

LIBRARIES UNLIMITED

Report on Coding in Libraries with Kano and Micro:bit

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Chapter 1

Computer Coding in Libraries with micro:bit and Kano computers

1.1 Introduction

A key vision for Libraries Unlimited is to transform public libraries into hubs of the community and centres for interactive learning – places where members of the public can come to learn, develop skills and participate in activities and events. One component of this is the introduction of resources which provide library users, particularly young people, an opportunity to learn basic computer coding for free. Educational computer hardware, the micro:bit and Kano computer, are being made available within the libraries and used as tools for teaching coding in workshops, independent learning by library users and Code Clubs.

These educational computers were developed with the specific intention of teaching coding to young people through engaging and creative features and apps. The micro:bit, a credit card sized programmable computer developed by the BBC, can be physically interacted with and responds in the way programmed by the user. The Kano, a fully functional computer built on a Raspberry Pi device, contains a custom-made Operating System and variety of apps which teach coding through creative means, such as creating art through code, creating animations and hacking games with code.

The coding in libraries project primarily involves an awareness raising campaign of workshops and the establishment of Code Clubs (regular meetings led by local members of the community), to ensure sustainability. However, additional activities such as the "do your :bit" campaign and the introduction of robotics workshops, climate action workshops and STEM Olympiad activities are also being conducted.

1.2 The Key Aims:

The key aims for the coding component of Libraries Unlimited is to:

- Provide an exposure to coding to young people to demonstrate it is fun and accessible.
- Develop problem solving skills and creative thinking in the service users.
- Educate people to better understand how technology works, develop computational and logical thinking and inspire future tech innovators.
- Develop computer literacy skills in library users.
- Encourage service users to pursue further learning of coding via online resources and coding clubs and encourage young people to consider computer science and other STEM subjects for study at higher education.
- Increase the scope of the activities available within the public library network and attract more users to the libraries.

Chapter 2

Coding Workshops

2.1 Introduction

In order to generate awareness of the devices and our coding activities within the local community of each library, and to test the effectiveness of the devices prior to them being rolled out to libraries, coding workshops are regularly conducted across the country. The general format for a workshop is that twenty Kano devices are set-up over a day. Each workshop is split into three sessions, each lasting approximately 90 minutes. During each session an individual, pair or group (depending on demand) is free to use the Kano and try out some recommended apps built into the Kano. These apps provide step-by-step instructions which encourage creativity through code, such as creating art or ‘hacking’ games. In addition to the Kano, students are given access to a micro:bit and a set of instructions developed by the LU team. Each workshop is led by LU staff and supported by a number of experienced volunteers from our operational partners, Bangladesh Open Source Network (BdOSN), who help the LU team in assisting the children with their activities. For more information on the project, including photos and video interviews of participants, visit <https://www.britishcouncil.org/partner/coding-Bangladesh>.

At beginning and end of each session a feedback form is distributed to each child to complete. The results in this report are generated from an analysis of these feedback forms.

#	Location	Date	Number of Participants:			Attendance Type
			Total	Female	Male	
1	Munshiganj Public Library	04/09/2018	142	78	64	Invite
2	Sufia Kamal National Library	26/09/2018	103	75	28	Invite
3	Sufia Kamal National Library	24/10/2018	35	16	19	Open
4	Cox's Bazar Public Library	10/11/2018	134	58	76	Invite
5	Bandarban Public Library	11/11/2018	64	32	32	Invite
6	Rangamati Public Library	13/11/2018	88	34	54	Invite
7	Sufia Kamal National Library	19/12/2018	26	9	17	Open
8	Jessore Public Library	08/01/2019	95	33	61	Invite
9	Khulna Public Library	09/01/2019	107	41	66	Invite
10	Narayanganj Public Library	22/01/2019	122	65	57	Invite
11	Panchagarh Public Library	25/02/2019	123	65	58	Invite
12	Thakurgaon Public Library	26/02/2019	136	56	80	Invite
13	Nilphamari Public Library	27/02/2019	120	65	55	Invite
14	Habiganj Public Library	24/03/2019	113	52	61	Invite
15	Sylhet Public Library	25/03/2019	70	33	37	Invite
16	Salmonirhat Public Library	28/04/2019	125	62	63	Invite

Table 2.1: Details on the workshops held to date. ‘Attendance Type’ distinguishes workshops between ‘Invite’, where schools were directly invited to attend or ‘Open’ which are run as drop-in style sessions for anyone to attend. **This table continues overleaf.**

2.2 Workshop Details

To date Libraries Unlimited has conducted 35 workshops across 33 districts in Govt. District Public Libraries in Bangladesh. The total number of participants sits at 3818. An overview of the workshops held is presented in Table 2.1 and a map indicating the locations of library based workshops to date is presented in Figure 2.1.

