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University Students' Productive Engagement: A Study from COVID-19 Pandemic in Bangladesh

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Abstract: *The purpose of the study is to encapsulate the engagement of university students in diversified productive activities during the COVID-19 pandemic and in the pre-COVID situation. A total of 215 responses from university students representing both males (60.5%) and females (39.5%) were collected through an online survey and the questionnaire included both open and closed-ended questions. The result shows the involvement of 32.1 percent of students in different volunteering, 61.4 percent in different self-development, and 53.5 percent in various income-generating activities during the period of COVID-19 academic shutdown together with various challenges faced by the students for not being engaged in any of these productive activities during this period. The findings also revealed that time spent on each category of activities remained higher during the COVID-19 situation than in the pre-COVID period. Online involvement (27%) during the COVID-19 restricted period and physical involvement (40.9%) in the pre-COVID period have dominated their manner of participation in productive activities. The outcome of the present study and the model generated by the authors will promote the scope to know more comprehensively about students' engagement in different productive activities giving them important insight to utilize their valuable time and future course of action amid the loss of the COVID-19 pandemic with the support from public and private organizations, educational institutions. The value of these findings and the associated model can be used to create a suitable ambiance for doing productive activities for university students and for being proactive.*

Keywords: *COVID-19, academic shutdown, productive involvement, skill development, income generation, volunteerism.*

Introduction

The whole globe is bemoaning the risks and lethal effects of the COVID-19 pandemic, which have been with us since its inception in December 2019. The COVID-19 restricted period may impose many detrimental impacts on the physical and recreational activities of people; however, there are things that one can do to get help in studying, devolving their skills, and dealing with other issues more effectively in general. During the lengthy time of the COVID-19 restricted period, people have been trying to strike a great balance between rejuvenating themselves

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and still being productive, which has been the case throughout the whole situation (Nandini, et al., 2020). Social interaction and assisting people around oneself are proven to open the scope of the most useful way to feel well under the stressful lockdown period (Finnerty et al., 2021). Listening and practicing music is one of the most effective ways that young people have found to deal with stress, according to research conducted with different age groups (Vidas et al., 2021).

The COVID-19 pandemic has caused a widespread crisis in the learning of students from primary to tertiary level (Roe et al., 2021; Rapanta et al., 2020). Universities help the economy to grow by teaching students advanced technology skills and management approaches through their academic programs (Fejes et al., 2019), which was hindered in some way by the fact that traditional education was immobile for a long time during the restriction to continue in-person education. Following the unexpected outbreak of COVID-19 in Bangladesh in March 2019, all academic activities were abruptly halted. The higher education sectors especially the universities of Bangladesh remained shutting down to conduct any face-to-face teaching-learning activities for their academic sessions from March 2020 (Khan and Abdou, 2021). From March until August, though many private and public universities continued taking online classes with short syllabuses, public universities officially resumed their in-person classes in September 2021 [*]. University students who used to be occupied with multiple tasks and physical classes were then trapped indoors and were trying to find alternatives to make their time useful. University students' spending their time effectively in creative learning, and their engagement in extracurricular activities are rudimentary contributors to their overall wellbeing. It has been shown that participation in extracurricular activities is a key factor in the facilitation of problem-solving, the permitting of emotional expression, the enhancement of flexibility, and the contribution to the development of interpersonal skills (Fares et al., 2016). The utilization of COVID-19-restricted time with proper productive practices will contribute a lot to students' future endeavours. The first step in achieving a new level of imaginatively structured education that is based on the interests and goals of students is to shift the focus of education toward productive learning. When a socially beneficial product is being generated that has tangible utility for education and self-education, this is an example of productive learning, which shows creativity in the process of people's attempts to choose their destinies. These productive learning are thus described as an arrangement of individual and social activity that displays the search-based, creative, transforming character of learning and individuals can acquire the cumulative social experience as a new product from this learning that is subjective to them (I. S., 2017).

Students have no option but to supplement their hard talents with soft skills if they want to show their genuine potential and stand out from the crowd. In contrast to hard skills, which are acquired via formal education and work experience, soft skills are acquired through informal means such as self-study, interpersonal interaction,

communication, and other experiences. According to the literature, hard talents make up just 15 percent of a person's achievement, while soft skills make up the other 85 percent (Wats and Wats, 2009). New opportunities for learning and evaluation are provided by ICT for students who have grown up in a society where technology is integrated (Zahra et al., 2019). Knowledge of ICT also serves as a facilitator between the teaching of the curriculum and the development of business skills, and innovation strategies (Iqbal et al., 2022). In some contexts, access to learning and skill development was maintained through a sudden transition to online learning in technical and vocational education and training due to the COVID-19 pandemic (ILO and The World Bank, 2021). Still, students in higher education should be aware of the various needs and uses for technological skills in various areas of competence so that their future development can be more balanced in each of these areas and so that they can reflect on new ways of teaching and learning in higher education with quality (Rodrigues et al., 2021). Thus, practicing various software, apps, and tools during the COVID-19 period will serve fruitful purposes for the future professional careers of university students. As part of productive activities, university students are working relentlessly in this pandemic with the determination to help the community people in the crisis period. The young students are doing various volunteering works in commitment to support and aware people (Evans and Yosuf, 2022). They are also found to engage in volunteerism (31%) amid the crisis and they are much more active in donating to the Covid response (27%; ILO, 2021). The income-generating activities of young university students also were disrupted by the COVID-19 pandemic. The study by ILO (2021) on global young people studying at the tertiary level revealed that around 42 percent of young people experienced their income reduced in time of the pandemic.

In this pandemic, the lives of students have changed, new issues have emerged, and new practices have developed as online business, home office, etc. To adapt to the fast-changing world and to attain the target of sustainable development goal 8.5 which calls for 'full and productive employment and decent work for all', it is time, for university students should allocate their valuable time wisely after productive activities. This survey represents the first one to be conducted in Bangladesh on the productive engagements of university students in pre and current COVID-19 context analysis. The analysis of their engagement in a variety of productive activities under the lens of gender, income, time spent, locality and academic level will help to evaluate students' motives in spending their valuable time and identify activities they are keener to practice.

