studies without any disruptions whatsoever from their engagement in the paid work. Around 39% of current students stated that securing a college degree was the first reason for studying in college. The majority of the students from Social Science at the bachelor level (46.5%) and 67% of students from Arts in Masters level reported that their prior work experience “had no relevance” to their current areas of study. Students perceive that ICT training provided by their college cannot equip them with the proper skills required to meet the job market demand. Similar to graduates, more than 90% of students said there is no provision of counselling service or job placement office at colleges.

The students were asked to categorize the reasons for studying their particular subjects into three orders based on the priority as 1st reason, 2nd reason, and 3rd reason. Some students had only one reason for studying the particular subject. Around 52% of total respondents stated that they selected the subjects considering the relevance to their prior academic preparation. The majority of the students mentioned this as the first reason; 5.4% of bachelor students and 49% of Masters students also specified “the relevance of prior academic preparation to current studies” as the first reason for studying the particular subjects. The students expressed their perception of the academic training provided by the colleges. They stated that they have been attending the lectures/classes regularly. When asked about the effectiveness of ICT training provided by their colleges, the mean score turned out to be very low; only 1.97 (on the scale of 1 to 4) by the honours and 2.4 by the master’s students. The score reflects the inadequacy of ICT training provided by the college as the students perceive that ICT training cannot equip them with the proper skills required to meet the job market demand. On the other hand, the students do not fully agree that “they are receiving sufficient training to survive competition in the labour market in their desired area; the mean score (level of agreement on a scale of 1 to 4) turned out to be less than 3 for both honours and masters students with respect to the statement “Overall, the program I am enrolled in is teaching me what I will need to know if I work in my desired industry of work in the future”. Both the honours and master’s students are concerned about the uncertainty of getting expected employment after graduation as reflected. The students also expressed some of the limitations of the method of training provided by the colleges. The students fully agree that “the program is taking up too much time for examinations but less opportunity for learning”.

Students were asked about the effective source of searching for jobs. “Job opening advertisement in the newspaper” and “online job sites” came up as the two major effective sources of job search as stated by the majority of the students. “Social media”, recommendations by others (family, relatives, friends, alumni associates) are other sources of job search. However, despite the need for counseling services by colleges, there is no provision of counseling services or job-placement offices at colleges as mentioned by more than 90% of the students. Almost all of the students expressed their need of receiving counseling services from colleges.

COVID-19 Impact

Around 61% of current students stated that their colleges have shifted to online classes during the pandemic. On average, the students have been attending 4.5 hours of online classes per week. This duration is longer and almost the same (5 hours a week) for NGH and NGM students. On the other hand, GH and GM students have been attending classes for 3.4 hours and 4 hours, respectively, each week. It should be noted that the students from non-government colleges seem to be more devoted in terms of longer duration when it comes to class attendance compared to students from government colleges. “Live classes using board-marker” came up as the most commonly used method for teaching, as stated by around 50% of the students. This method is also “most effective” as reported by around 63% of the students. As per NGM students, 86% of the total duration of online classes/lectures is utilized effectively while this percentage is lowest (57.4% only) for the classes of NGH colleges. The difference between the average utilization rate of GM and NGM colleges is statistically significant.

The students also differentiated online classes from regular classes in terms of quality. Around 50% of the students stated “online classes are of somewhat lower quality than regular classes”, whereas 32% of the respondents reported the online classes as of “the same quality as regular classes”. The proportion of students who stated that online classes are of “much lower quality than regular classes” is quite substantial (16.6%), and this portion is highest among NGM students (26%) and lowest among GM students (8.2%). More than 80% of students at the bachelor level face difficulties in participating in online classes, while this proportion is lower among the master’s students. Access to the internet or poor connectivity came up as the most challenging part, as reported by 54% of total students. On the other hand, the cost of internet usage came up as another difficulty, as reported by 18.7% of total students. Unavailability of devices, lack of convenient ambience to study, disruption in study due to high involvement with family chores/matters, inadequate office hours with teachers, and less participatory classes are the other difficulties faced by the students in attending online classes. The group of students who were participating in online classes were further asked if they were facing any digital or connectivity difficulties (access to digital device/internet and/ or internet cost). The other group who were not participating in online classes were also asked to state if they were facing any digital or connectivity difficulties prohibiting their participation. Therefore, we have four different groups: (i) participating students who were facing digital or connectivity difficulties, (ii) participating students who were facing no

digital or connectivity difficulties, (iii) non-participating students who were facing no digital or connectivity difficulties, and (iv) non-participating students who were facing digital or connectivity difficulties. Figure 4.9 shows the distribution of these four groups of responses by gender of the respondents. It allows us to see if female students are facing challenges compared to male students.