In addition and separate to the main campaign of coding workshops in Table 2.1, smaller scale workshops with the Kano has also been conducted at the Women of the World (WOW) festival in Rangpur in October 2018, the British

#	Location	Date	Number of Participants:			Attendance
			Total	Female	Male	
17	Dinajpur Public Library	29/04/2019	144	50	94	Invite
18	Rangpur Public Library	30/04/2019	111	48	63	Invite
19	Satkhira Public Library	14/07/2019	121	53	68	Invite
20	Bagerhat Public Library	15/07/2019	119	56	63	Invite
21	Mymensingh Public Library	05/08/2019	116	65	51	Invite
22	Sherpur Public Library	06/08/2019	135	79	56	Invite
23	Jamalpur Public Library	07/08/2019	126	54	72	Invite
24	Gazipur Public Library	01/09/2019	116	57	59	Invite
25	Tangail Public Library	02/09/2019	117	45	72	Invite
26	Manikganj Public Library	03/09/2019	117	83	34	Invite
27	Barishal Public Library	27/10/2019	110	44	66	Invite
28	Patuakhali Public Library	28/10/2019	86	31	55	Invite
29	Barguna Public Library	30/10/2019	120	32	88	Invite
30	Meherpur Public Library	26/01/2020	125	61	64	Invite
31	Kushtia Public Library	27/01/2020	111	37	74	Invite
32	Pabna Public Library	29/01/2020	125	58	67	Invite
33	Rajshahi Public Library	15/02/2020	97	07	90	Invite
34	Nawabganj Public Library	16/02/2020	108	56	52	Invite
35	Natore Public Library	18/02/2020	114	61	53	Invite
		Total	3818	1769	2045	

Table 2.1: Continued

Council's stall at Dhaka Lit Fest in November 2018 and 2019, the Ekushey book festival in February 2019, multiple Hour of Code sessions at the British Council's Cultural Centre and a coding workshop (attended by 62 children) in the British Council's Cultural Centre in celebration of National Library Day 2019. The Kano is also interactively exhibited as part of the regular Public Library Campaign. Regular weekly meetings of Code Clubs are also active at a number of the libraries, (which constitutes the long-term sustainable component of the project; see Chapter 3 for more details on Code Club).



Figure 2.1: Map of Bangladesh with pins indicating locations where workshops have been held.



Figure 2.2: A selection of photos from the Munshiganj, Bandarban and Rangamati library workshops.

2.2.1 Participant Demographics

To date the gender distribution of the participants has been 54 per cent male and 46 per cent female (see Figure 2.3). Although near to equality, we would prefer this to be closer to equality. However, invitation of the kids is in the remit of the librarians and the schools have the decision regarding which students to bring.

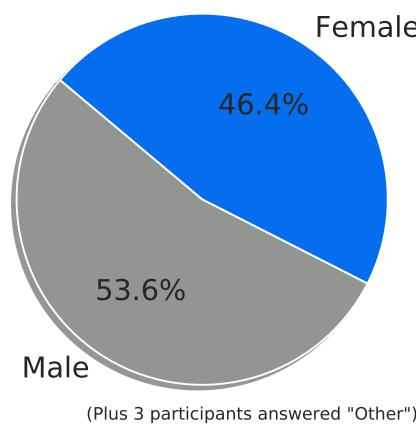


Figure 2.3: The gender distribution of participants.

See Figure 2.4 for the age distribution of participants. The vast majority of participants (> 90 per cent) have been aged 12 to 16 years old, with an average age of 14 years old. Note that this is by design as we communicate this as the desired age range when planning the workshops.

2.3 Feedback Results

This section will explore the results of the feedback collected:

Figure 2.5 provides a selection of written comments from participants. Then Figures 2.6–2.21 graphically illustrate feedback results; this includes their perceived confidence in their ability to do coding, how interested they are in doing coding, how important they believe coding is, their experience of the workshop, and how often the participants use computers and public libraries, with breakdowns by gender.

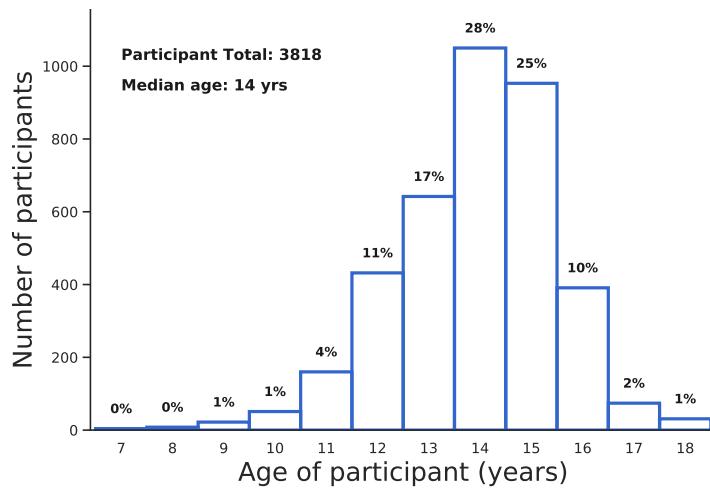


Figure 2.4: The age distribution of participants.