Objectives of the Study

The motivation for this online survey included the desire to analyse the diverse activities students performed in the COVID situation, intending to fulfil their targeted goals ahead along with the pre-COVID activities. Therefore, the specific objectives of the study are-

i. To explore differences in students' involvement in different productive activities considering gender, locality, academic level, and university type.
ii. To evaluate the amount of time spent in different categories of productive activities during the restricted period of COVID-19 and pre-COVID period;
iii. To find out students' dependency on online or off-line activities during COVID-19 and pre-COVID situations; and
iv. To figure out the reasons for not being involved in any productive activities during the COVID-19 restricted period.

Methodology of the Study

Study Design and Survey Population

To elicit the engagement of the students of both public and private universities in diversified productive activities from the city, rural, and suburban areas of Bangladesh, an online survey was undertaken with a semi-structured questionnaire from September 22 to October 16, 2021. That was the ideal time to conduct the online survey as students were in their respective locality due to the countrywide lockdown and were participating in teaching-learning through online platforms. Online surveys facilitated the protection against the COVID-19 virus spread, which would not be possible if it involved offline engagements that were through face-to-face surveys. In the selection of survey respondents (n=215), snowball-sampling methods were carefully chosen where the Google forms were shared with colleagues, friends, and classmates via online platforms especially Messenger, emails, WhatsApp, etc. Then the recipients shared the Google form with students from different public and private universities and they participated in the survey with their consent. In addition, through online meetings using Zoom, Google Classroom, and messenger platform many respondents were informed about the objectives of the study and ways to answer the questions. Attention was given to having both male and female students assess the gender difference by engaging in productive activities considered from different dimensions like time spent, challenges, income generation, etc.

Study Instrument

In alignment with the research problem, students' engagements were studied based on three major categories of productive activities namely volunteering, self-development, and income-generating activities. Pretesting of the questionnaire was also conducted on ten (n=10) students, each from a different academic level, gender, and locality of the University of Dhaka to ensure the clarity of outcomes and to make necessary corrections to the questionnaire. Analysis of the responses found from pretesting was conducted to identify any inconsistencies, ambiguities, or omissions in the replies, with some reformulations being made to clarify the questions. To examine their pattern of time spent and associated material benefits from different

productive engagements in pre and current pandemic situations, students were asked about their daily average time spent after the activities along with the associated income they generated monthly by engaging in different income-generating activities.

Statistical analysis

For analysing the collected data, the SPSS 25 program along with excel based calculations was used to show the frequency and traits of productive activity types, the pattern associated with their online and offline engagement, time spent after each activity, etc. To assess the association between students' involvement in different productive activities with the general characteristics of the students, the *Pearson chi-square (χ2) test was conducted keeping the significant value at a 5% interval. In this regard, the null and alternative hypotheses are:*

i. for general characteristics (locality, gender, university type, academic level, etc.)

Ho: There is no significant mean difference between locality, gender, university type, academic level, and students' engagement in different productive activities (Volunteering, Self-development, and Income Generation).

Ha: There is a significant mean difference between locality, gender, university type, academic level, and students' engagement in different productive activities (Volunteering, Self-development, and Income Generation).

To estimate intergroup differences in students' involvement in productive activities, the Independent Sample Test (t-test) and Paired t-test were also carried out. The significance level was set as α=0.05. In addition, Levene's test for equal variances has been considered as a gauge to decide whether equal variance is assumed or not to incorporate the independent sample t-test results, since the test results are generated automatically in SPSS.

The assumed hypothesis for the independent sample test is categorized into three separate time spent activities during the restricted period of COVID-19 and the pre-COVID period. In addition, test results are checked in two groups, one for gender types (Male and Female) and the other for academic levels of students (Undergraduate and Postgraduate).

Therefore, the assumed null and alternative hypotheses in general consideration of COVID-19 and pre-COVID period are:

ii. for gender types (male and female)

Ho: There is no significant mean difference between male and female students' time spent in different productive activities (Volunteering, Self-development, and Income Generation).

Ha: There is a significant mean difference between male and female students' time spent activities in different productive activities (Volunteering, Self-development,

and Income Generation).

iii. for academic levels (Undergraduate and Postgraduate)

Ho: There is no significant mean difference between Undergraduate and Postgraduate student's time spent in different productive activities (Volunteering, Self-development, and Income Generation).

Ha: There is a significant mean difference between Undergraduate and Postgraduate student's time spent in different productive activities (Volunteering, Self-development, and Income Generation).

Finally, a paired t-test result has been calculated to find out the significant difference in income earned by the students in BDT between the pre-COVID and COVID-19 periods. Hence, the assumed null and alternative hypotheses are:

iv. for monthly income (BDT)

Ho: There is no significant mean difference between COVID-19 and pre-COVID amount of students' income in BDT.

Ha: There is a significant mean difference between COVID-19 and pre-COVID amount of students' income in BDT.

Findings

This part focused on the results of the present study. The tabulation of the study results is summarised and explained in detail with related references.

Profile of Students

Students enrolled in undergraduate and postgraduate levels from different public and private universities in Bangladesh are the respondents of this study. Of the total 215 respondents, undergraduate-level students represented 66 percent (n=142), and postgraduate-level representation was 34 percent (n=73). Among all the respondents, 60.5 percent were male (n=130) and 39.5 percent (n=85) were female students. The tertiary-level students in Bangladesh are generally aged 18 years; however, the mean age group of respondents in this current study is 23 with a minimum age group representation of 19 and a maximum of 27. In public universities, the dormitories accommodate most students coming from different districts. Other students are often found to arrange personal accommodations in different areas of the respective cities. This study found that most of the students were from the city area which represents 62.8 percent (n=135), the rest of the students were from the village (23.7%) and suburban (13.5%) areas.

Students' involvement in different productive activities

During the month's long academic shutdown owing to the high transmission rate of the novel Coronavirus, students had vigorous involvement in different types of activities. In the context of the ongoing COVID-19 pandemic, the majority (83.7%;

n=180) of respondents answered positively when asked about their involvement in any productive activities whereas 16.3 percent (n=35) were not engaged in any productive activities. In many cases, the types of activities they performed during COVID-19 are quite different from their pre-COVID situation where they were seen to get involved mostly in different academic-related courses, content or article writing, field data collection, etc. activities. Among the three main categories of productive activities namely, volunteering services, self-development activities, and income-generating activities, about 61.4 percent (multiple responses, n=132) of students spent their lockdown time for self-development activities like getting involved in various skill development and learning courses. Furthermore, 32.1 percent (n=69) of surveyed students were involved in different volunteering activities and 53.5 percent (n=115) of students' involvement was recorded for income-generating activities. These findings positively portray that university students preferred to develop themselves through various activities during the pandemic situation most, without wasting their precious time by being passive.