Among the male students who were participating in online classes without any digital or connectivity difficulties, 32% belong to the group with monthly household income between BDT 20,001 and BDT 30,000. This proportion is the same among the male students who were participating in online classes despite having digital or connectivity difficulties. However, when lower household income level (BDT 10,000 to BDT 20,000) is concerned, the proportion of male students (52%) who were participating in online classes with any difficulties is substantially higher than the proportion of male students (29%) who were participating in online classes without difficulties. Therefore, more male students who are facing difficulties while participating in online classes belong to the lower household income group. On the other hand, the same scenario is observed for female students. When a lower household income level (not more than BDT 20,000) is concerned, the proportion of female students (40%) who were participating in online classes with any difficulties is substantially higher than the proportion of female students (29.6%) who were participating in online classes without difficulties.

Students who were not participating in online classes were asked if the reason for non-participation is digital and connectivity difficulties, around 70% of male students who reported that they were participating despite having no difficulties belong to the group with monthly household income up to BDT 20,000. On the other hand, around 90% of male students who were not participating in online classes due to digital and connectivity difficulties have a monthly household income up to BDT 20,000. The same scenario is observed among female students. Fifty percent of female students who reported that they were participating despite having no difficulties belong to the group with monthly household income up to BDT 20,000. Around 63% of female students who were not participating in online classes due to digital and connectivity difficulties have a monthly household income up to BDT 20,000. Therefore, a substantial proportion of male and female students who were not participating in online classes due to digital and connectivity difficulties belong to the lower income group.

Around 70% of the students use mobile data to participate in online classes. Participation in online classes increased the total cost of internet usage. Seventy percent of total respondents responded that they need to pay additional expenses for using the internet to participate in online classes compared to the pre-pandemic or no-online-teaching situation. This additional internet cost is, on average, paid by GH, NGH, GM and NGM students per month are BDT 318, BDT 295, BDT 372 and BDT 249, respectively. Students were asked about their future planning on continuing their studies through participation in online classes with prolonged pandemic situations. Around 78% of total respondents stated that they would continue studies with the usual course load and around

20% of total students were found to be uncertain about continuing studies. Eighty-eight percent of GM students will continue their studies with the usual course load, and 11% of GM students will continue their studies with fewer courses than before. Around 88% of the student's household income fell due to the outbreak of COVID-19. This proportion is highest among students in non-government colleges (90%) compared to government colleges. The household income of NGH students fell more than GH students, and the difference is statistically significant. It is also the same when GM and NGM students are compared.

3.3 Teachers Survey Findings

For the Institution Heads/Teachers' Survey, we interviewed 200 teachers, including principals of colleges, associate professors, assistant professors, and lecturers. The sample of teachers comes from four faculties (Science, Social Science, Arts and Business Studies) of selected 54 colleges. The teachers at both honours and master's levels scored their students as "somewhat skilled" in terms of entrepreneurship, time management, basic and advanced computer operation, written and verbal communication, and English communication. The two major sectors of employment for students reported by teachers are the private sector and NGOs. Teachers reported that graduates from Mathematics, Computer Science and Engineering, Anthropology, Environmental Science, Finance and Banking, and Soil Science are usually the quickest to get a job within a year after graduation. Graduates from Home Economics and History usually need to wait the longest, more than 36 months. The teachers opined that the lab facilities and equipment (including access to computers) are not adequate as required to support research activities. Access to the internet is not at the expected level in supporting students' learning process. We elicited teachers' perceptions regarding their students' various skills in general. The skills include communication skill and leadership and management skill. However, we did not ask them to report if they had any separate subject/course focusing on enhancing students' communication skills and leadership and management skill. Teachers were generally asked to report their perceptions regarding the usefulness and effectiveness of the existing NU curriculum in enhancing these skills. The teachers were asked about the effectiveness of ICT education provided by the colleges, and the mean score turned out to be 2.8 as rated by the teachers at bachelor and master's levels. The score reflects that the ICT education provided by the college are "moderately effective" in terms of the practical implementation of acquired skill at the workplace. The NU course curriculum and educations on basic subjects (math, science and language) also seem to be "moderately effective" as the mean score came up to 2.5, as scaled by teachers both in bachelor and master's levels.