2.3.1 Summary of key findings:

- We asked the participants to rate their overall experience of the workshop: 77 per cent said it was very good and less than one per cent said it was bad (see Figure 2.6).
- There is a clear increase in confidence for the participants and their perceived ability to do coding. Prior to the workshop only 29 per cent felt they were able to do coding, 39 per cent of participants answered that were unable to do coding and 32 per cent didn't know whether they could. Following the workshop, 74 per cent felt they were able to do coding, with 14 per cent unsure and 12 per cent still not confident in their ability (see Figure 2.7).
- The number of participants who are interested in coding was increased by the workshop, despite an initial high level of interest prior to the workshop already. The proportion of participants who are very interested in doing coding increased from 65 per cent before the workshop to 69 per cent after. And the proportion of participants who were not interested in learning coding or were unsure decreased from seven to four per cent (see Figure 2.8).
- The workshops increased the perception of the participants in how important coding is to their lives. Prior to the workshop 18 per cent of participants felt

coding was unimportant to their lives, or were unsure. After the workshop this reduced to only three per cent. The number who answered that coding was very important increased from 52 per cent to 69 per cent (see Figure 2.9).

- When asked, 41 per cent of participants said they do not have regular access to a computer at home or at school. This highlights the important role libraries can play in providing IT access to citizens who otherwise would not have it (see Figure 2.12).
- 12 per cent of participants (over 400 individuals) said the workshop was their first time using a computer. This figure is higher for the female participants (15 per cent, compared to nine per cent of males; see Figure 2.13). This is despite a similar proportion of respondents of both genders having access to a computer at home or school (see Figure 2.12).
- Introducing new services has the potential to attract new users. When asked, 42 per cent of participants said the workshop was their first time using the public library (see Figure 2.14), so the workshops are introducing young people to their library. When asked whether they are more likely to visit the library more often if activities like this are offered, 88 per cent said yes, 11 per cent said maybe and less than one per cent said no (see Figure 2.15). And also when asked whether they are more likely to visit the library if the devices are made available then 84 per cent said yes (see Figure 2.16).
- Girls are much less likely to have used, and regularly be using, the libraries than boys. 48 per cent of girls said they had never used the library before, compared to 38 per cent of boys (see Figure 2.14). And only three per cent of girls said they very regularly use the library (i.e. multiple times a week), compared to eight per cent of boys. This is despite a higher proportion of girls expressing interest in visiting the library (with 57 per cent of girls saying they are very interested in visiting the library compared with 40 per cent of boys; see Figure 2.17).

2.3.2 Revision of questionnaire forms

It should be noted that a few iterations of the questionnaires have been used to date, with some questions removed and others added. The most substantial revision was the introduction of a pre-workshop questionnaire, introduced in October 2019, in order to measure change before and after the workshop. Prior to this there was a single post-workshop form. As a result of these revisions not all questions have been asked to all participants. In order to illustrate this, the sample size for each of the questions is given in the lower right corner of the corresponding figure.

1. **Sumaya Nur Shanchita, Girl, 15 years old:** "This is a completely new experience. I must applaud this wonderful event hosted in the public library premise." This is the first time I've done programming. I had great fun. I wish I could be a part of more awesome workshops like this in future, let it be my prayer for today!"
2. **Shekh Marufa, Girl, 14 years old:** "I'm feeling really well after coming to this coding workshop today. This is an excellent initiative. I want to actively take part in all future workshops on coding."
3. **Afsari Hosen Chowdhury, Girl, 13 years:** "I feel really good to be able to come here. If more such programs occur, I strongly wish to take part in those."
4. **Dina Akhter, Girl, 14 years:** "I'm feeling awesome after coming here. I really liked programming with Scratch."
5. **Md. Ridwanur Rahman Rafi, Boy, 13 years old:** "I think people from all ages should learn to code! Due to time constraint today I couldn't learn more, I would be benefited if I had more time. This kind of workshops should be held regularly."
6. **Shaon Hasan, Boy, 14 years:** This kind of workshop is a really good initiative. If we are taught coding with more time regularly, we would become more efficient.
7. **Sayem, Boy, 13 years:** If we take part in such activities regularly, we shall become really good at coding.
8. **Md. Raisur Rahman, Boy, 13 years:** This kind of workshops should be held regularly. We need such initiatives to learn computer programming.
9. **Afnaf Hasan Adib, Boy, 13 years:** I couldn't get hold of all the coding apps due to time constraint. I will be greatly benefited if such workshops are held on a regular basis.
10. **Tamim Hossain Siam, Boy, 13 years:** I've fascination for coding from long ago. I want to become a software engineer in future. That's why I'm really happy to take part in such an initiative. I thank you all.
11. **Md. Mehedi Hasan, Boy, 14 years:** If we want to improve computer coding practise in Bangladesh, then we should take more educational initiatives like this. Mass public awareness also needs to be raised in order to develop us.
12. **Md. Mehrab Hossain, Boy, 13 years:** I know a little about programming, that's why I had great intention to do programming, but I couldn't do it before. For this reason, I am very happy to be able to do coding/programming in this workshop.
13. **Md. Hridoy, Boy, 14 years:** I feel fantastic to do coding today. I am taking great pleasure in learning something new. We want this kind of workshop again.
14. **Shakurul Islam Shafin, Boy, 13 years:** Yes, this subject (coding) is really fascinating. I've grown genuine interest to learn more about coding in future.
15. **Md. Golam Rabani, Boy, 13 years:** Yes, it was really pleasant for us to learn coding today. We will be greatly benefitted if we are given a chance to participate in future.
16. **Osama Sajid Joy, Boy, 13 years:** I've done computer coding for the first time today and I really like it. If this workshop holds regularly then I'll definitely participate.
17. **Arafat Ahmed Tonmoy, Boy, 13 years:** I want more such educational programs in the public library space. It is very good for general students. Thank you British Council for such a wonderful initiative.
18. **Farhana, Girl, 14 years:** Yes, I think this workshop will prove to be useful for me in future. It gave me a good idea about programming/coding. For this reason I am grateful to the British Council and the district public library.
19. **Abu Siddique Ratul, Boy, 14 years:** I wish public library hosts more educational activities like this coding workshop. That way when we come to the library to read, we'll get access to such recreational activities which would boost our cognitive mental growth.
20. **Rakibul Hasan, Boy, 13 years:** I am very happy to come to this workshop. My thanks goes to the organisers of such a wonderful program.
21. **Saidul Hossain Al Amin, Boy, 13 years:** It felt really good to do coding. The surroundings and overall environment was also very nice. I love coding!