Students' involvement in different types of volunteering activities

Volunteering activities of students under different social organizations or community service depict diversified social actions taking place in the community and on a personal level. Multiple responses were obtained (n=94; N=180) while asking for the types of volunteering activities they had been engaged in during the COVID-19 situation. The highest percentage of student involvement was recorded in engagement with different community-based volunteering organizations (12.2%; n=22; N=180) mainly focusing on Covid response-related activities, 10 percent students were involved in public awareness-related campaigns, 6.7 percent in relief aid assistance, and 6.1 percent students were recorded to involve in Covid related data collection activities (Figure 1). In addition, volunteering in the vaccination management program and mask distribution were stated by 3.3 percent of students. Having options for other volunteering services, students mostly preferred serving the community in their time of need and taking risks in their own lives. The volunteering activities hardly offer any economic benefit for the students nonetheless they had strong participation in assisting others in terms of psychological support (2.8%), free teaching (2.8%), helping people (2.2%), social services (2.2%), club activities (2.2%), and fund collection for needy students (1.7%), etc. Volunteering involvement in the pre-COVID represented differences compared to the COVID-19 situation (Figure 1). Specifically, in pre-COVID time highest number of students preferred to engage with various organization-based activities (20%), followed by public awareness (8.3%), free teaching (6.1%), data collection (6.1%), etc. activities. Here, the decline in the free educational service during the COVID-19 academic shutdown situation was remarkable (from 6.1% to 2.8%).

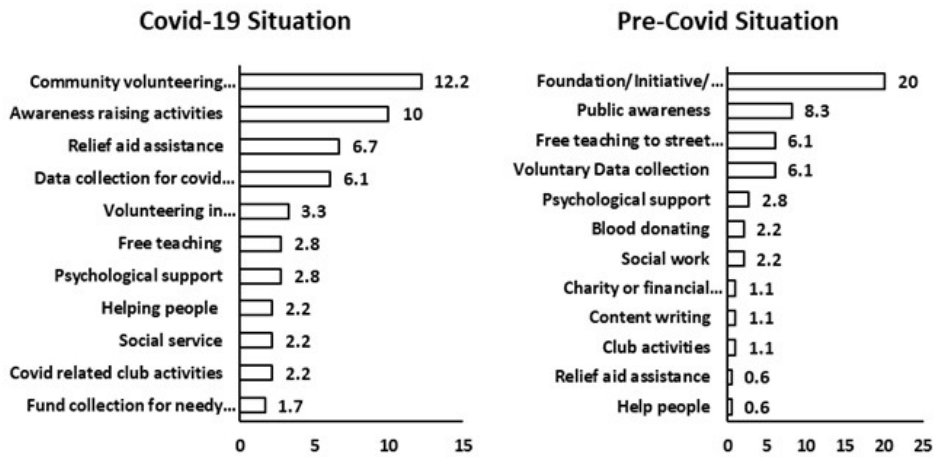

Figure 1: Students' (%) involvement in different volunteering activities during COVID-19 academic shutdown and pre-COVID situation

Conspicuously there was a six-fold increase in the involvement of students in relief aid assistance works (6.7%) during the current pandemic than the pre-COVID situation (0.6%). During the pandemic, they were also seen to get involved in club activities specifically focused on Covid-related issues (2.2%) though in pre-COVID time, only half of the students (1.1 %) did general club activities (1.1%). Activity like helping others (2.2%) also increased in the pandemic from the pre-COVID situation (0.6%) and it was the lowest performed activity among the students before the pandemic outbreak. Negligible numbers of students (1.7%) were also found to work for fundraising during the pandemic time (Figure 1).

Students' involvement in self-development activities

Amid many challenges of the COVID-19 situation, students who were involved in different self-development activities (Figure 2) showed extraordinary self-reliance. The study revealed that students in both the pre-COVID and COVID-19 situations were engaged not only in multiple skill development works or in activities. Figure 2 demonstrates the comparative analysis of their self-development activities in these two time frames. Most of the students were found to be engaged in computer skill-development-related courses (11.7%), graphic designing (11.1%), and leadership skills development courses (10%) during the pandemic. Besides, students were well documented to do other language learning courses (8.3%), various courses from the online based educational platform Coursera (8.9%), English language learning or IELTS practice (6.1%), learning different data analysis software (5.0%), digital marketing (3.9%), took preparation for their future endeavours such as internship (2.8%), app or web development, programming (2.2%), research and workshop (2.2%), GIS training (1.7%), writing articles (1.1%), etc. during the period of academic shutdown. Their interests in photography (7.8%), video making and editing (3.9%), drawing or painting (3.9%), book reading (1.7%),

religious practice or yoga (1.1%), etc. with various other activities (3.3%), were also recorded out from the responses.