Only 40% of teachers stated the colleges provide additional training beyond the curriculum. When teachers were asked about job search facilities, only 17% reported collaborations with industries to facilitate students. Only half of the respondents stated that their colleges do provide job placement facilities for the students, and this proportion is also higher among NGM colleges (58%). The teachers who reported that they have job search support at their colleges were also asked about the different types of job search support. Around 80% of teachers stated that the

teachers supported individually to their students in getting a job, and around 47% of the teachers reported that there is a provision of career counseling. On the other hand, 42% of respondents stated that they facilitated students in searching through social media/websites.

COVID-19 Impact

More than 96% of teachers stated that online classes are conducted by the respective colleges. On average, 13, 22, and 21 courses (per month) have been taken through online classes during April-May 2020, June-September 2020 and October-December 2020, respectively. The total duration of online classes held per week were 13 hours, 22 hours and 22.2 hours during April-May 2020, June-September 2020 and October-December 2020, respectively. The majority of the teachers (more than 50%) stated that they conduct live classes using board-marker/chalk. The extent of interaction and level of utilization of online classes are not satisfactory. The teachers were asked to rate (on a scale of 1 to 3) the extent of interaction in online classes, and the mean score turned out to be 2.0 for both honours and master's teachers. Therefore, online classes are "somewhat interactive" as perceived by the teachers. Considering the utilization of online classes, the average utilization rate (%) came up as 51% for the online classes at the honours level and only 39% at the master's level. However, the difference between the utilization rate of GM and NGM colleges is statistically significant. More than 65% of the teachers perceived that online classes are of "somewhat lower quality than regular classes". "Difficulties faced by students to interact with teachers" came up as one of the major limitations, as stated by more than 70% of respondents. Lack of provision of access to the internet and low connectivity came up as one of the major challenges, as stated by more than 70% of teachers; 23.3% of the respondents had to purchase smartphones, 21% had to buy headphones/earphones, and 16% had to buy laptops. Around 55.4% of teachers have the plan to continue online teaching with the usual course load. The teachers recommended increasing students' participation in online classes and facilitating teachers, purchasing internet packages for both teachers and students can be a viable option. This can be implemented cost-effectively by establishing partnerships between colleges and telecom providers or internet service providers (ISPs). The teachers strongly agree that students are adversely affected, during this pandemic, due to persistent disruption in students regular concentration to study, difficulties in completing the course in due time, limited study hours resulted from involvement in non-academic activities, and distraction of students concentration from study and degree completion.

3.4 Employers' Survey Findings

We interviewed a total of 233 current employers of National University (NU) graduates within the Dhaka Division of Bangladesh. Unlike the other three surveys, this survey does not distinguish between the four types of colleges (GH, NGH, GM, NGM). Employers from different types of institutions were interviewed, the majority being from private enterprises. The mean values for the current number of full-time and part-time employees are reported. The mean number of full-time employees is 339.50, with a standard deviation of 1361.73, and the mean number of part-time employees is 20.42, with a standard deviation of 45.36. The large standard deviations indicate that

number of employees differ greatly based on institution size. The mean number of new employees recruited in 2019 is 50.89 (standard deviation 131.43), and the mean number of employees recruited in 2020 is 47.18 (standard deviation 146.54). It may look like an impact of the COVID-19 pandemic, which is why we also reported the mean number of employees just before the lockdown period in March 2020 in Bangladesh, the mean number laid off from April to November, and the mean number recruited during the same period April to November. We see that although, overall, around 17 employees were laid off during the first wave of the pandemic across all surveyed institutions, around 19 employees were recruited over the same period.

The majority of the decisions (83% to 94%) regarding both recruitment and training are done by either the entire institution or the head offices. Only a small minority reported these decisions being taken by either a central authority or the branch office (6.5% in both cases). When we filter the results to include only government institutions head offices' decisions remain high at 80% to 90%, branch office decisions fall to 0% and central authority decision-making rises to 36% (12 out of 33 government institutions surveyed reported decision-making by the central authority, and the total number of institutions reporting decision-making by the central authority was 15).