Translation done by Tamim Mostafa, Model Library and ICT Manager, Libraries Unlimited Programme, British Council
 (tamim.mostafa@bd.britishcouncil.org)

Figure 2.5: A selection of written comments collected on the feedback forms.

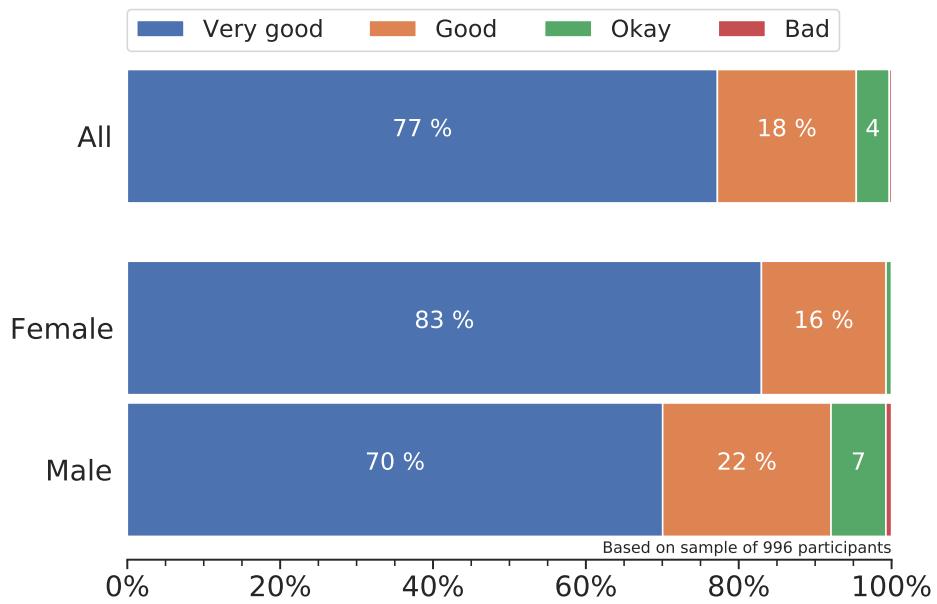


Figure 2.6: The participants were asked to rate their overall experience of the workshop. 77 per cent said it was very good, 18 per cent said good, four per cent said okay and less than one per cent said it was bad. Girls tend to report a more favourable opinion than boys.

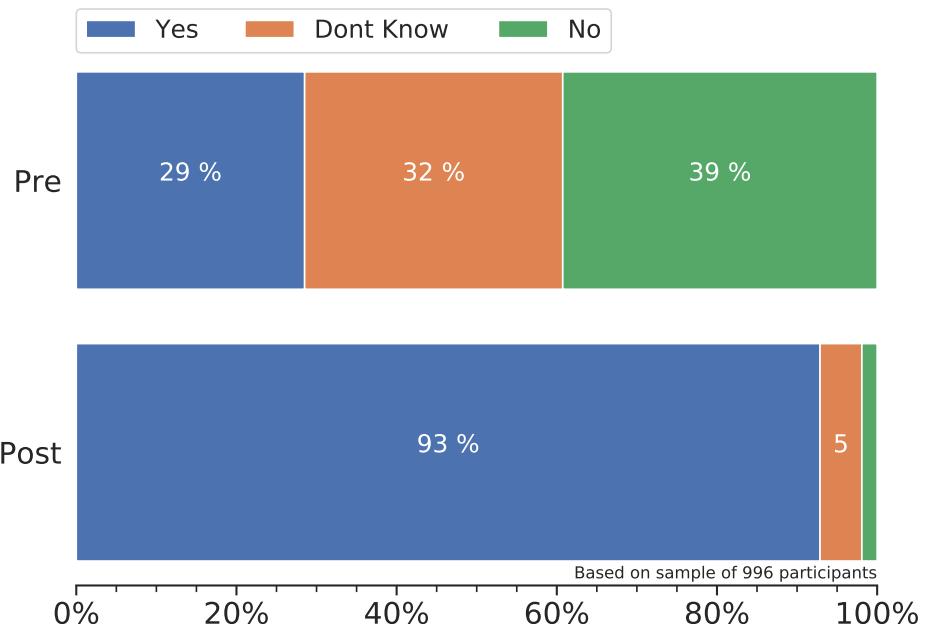


Figure 2.7: The participants were asked before and after the workshop whether they believed they could do coding. There is a clear increase in confidence for the participants and their perceived ability to do coding. Prior to the workshop only 29 per cent felt they were able to do coding, 39 per cent of participants answered that were unable to do coding and 32 per cent didn't know whether they could. Following the workshop, 74 per cent felt they were able to do coding, with 14 per cent unsure and 12 per cent still not confident in their ability.