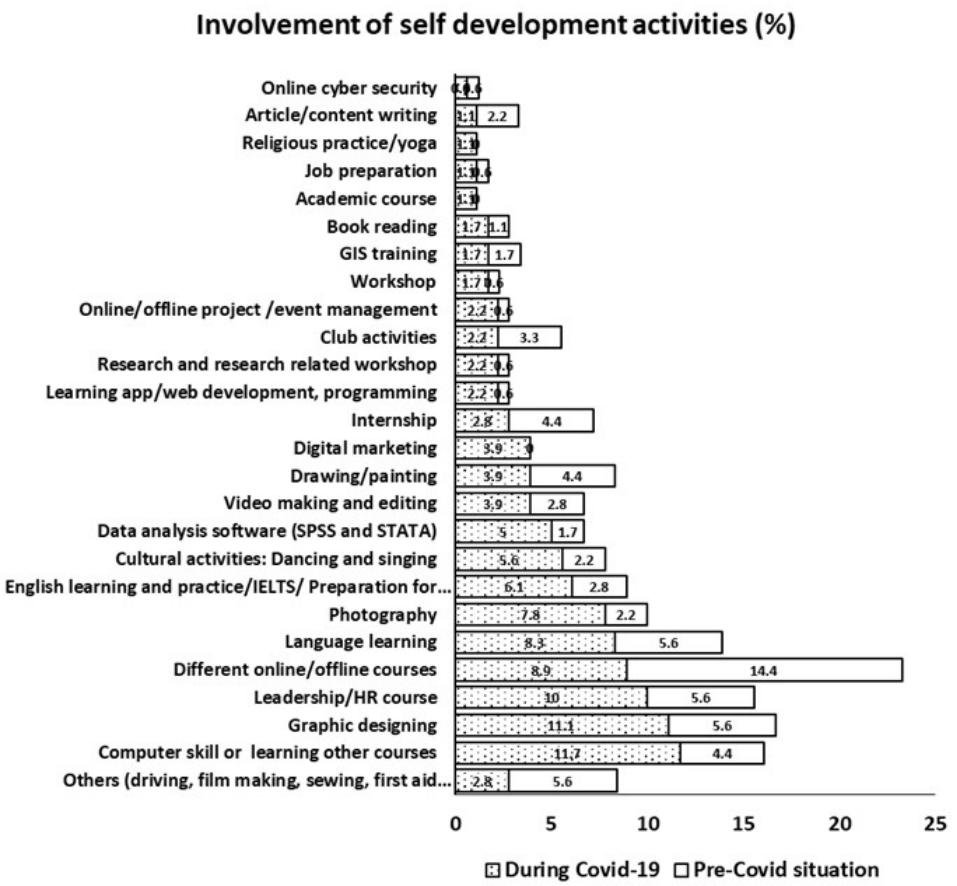

Figure 2: Students' (%) involvement in different self-development activities during COVID-19 academic shutdown and pre-COVID situation

During the academic shutdown, increased participation is observed for a few self-development activities like computer skill development or learning courses where more than 11 percent of students strived for it during the pandemic than in the previous COVID-19 situation (4.4%). Besides, rise in preferred skill development activities in the COVID-19 restricted movement period were found for learning data analysis e.g., SPSS and STATA (5% from 1.7%), graphic designing (11.1% from 5.6%), leadership or human resource management courses (10% from 5.6%), digital marketing (3.9% from 0%), language learning (8.1% from 5.6%), cultural activities like dancing and singing (5.6% from 2.2%), etc. On the contrary, the reduction rate in participating in different online or offline-based courses (8.9% from 14.4%) and internships (2.2% from 4.4%) was also well documented during the pandemic.

Therefore, it is obvious from the findings that due to strict regulation to have COVID-19 safety protocols during the lockdown, university students prefer offline or physical activities, and they are more inclined to be engaged with activities that are based online and relatively safer to practice at home.

Students' involvement in income-generating activities

The participants pointed out many diversified sources from where they earned money to support themselves and their families both in pre-COVID and during the COVID-19 academic shutdown situation. Tuition (31.1%), part-time or full-time job (10%), data collection or field survey (9.4%), online or offline business (6.7%), and freelancing (6.1%) were the main income-generating sources for them during the COVID-19 restriction period (Figure 3). It was found that tuition was the main source of earning for students both in pre-COVID and during the pandemic situation. The findings also revealed that in the pre-COVID situation, 38.9 percent of students did tuition whereas in the COVID-19 pandemic, almost 7.8 percent less (31.1%) engagement was identified in this activity. In the case of doing part-time or full-time jobs, the respondents were seen to be involved a little more in pandemic time (10%) than the pre-COVID time (8.3%).

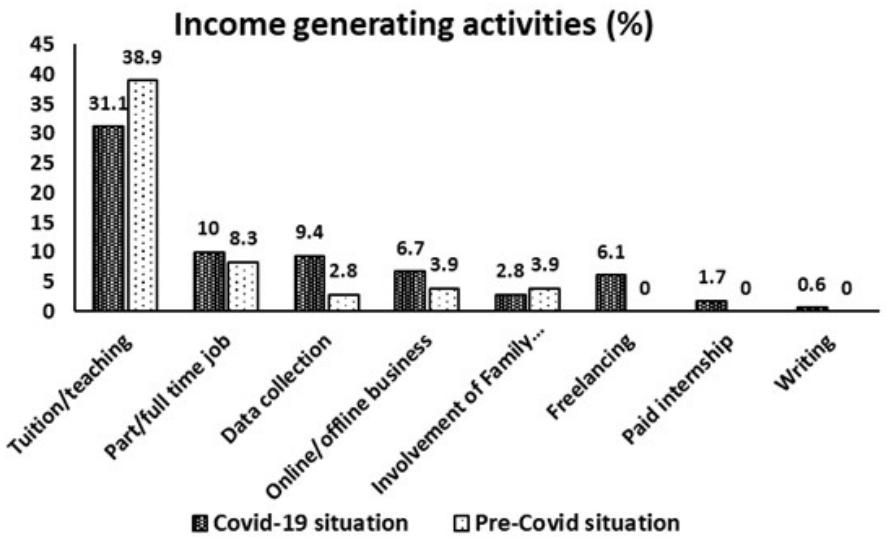

Figure 3: Students' (%) involvement in different income generating activities during COVID-19 academic shutdown and pre-COVID situation

The increased participation in income generation during the pandemic was observed for activities like data collection (9.4% from 2.8%), and self-business: online or offline (6.7% from 3.9%). Interestingly students found new sources to earn during the COVID-19 academic shutdown time which included freelancing (6.1%), paid internship (1.7%), and writing (0.6%) while they were not involved in those activities in the pre-COVID period (Figure 3).

Amount of money earned from income-generating activities

During the COVID-19 restricted situation, a minimum of 400 BDT ($4.66) to a maximum of 65000 BDT ($757.62) has been earned monthly by the students with a mean±SD of 11393±12239 ($132.79±142.66; Table 1). On the other hand, in the regular pre-COVID period they had earned a minimum of 100 BDT ($1.17) to a maximum of 100000 BDT ($1165.57) per month with a mean of 13772±17855 ($160.52±208.12). The majority of students in the pandemic shutdown period (18.6%) earned BDT 1000-5000 monthly and the second highest income range was BDT 50001-10000 for 12.1 percent of students.