With regard to various employment criteria, only recommendations (both non-academic and academic) are to hold overall lower importance; all others, including degree, institution, technical skills, CGPA, prior work experience, soft skills, etc., are seen to be of higher importance. Company websites and job sites are the most often used modes for recruiting new staff (54% and 50% of employees use this), immediately after other unlisted modes (72%) and followed by media advertisement and informal personal network (40% and 30%). The majority of employers reported never using partnerships with college or training institutes or job fairs for recruitment (90% and 85%). Forty-four percent of employers also reported never using media advertisements for recruitment. About 57% of employers said that their establishments arranged or funded job training for newly hired staff over the past 12 months. Most of the training is seen to cover basic business or technical knowledge of the job (76%) and basic practical technical skills on the job (71%). Eighty-three percent of employers reported that their establishments have special interests in recruiting NU graduates. However, 73% of employers said that NU graduates in current posts are not difficult to replace. The majority of employers reported a moderate possibility of hiring NU college graduates in the next three years. ICT (84%), Communication (83%), Problem-solving (82%), English (80%), and Teamwork (75%) were cited as the most important areas that universities should train students in. All of these skill areas (except Teamwork) are also cited as the top desired skills in the past Graduate Tracer Studies of 2016, 2017, and 2018 (The World Bank, 2019). NU graduates were assessed as highly skilled by most employers with respect to work attitude (77% of employers)¹, followed by communication skills and practical skills (51%

¹ It contradicts the World Bank (2019) Tertiary Education Sector Review Report, which finds that “Employers emphasize that the skills of tertiary graduates, especially higher-order cognitive and soft skills, are not sufficient”. But

and 48%), problem-solving and independent thinking (40%) and theoretical knowledge on the subject area (40%). Employers assessed NU graduates as moderately skilled in most skill sets (ranging from 44% to 58%) except work attitude where they were assessed as being usually highly skilled. Very few employers assessed NU graduates as being unskilled, all under 5%.

4. Limitations of the Study

The sampling was done based on the given population of the colleges that were in the list of CEDP, and the sampling and survey implementation strategies had to be adjusted to the ongoing pandemic situation in the country, which also resulted in sample attrition. Hence, the sample may not be a representative one. It may be noted that individual-specific observable characteristics could have implications on the responses, which are largely subjective.

5. Recommendations

This study highlights some issues for improvement in the overall teaching and learning environment of NU affiliated colleges. The policy focus towards facilitating digital education-using technology to connect teaching and learning- will be important in the post-pandemic period. For this, educational institutes need to collaborate with private sectors and digital industries to enhance the student experience and learning. Like major private universities in the country, the colleges under the national universities will need to embrace the digital transformation to offer competitive education in developing the skilled-manpower needed for the country. The use of open educational resources becoming increasingly important in facilitating education worldwide that embrace the global transformation using the online-based platform. So, the universities and tertiary level colleges need to embrace digital solutions in education and learning. For example, google apps for education have been used recently as an effective tool to connect with students worldwide, including Bangladesh, during the pandemic, as also observed in our survey. More investments are needed by higher educational institutes on learning solutions using online tools such as video conferencing facilities. In this context, distance learning can effectively address the challenges of classroom instructions as a hybrid educational program. For this, massive investment will be needed to build technology platforms to facilitate online instructions in colleges. There should be collaboration among the college to gain more from such investments for similar programs. Focus is needed on capacity building of faculty, arranging financial and logistic support for the effective use of technology for teaching and learning, and incentivizing faculty members for conducting research. The colleges can be put under obligation to report regularly on educational and research activities of their faculties and thus rewarding them.

we have described the exact perceptions that employers have reported; the results are based on the information collected.

Teachers need to acquire ICT knowledge fast to guide their students wherever appropriate. For example, digital skill development courses or ICT training courses deserve priority as reflected in graduates, current students, and employers opinions. The STEM subjects are essentially relevant to the labour market need as they equip students with necessary job skills (soft, hard and managerial) to take advantage at the workplace. More scholarship should be provided to attract students into these subjects with labour market relevance. There is a need for job placement facilities in college which are deemed important by an overwhelming percentage of graduates and students, and most teachers. Graduates from some of the STEM subjects and Anthropology and Finance and Banking seem to be quickest to get jobs, usually within a year of graduating. The need for a certificate to find a good job seems to be the first reason, cited by many graduates and current students, in explaining their reason for studying at college. The majority of colleges are reported to have shifted to online classes during the pandemic, and both teachers and students have experienced increased costs associated with class participation, especially access to the internet. But most teachers and students have expressed plans of continuing online classes with their usual course load.

There is a need for teacher recruitment and teacher training, which needs urgent policy focus. Course curriculum needs to be updated regularly to improve learning. To improve the job market relevance of education, short courses on various skills, including soft-skill development, need to be arranged. Job fairs should be organized every year, preferably at the district level, to facilitate industry collaboration. Funds should be made available for upgrading labs, research facilities, IT environments, wherever appropriate, to facilitate an online-based hybrid learning environment.