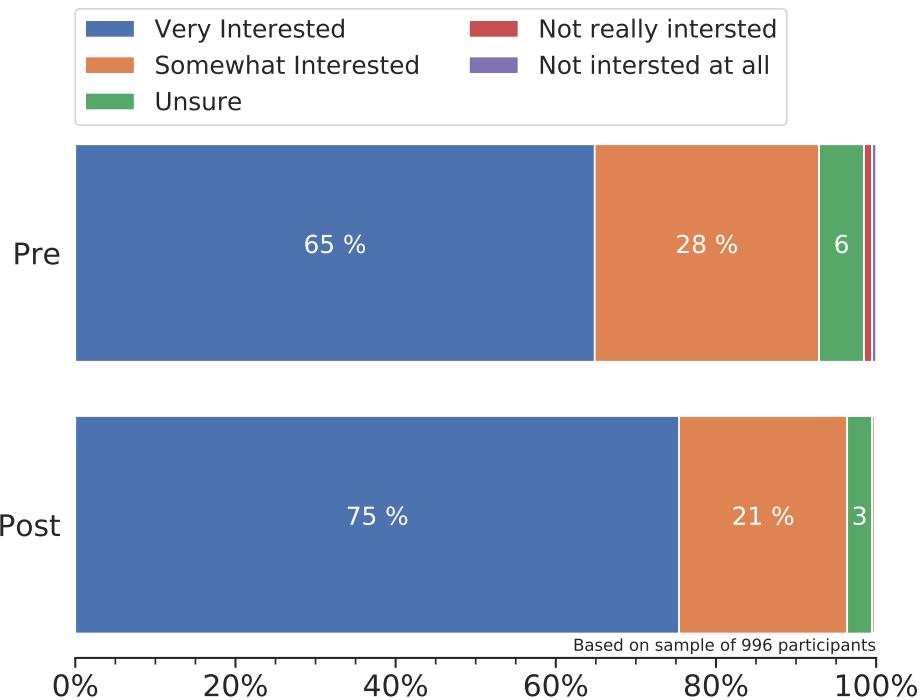


Figure 2.8: The participants were asked before and after the workshop how interested they are in doing coding. Despite an initially high interest, the workshops increase their interest in coding. The proportion of participants who are very interested in doing coding increased from 65 per cent before the workshop to 69 per cent after. And the proportion of participants who were not interested in learning coding or were unsure decreased from seven to four per cent.

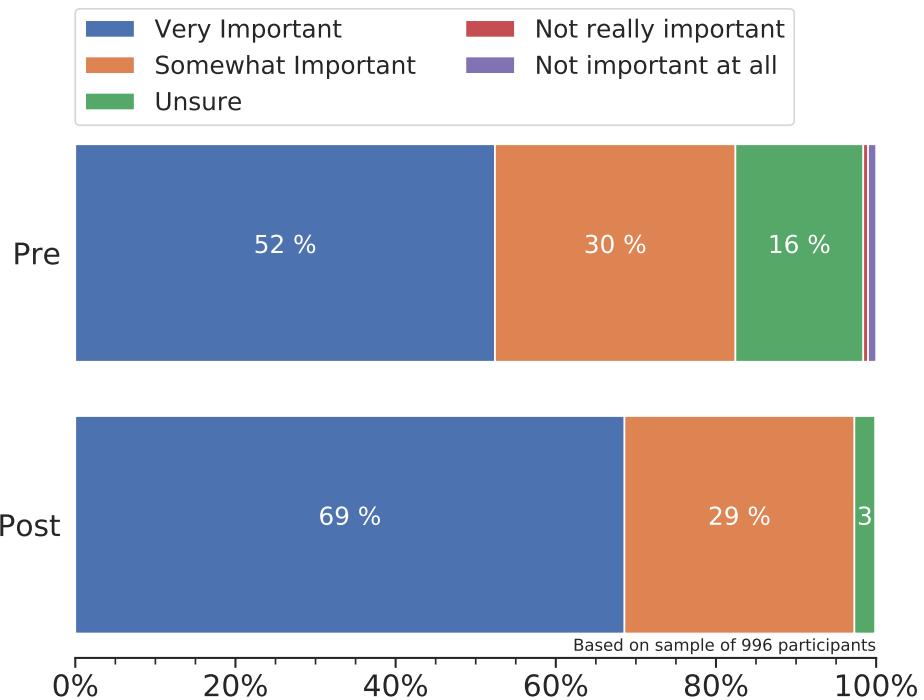


Figure 2.9: The participants were asked before and after the workshop how important they felt coding is to their lives. The workshops increased the perception of the participants in how important coding is to their lives. Prior to the workshop 18 per cent of participants felt coding was unimportant to their lives, or were unsure. After the workshop this reduced to only three per cent. The number who answered that coding was very important increased from 52 per cent to 69 per cent.