Amounts earned	COVID-19 situation			pre-COVID situation		
	n	%	**mean±SD**	n	%	**mean±SD**
>1000	3	1.4	550±180.3	2	0.9	350±353.6
1000-5000	40	18.6	3887.5±1232.5	34	15.8	3882.4±1255.6
5001-10000	26	12.1	7807.7±1575.3	24	11.2	6637.5±3359
10001-15000	13	6.0	13923±1552.5	8	3.7	13500±1603.6
15001-20000	3	1.4	17333.3±2309.4	6	2.8	18666.7±2065.6
20001-30000	8	3.7	23441.6±1723.4	4	1.9	24000±1825.7
30001-40000	4	1.9	37500±2886.8	6	2.8	38333.3±2582
40001-50000	2	0.9	50000±0.0	2	0.9	50000±0.0
<50001	2	0.9	60000±7071.1	3	1.4	85000±25980.8
Total	101	47.0	11392.9±12239.3	89	41.4	13771.9±17855.2

Table 1: Amount of money earned (monthly) from income-generating activities

Source: Survey, 2021

Time spent in different productive activities

To learn the necessary technical and soft skills and to get engaged in other productive activities apart from academic study, students in both pre and during-COVID-19 situations segmented their daily, weekly, and monthly time frame after such activities. From Table 2, it is comprehended that a higher percentage of students had one-to-three-hour time spent (daily) on different productive activities both in COVID-19 and pre-COVID situations.

Regarding spending specific hours after each productive activity, the findings reveal that most university students (13.9%) were active workers in volunteering activities during this pandemic, and they have worked for two hours daily in this regard. The highest percentage of students (19.4%) worked in volunteering activities for one hour daily in pre-COVID situations. On average students spent three hours daily (mean±SD=2.9±1.7) during the COVID-19 restricted period and two hours daily (mean±SD=2.0±1.5) during the pre-COVID situation doing

various volunteering activities. This finding illustrates the strong motivation of university students to act selflessly and efficiently to serve their community during this pandemic time. In self-development activities, students in the highest percentage were recorded to spend one hour daily both during COVID-19 (27.8%) and the pre-COVID situation (22.2%). The average time spent on self-development activities during the COVID-19 period is higher (mean±SD=2.7±2.7) than in the pre-COVID period (mean±SD=2.2±1.7). To generate income highest percentage of students were found to spend two hours daily (12.8%) in the COVID-19 period whereas the highest 15 percent of students spent one hour daily (Table 2) in the pre-COVID period. On average, students were found to spend more time after income-generating activities in the COVID-19 situation with a mean hour spent of 2.8 than in the pre-COVID situation where they spent an average hour of 2.7 (Table 2).

Though they spent more time, their amount of earnings remained lower during the COVID-19 period than the pre-COVID normal period (Table 1). Table 2 also demonstrates that daily time spent on volunteering activities remains high followed by income-generating and self-development activities.

Time Range	Volunteering activities				Self-development activities				Income generating activities			
	COVID-19 situation		pre-COVID situation		COVID-19 situation		pre-COVID situation		COVID-19 situation		pre-COVID situation	
	n	%	n	%	N	%	n	%	n	%	n	%
1 hr	16	8.9	35	19.4	50	27.8	40	22.2	21	11.7	27	15.0
2 hrs	25	13.9	9	5.0	21	11.7	18	10.0	23	12.8	16	8.9
3 hrs	12	6.7	9	5.0	22	12.2	8	4.4	15	8.3	22	12.2
4 hrs	11	6.1	3	1.7	5	2.8	5	2.8	10	5.6	5	2.8
5 hrs	5	2.8	3	1.7	1	0.6	3	1.7	8	4.4	4	2.2
6 hrs	4	2.2	---	---	2	1.1	1	0.6	3	1.7	1	0.6
7 hrs	1	0.6	2	1.1	4	2.2	5	2.8	12	6.7	7	3.9
<7 hrs	2	1.1	0	0.0	8	4.4	---	---	10	5.6	10	5.6
Total	76	42.2	61	33.9	113	62.8	80	44.4	102	56.7	92	51.1
mean±SD	2.9±1.7		2.0±1.5		2.7±2.7		2.2±1.7		2.8±3.8		2.7±3.4	

Table 2: Time spent after different productive activities in both COVID-19 and pre-COVID situation

Source: Survey, 2021

Mode of engagement in different productive activities

In reaction to the escalating coronavirus outbreak, education officials have been compelled to postpone physical classes throughout the world and it is reported that the use of the internet among students stood high during this time (Jahan et al.,

2021). The current study findings (Table 3) show that students were less engaged in in-person productive activities during the pandemic situation (19.5%) than in the pre-COVID situation (40.9%) whereas online involvement of respondents during the pandemic double (27%) of the engagement in pre-pandemic time (14%). Students' mode of engagement, both online and offline, was higher throughout this pandemic situation (35.8%) compared to the pre-COVID situation (27.4%). This result gives important insight into the support for online facilities and supportive devices for students during COVID-19 time, so that, they can better utilize their time and get involved in different productive activities.

Mode of Engagement in Productive Activities	In COVID-19 Situation		In pre-COVID Period	
	n	%	n	%
Physical engagement	42	19.5	88	40.9
Online engagement	58	27	30	14
Both	77	35.8	59	27.4

Table 3: Students' preferred mode of engagement (%) in different productive activities during COVID-19 restricted and pre-COVID period

Source: Survey, 2021

Reasons for not being involved in any productive activities during Covid-19 academic shutdown

University students are more likely to be involved in various active works, although in the current study, 16.3 percent of participants chose not to get involved in any productive activities during their leisure in the COVID-19 restricted period. In open-ended questions, students marked multiple reasons (n=64; %=29.8) for their non-involvement in any productive activities during this period. Among the 64 responses, reasons such as 'no internet access' (5.6%) and 'mental pressure' or related 'issues' (5.6%) remain the highest for their non-involvement in any productive time during the above-mentioned period. Other reasons for being non-productive includes financial problem (4.2%), lack of devices (3.3%), no support from family (2.8%), family problem (1.9%), physical issues (0.9%), unwillingness or being lazy (0.9%), lack of motivation (0.9%), no time (0.5%), personal problem (0.5%), psychological retardation (0.5%), etc. Very few students also identified various other reasons for being non-productive includes want of financial support, caregiving, etc.