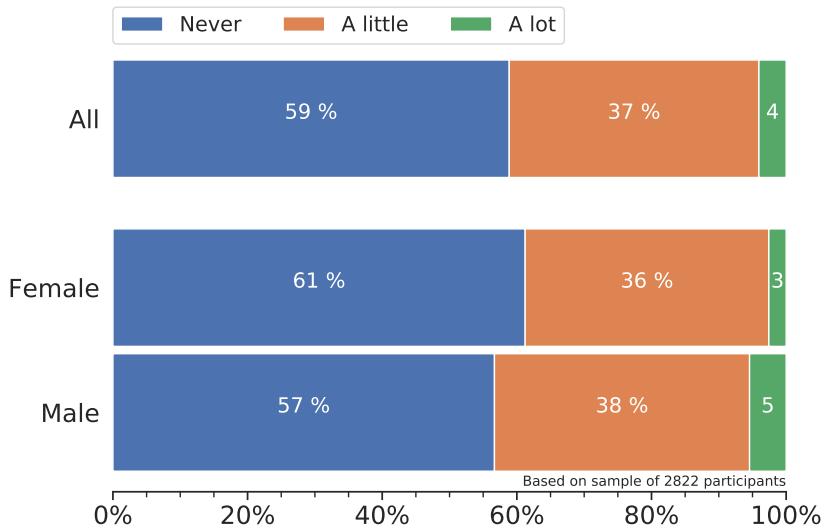


Figure 2.10: The participants were asked whether they had done any coding before the workshop. The majority have not (59 per cent), with 37 per cent having done a little and only 4 per cent having done a lot. This question has been retired.

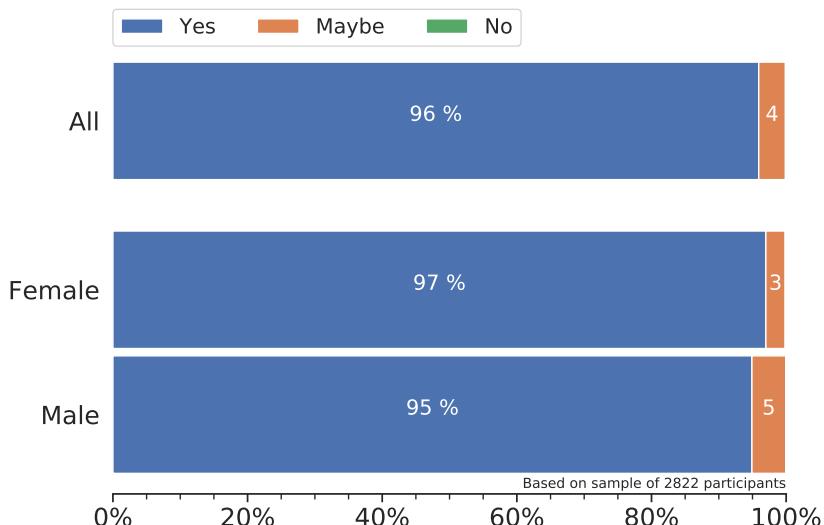


Figure 2.11: The participants were asked whether they would be interested in learning more coding after the workshop. Clearly the vast majority were interested. However this question was revised to include a pre-workshop measure of interest to determine the extent to which interest can be attributed to the workshop. This question has been retired.

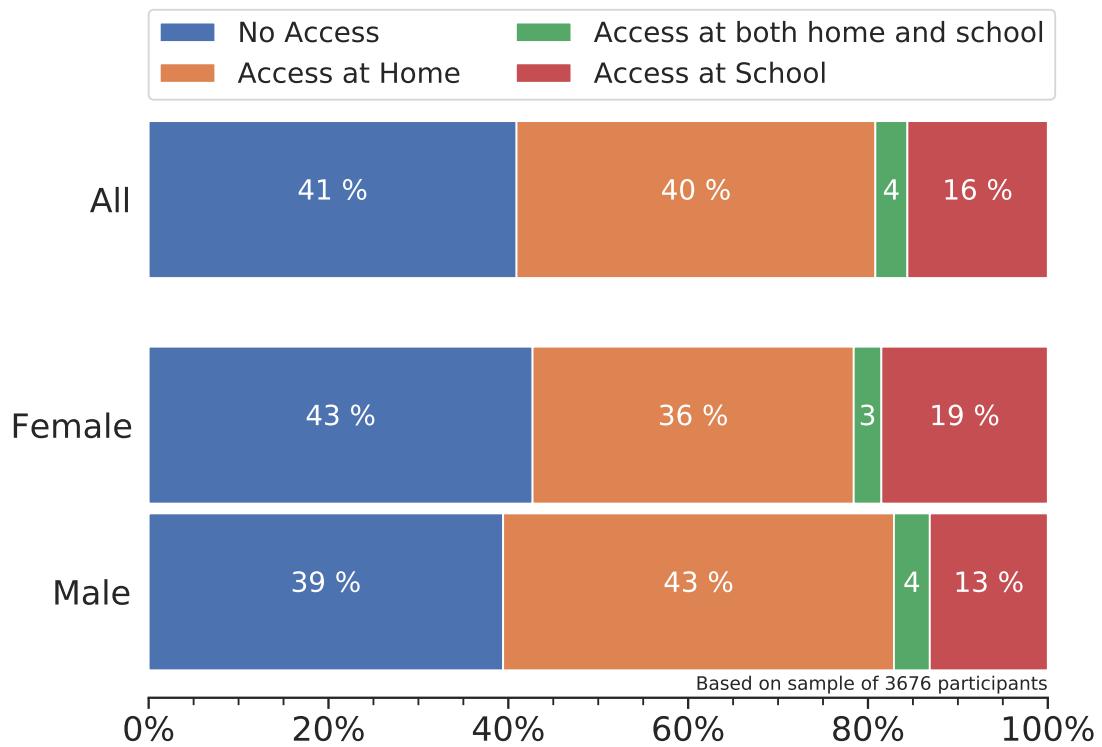


Figure 2.12: The participants were asked whether they have regular access to a computer at home or at school. 41 per cent of participants said they do not have regular access to a computer at home or at school, highlighting the important role libraries can play in providing access. Another 40 per cent have access at home and 20 per cent have access at school.

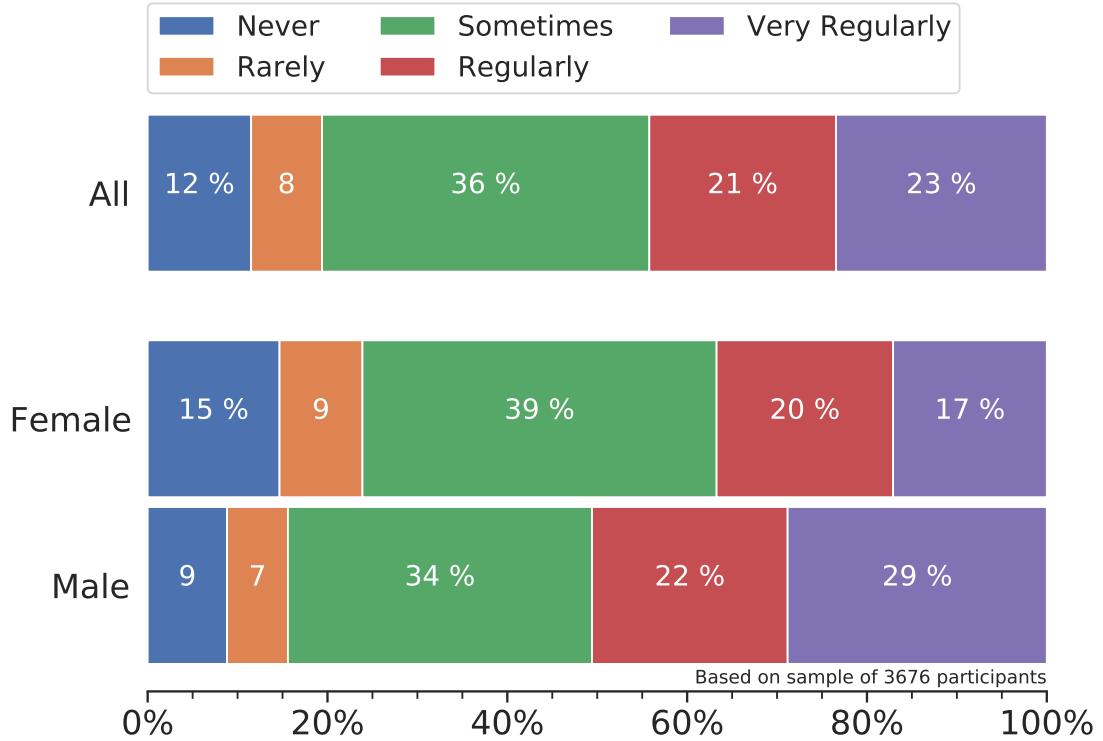


Figure 2.13: The participants were asked how often they use a computer. The following definitions were used: “*Never*” = first time using a computer, “*Rarely*” = once or twice a year, “*Sometimes*” = once per month, “*Regularly*” = at least once a week and “*Very regularly*” = many times a week. We find that 12 per cent had never used a computer prior to the workshop (this is higher in girls with proportion of 15 per cent compared to 9 per cent of boys). We also find that boys are much more likely to report to using computers very regularly with 30 per cent of boys doing so compared to only 17 per cent of girls.