To understand the association of students' engagement in different productive activities with their gender, academic level, University type, and locality has been examined by Pearson chi-square ($\chi 2$) test. The results reveal that the participation of university students in two types of productive activities such as self-development and volunteering was independent of their locality (city, urban, and suburban area), gender (male and female), university type (public

and private), and academic level (Undergraduate and Postgraduate) which indicate that there is no association in the cases of attributes. However, in the case of students' involvement in income-generating activities, a positive association is found with the university type (public and private) as the *p-value is less than 0.05 (0.005<0.05). Again, for the academic level and students' involvement in income-generating activities, a close association is observed with a p-value of 0.024 (0.024<0.05) (Table 4)*.

Attributes	Pearson Chi-Square ($\chi 2$)		
	Value	df	Asymptotic Significance (2-sided)
General characteristics vs. students' involvement (Yes/No) in volunteering activities during COVID-19			
Locality	0.601	2	0.741
Gender	1.082	1	0.298
University type	0.500	1	0.479
Academic level	0.179	1	0.673
General characteristics vs. students' involvement (Yes/No) in self-development activities during COVID-19			
Locality			
Gender	2.372	2	0.305
University type	0.330	1	0.566
	3.017	1	0.082
Academic level	0.419	1	0.518
General Characteristics vs. Students' Involvement (Yes/No) in income generating activities during COVID-19			
Locality	2.190	2	0.334
Gender	0.080	1	0.777
University type	7.713	1	***0.005
Academic level	5.104	1	***0.024

Table 4: General characteristics vs. students' involvement (Yes/No) in productive activities during COVID-19 academic shutdown

***P < 0.05; **P < 0.01; ***P < 0.001**

An *Independent sample test (t-test)* on gender with total time spent in different productive activities is done for both the COVID-19 pandemic period and pre-

COVID period (Table 5), and the assumed null hypothesis was set as *"There is no significant mean difference between male and female students' time spent in different productive activities (Volunteering, Self-development, and Income Generating)"*. At 5% level of sig. (2-tailed) the value for male and female time spent in each productive activity for the COVID-19 shutdown period denoted 0.875>0.05, 0.473>0.05, and 0.116>0.05 respectively. Alternatively, in 95% of the confidence interval, the difference in time spent for volunteering, self-development, and income-generating activities consecutively ranges between 2.007 to 2.353 hours, 0.639 to 1.369 hours, and 0.016 to 0.226 hours (Table 5). Likewise, the male and female students' involvement in volunteering, self-development, and income-generating activities back in the pre-COVID situation show insignificant results at a 5% level of significance and the calculated values are 0.308, 0.186, and 0.579 respectively which all are greater than 0.05 (Table 5). It depicts that irrespective of any situation (COVID-19 shutdown and pre-COVID) both male and female students remain active and spend time in different productive activities equally, though time spent in volunteering activities remains higher in the COVID-19 period than pre-COVID period (Table 5).

However, the mean difference in time spent between Undergraduate and Postgraduate level students in different productive activities shows statistically insignificant results for both pandemic and pre-COVID periods. The sig. (2-tailed) values of mean differences for volunteering, self-development, and income-generating activities of Undergraduate and Postgraduate level students correspondingly show 0.319>0.05, 0.163>0.05, and 0.709>0.05 during the COVID-19 period whereas the sig. (2-tailed) values of the mean difference in time spent between Undergraduate and Postgraduate level students in different productive activities during the pre-COVID period stands for 0.489>0.05, 0.08>0.05, and 0.276>0.05 respectively (Table 5). Similarly, at a 95% confidence interval, differences in time spent range between 0.661 to 1.131 hours in volunteering activities, 0.245 to 1.470 hours in self-development activities, 0.908 to 1.329 hours in income-generating activities in the COVID-19 academic shutdown period, and during the pre-COVID period and the values are ranges between -1.077 to 0.521 hours, -1.403 to 0.083 hours, and -1.787 to 0.516 hours respectively for the same series of activities (Table 5). Therefore, following the alternative hypothesis, *Ha: There is a significant mean difference between Undergraduate and Postgraduate students' time spent in different productive activities (Volunteering, Self-development, and Income Generating),* it can be said that both Undergraduate and Postgraduate levels students equally spent their valuable time in different productive activities but with different values in the period of both pre-COVID and during COVID-19 period. Though the overall results show indifferent participation regarding time spent on different activities from gender and academic level, the amount of time spent on volunteering, self-development, and income-generating activities is higher in the pandemic situation than in the pre-COVID situation in the case of both male and female and Undergraduate and Postgraduate level students. It is also noted that

both Undergraduate and Postgraduate level students remain more active in income-generating activities during the COVID-19 period than in the pre-COVID period.

t-test on Gender and Academic level with time spent in volunteering, self-development, and income-generating activities						
	Items	*t*-test for Equality of Mean			95% Confidence Interval of the Difference	
		t	Sig. (2-tailed)	Mean Difference	Lower	Upper
	Time Spent in Volunteering Activities					
COVID-19 academic shutdown period	*Gender	0.158	0.875	0.173	2.007	2.353
	**Academic Level	-1.003	0.319	1.145	0.661	1.131
	Time Spent in Self-development Activities					
	Gender	0.720	0.473	0.365	0.639	1.369
	Academic Level	1.415	0.163	0.613	0.245	1.470
	Time Spent in Income-Generating Activities					
	Gender	-1.584	0.116	0.895	0.016	0.226
	Academic Level	0.374	0.709	0.211	0.908	1.329
	Time Spent in Volunteering Activities					
	Gender	1.028	0.308	0.409	0.386	1.205
	Academic Level	-0.695	0.489	0.278	-1.077	0.521
	Time Spent in Self-development Activities					
pre-COVID period	Gender	1.334	0.186	0.497	-0.244	1.237
	Academic Level	-1.767	0.08	0.660	-1.403	0.083
	Time Spent in Income-Generating Activities					
	Gender	0.558	0.579	0.327	-0.837	1.491
	Academic Level	-1.097	0.276	0.636	-1.787	0.516
Paired sample t-test for the significant measurements between COVID-19 and pre-COVID amount of Income by the students in BDT						
Pair		Paired Differences			95% Confidence Interval of the Difference	

Amount of income in BDT during	Mean	*t*	Sig. (2-tailed)	Lower	Upper
COVID-19 and pre-COVID period	-1.6	0.104	-6101.748	577.389	
2762.179					

Table 5: Independent sample test (t-test) and Paired sample t-test for time spent and amount of income by the students during COVID-19 restricted and pre-COVID period

(*Male, Female; **Undergraduate, Postgraduate)

Furthermore, according to the suggestions of *Levene's test*, all the results are true for equal variances in three of the productive activities corresponding to their group variables. According to the results of the paired sample t-test assuming the null hypothesis of "*there is no significant mean difference in the amount of students' income (BDT) between COVID-19 and pre-COVID situation*" listed in Table 5, is not statistically significant since the *p-value* is 0.104>0.05. Though students are spending more time on productive activities in the COVID-19 restricted situation, their average income (BDT) remains lower than in the pre-COVID period and the value for the mean difference in income is 2762.179 (BDT).

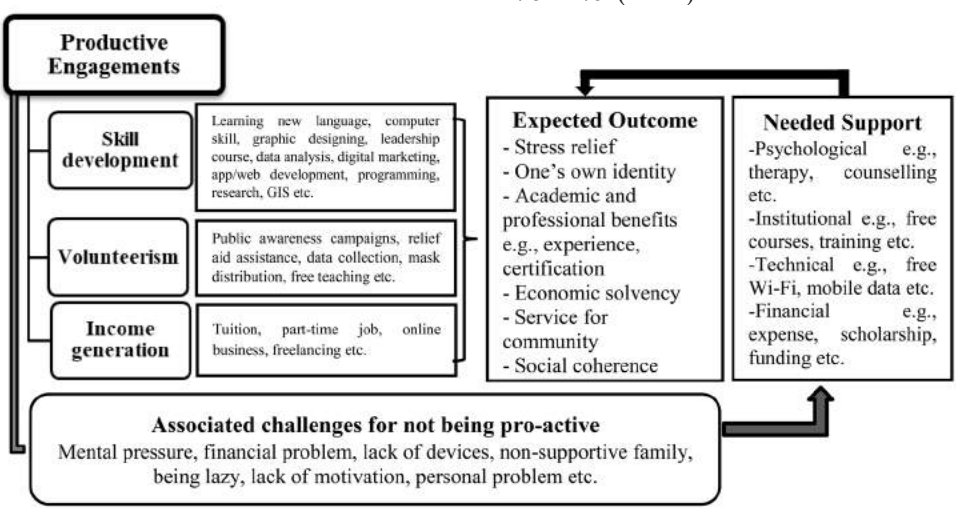

Figure 4: Tentative model of becoming better version of oneself by being pro-active

Discussion

The present research aimed at identifying university students diversified productive involvements during the pandemic restriction period and pre-pandemic situation. Findings from the study showcased that during the COVID-19 period, students participated in a variety of voluntary activities relating to COVID-19 needs,

fundraising, providing psychological assistance to distressed individuals, assisting people in overcoming trauma, etc. (Figure 1). The results depict the extraordinary support the community received from the university students in this critical juncture of the COVID-19 pandemic. They worked to protect their society, and family members, and thus had a significant impact on cumulative national afford to overcome the COVID-19 situation. Holdsworth and Brewis (2014) emphasized that young people's expectations and ambitions should be integrated into institutional processes that promote and support volunteering.

In terms of self-development engrossment during the COVID-19 period, the study findings reveal that students were engaged in various skill development activities such as different leadership courses, preparation for higher education, different language learning, graphic designing, software learning, etc. to improve their excellence or fill in gaps. Same as the case study findings of Zubayer and Obaidullah (2020), conducted on Bangladesh's university students where students were also recorded working productively throughout the academic shutdown time by taking various online courses. Again, the study of Nandini et al. (2020) reveals that 93.3 percent of respondents reported having gained new knowledge because of their self-isolation during the lockdown. Our current study also demonstrates similarity in students' being engaged in different self-development activities (61.4 %; n=132). The fulfilment of different interests like dancing, drawing, painting, and singing was also well documented in this current study (Figure 2).

The lockdown resulted in the loss of jobs and decreased chances to generate cash, particularly for those working in the informal economy in the developing country, the majority of whom are young people (United Nations, 2020). In the case of Bangladeshi, though there was a country-wide lockdown for several weeks for two phases and strict health safety measures were imposed, the restricted situation severely impacted the university students mentally (Hossain et al., 2021) which might be sourced from the sudden shift in academic, personal, and professional life. The current result shows that young students (more than 50% of respondents) still managed to be involved with income-generating activities either on a part-time or full-time basis. Except for the tuition-based income earning, students also seemed to depend on online-based income-generating activities, notably freelancing, and online business (Figure 3), and these activities were quite popular among the students during this COVID-19 temporary shutdown period.

In this current study along with the evaluation of different productive engagements of students, several challenges were also addressed that caused hindrances to the students' direct engagements in different productive activities during the COVID-19 restricted period. Want of internet access, mental pressure or related issues, financial problems, lack of device, want of family support, physical issues, lack of motivation, etc. challenges were identified in this study. A similar study by Rawlings et al. (2022) conducted on the impacts of COVID-19 on university

students in Uganda reveals that due to challenges like poor internet connectivity, expensive internet data packages, and lack of access to computers, the students are behind in accessing online-based learning platforms.

A tentative model of the process of ensuring students' engagement in different productive activities during the pandemic period and the regular period has been developed (Figure 4) which illustrates that increased participation in different activities will generate benefits for the student's future academic and professional career. They will be able to gather experience and have a sense of purpose and motivation in life, which in turn allows for more participation in productive activities and social cohesion. Economic benefits will empower the young students along with the scope to support their families. To achieve sustainable goals 4 of 'to ensure inclusive and equitable quality education for all' focusing the target 4.5 of 'eliminating all discrimination in education' the nation needs to focus more on the groups of students who were disadvantaged and lagged from achieving these goals. Our current model reveals that developing single or multiple skills and self-confidence may help students to better perform in the workplace, as well as may lead to a more positive student identity. Thus, students require combined support from the government, non-government, and institutional sectors to identify their needs and overcome their challenges. A model of the development of student identity adopted by Liljeholm et al. (2021) also confirms that academic and personal lives will flourish if such productive activities are well-planned and practiced properly. Students can also generate their own identities by making the best use of not only the restricted period of COVID-19 but also any type of leisure period. The activities students are involved in during the COVID-19 pandemic situation that can generate productive outputs for their personal growth, social welfare, and economic solvency will give them an identity to embrace a very impactful future ahead.

Conclusion

Despite facing many difficulties during this pandemic, students are spending their time efficiently on a variety of constructive activities. Students are opting for various self-development facilities available online other than the university-facilitated face-to-face programs. The findings from the current study will give tertiary-level students an insight into this regard so that students can benefit from utilizing their productive activities in more fruitful ways for a future career with the support of public and private bodies. The activities that were popular among university students as found in this study can be made more accessible, and less costly and the challenges identified will need special heed. Altogether the scope to earn from diversified but useful activities will help the students to become independent financially and meet their demands. Encouraging students to obtain the necessary skills, courses, and training and making extra investments in the internet and other forms of infrastructure may help them to become more efficient. University authorities and the overall national policy of Bangladesh especially for the young students thriving for learning and

competing with the outer world need to facilitate with proper support and required arrangements. However, more studies are required to understand the transitional experiences that students have while moving from traditional activities they used to do to online-based learning by which students can get help in conducting their productive activities more effectively in the future.

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References

Evans, C. and Yusof, Z. N. (2022). Volunteering: A viable alternative work experience for university students? Industry and Higher Education. DOI: https://doi.org/10.1177/09504222221093180

Fejes, A., Nylund, M. and Wallin, J. (2018). How do teachers interpret and transform entrepreneurship education? Journal of Curriculum Studies, Vol. 51, pp. 554-566. DOI: https://doi.org/10.1080/00220272.2018.1488998

Holdsworth, C. and Brewis, G. (2014). Volunteering, choice, and control: A case study of higher education student volunteering. Journal of Youth Studies, Vol. 17 No. 2, pp. 204–219. DOI: https://doi.org/10.1080/13676261.2013.815702

Hossain, M. J., Ahmmed, F., Rahman, S. M. A., Sanam, S., Emran, T. B. and Mitra, S. (2021). Impact of Online Education on fear of academic delay and psychological distress among university students following one year of COVID-19 outbreak in Bangladesh. Heliyon, Vol. 7 No. 6, e07388. DOI: https://doi.org/10.1016/j.heliyon.2021.e07388

International Labour Organization, and World Bank. (2021). Skills development in the time of COVID-19. Retrieved from: https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_753026.pdf

Khan, M. S. H. and Abdou, B. O. (2021). Flipped classroom: How higher education institutions (HEIs) of Bangladesh could move forward during COVID-19 pandemic. Social Sciences & Humanities Open, Vol. 4 No. 1, 100187. DOI: https://doi.org/10.1016/j.ssaho.2021.100187

Liljeholm, U., Argentzell, E., Hillborg, H., Lövgren, V., Rosenberg, D. and Bejerholm, U. (2021). The Journey to my student identity: A grounded theory study on supported education for young adults with mental health problems. Journal of Psychosocial Rehabilitation and Mental Health, Vol. 9 No. 2, pp. 203–219. DOI: https://doi.org/10.1007/s40737-021-00253-5

Nandini, P., Lakshmanan, G. and Gheena, S. (2020). Being productive in complete isolation - a survey. European Journal of Molecular & Clinical Medicine, Vol. 7 No. 1, pp. 1322-1329. Retrieved from: https://ejmcm.com/pdf_2300_a33753474ee88b02c7995593016e103c.html

Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L. and Koole, M. (2020). Online University teaching during and after the COVID-19 crisis: Refocusing teacher presence and learning activity. Postdigital Science and Education, Vol. 2 No. 3, pp. 923–945. DOI: https://doi.org/10.1007/s42438-020-00155-y

Rawlings, N. N., Akwah, E. A., Musisi, J., Awanchiri, K., Babirye, R., Emalieu, D., Nduhukyire, L., Kakeeto, R. and Ngongalah, L. (2022). Perceived risks of COVID-19, attitudes towards preventive guidelines and impact of the lockdown on students in Uganda: A cross-sectional study. PLoS ONE, Vol. 17 No. 4, e0266249. DOI: https://doi.org/10.1371/journal.pone.0266249

Rodrigues, A. L., Cerdeira, L., Machado-Taylor, M. de L. and Alves, H. (2021). Technological skills in higher education: Different needs and different Uses. Education Sciences, Vol. 11 No. 7, pp. 326-338. DOI: https://doi.org/10.3390/educsci11070326

Roe, A., Blikstad-Balas, M. and Dalland, C. P. (2021). The impact of COVID-19 and homeschooling on students' engagement with physical activity. Frontiers in Sports and Active Living, Vol. 2 No. 589227, pp. 1–13. DOI: https://doi.org/10.3389/fspor.2020.589227

United Nations. (2020). *Policy Brief: Education during COVID-19 and beyond*. Retrieved from: https://reliefweb.int/report/world/policy-brief-education-during-covid-19-and-beyond-august-2020?gclid=CjwKCAiA0JKfBhBIEiwAPhZXD8_ZcXrmLh4doVVqk5T9pPvyijfyhS5fUFUe-DVL6wjwQ79GlOHmIxoCiB0QAvD_BwE

Wats, M. and Wats, R. K. (2009). Developing soft skills in students. *International Journal of Learning*, Vol. 15 No. 12, pp. 1–10. DOI: https://doi.org/10.18848/1447-9494/CGP/v15i12/46032

Zubayer, A. A. and Obaidullah, M. (2020). Non-academic online activities among Bangladeshi University students: Case Study. *International Journal of Computer Engineering in Research,* Vol. 07*,* pp. 7–18. DOI: https://doi.org/10.22362/ijcert/2020/v7/i08/v7i0805