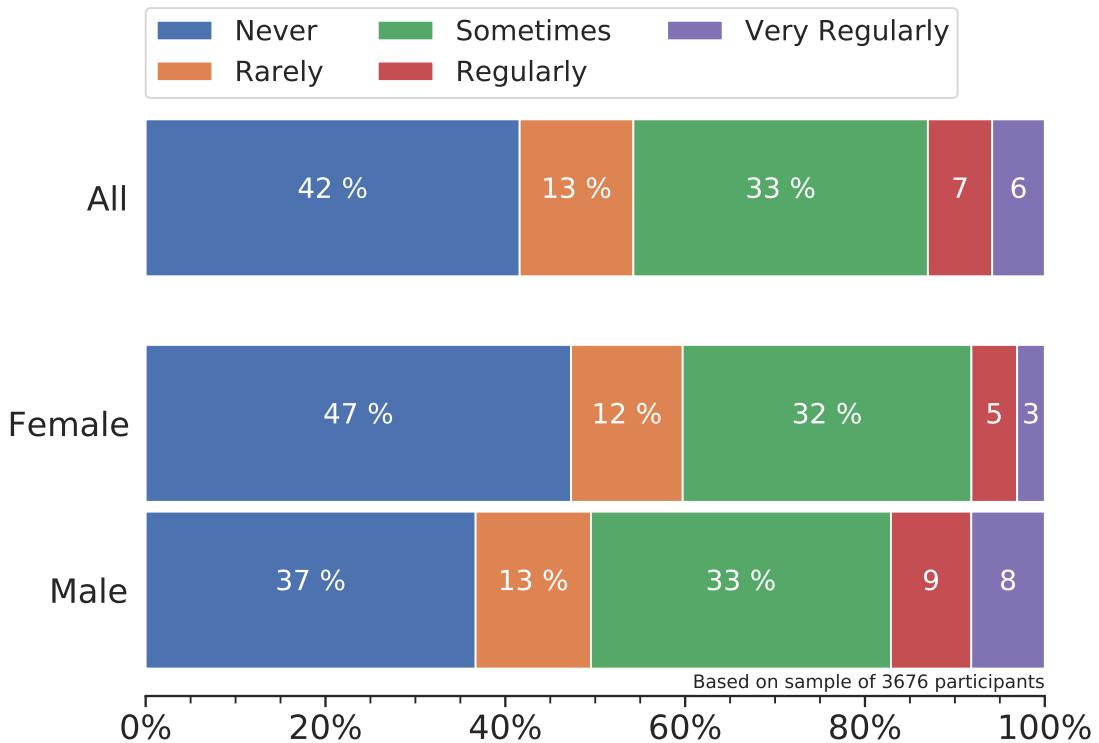


Figure 2.14: The participants were asked how often they use a library (not including their school library). The following definitions were used: “*Never*” = first time in a library, “*Rarely*” = once or twice a year, “*Sometimes*” = once per month, “*Regularly*” = at least once a week and “*Very regularly*” = many times a week. 42 per cent of participants had never used the library prior to our workshop, a proportion which is higher in the girls (48 per cent compared to 38 per cent of the boys). The workshops are introducing young people to their local library. Less than 50 per cent of participants report to be using the libraries on even a monthly basis (i.e. “sometimes”, “regularly” and “very regularly” combined). And less than 13 per cent are using the libraries on a weekly or daily basis (i.e. “regularly” and “very regularly”).

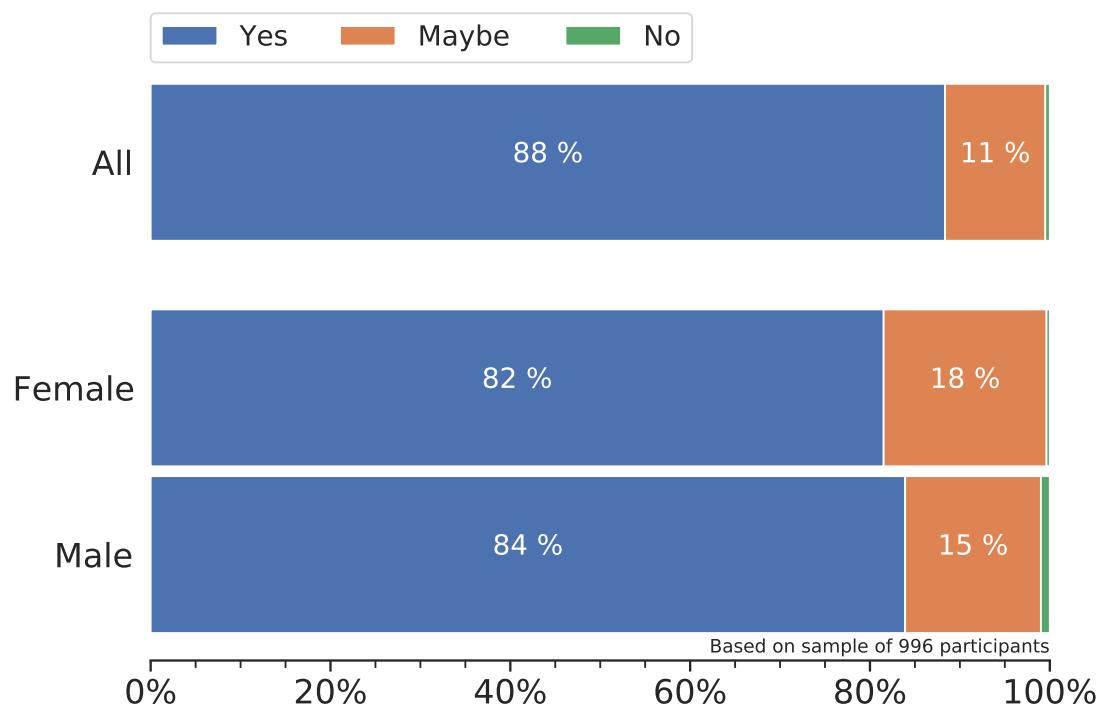


Figure 2.15: The participants were asked whether they would visit the library more often if activities like this [the workshop] were offered. The positive response to this question, with 88 per cent saying yes, shows the potential for attracting new library users through the introduction of innovative new services.

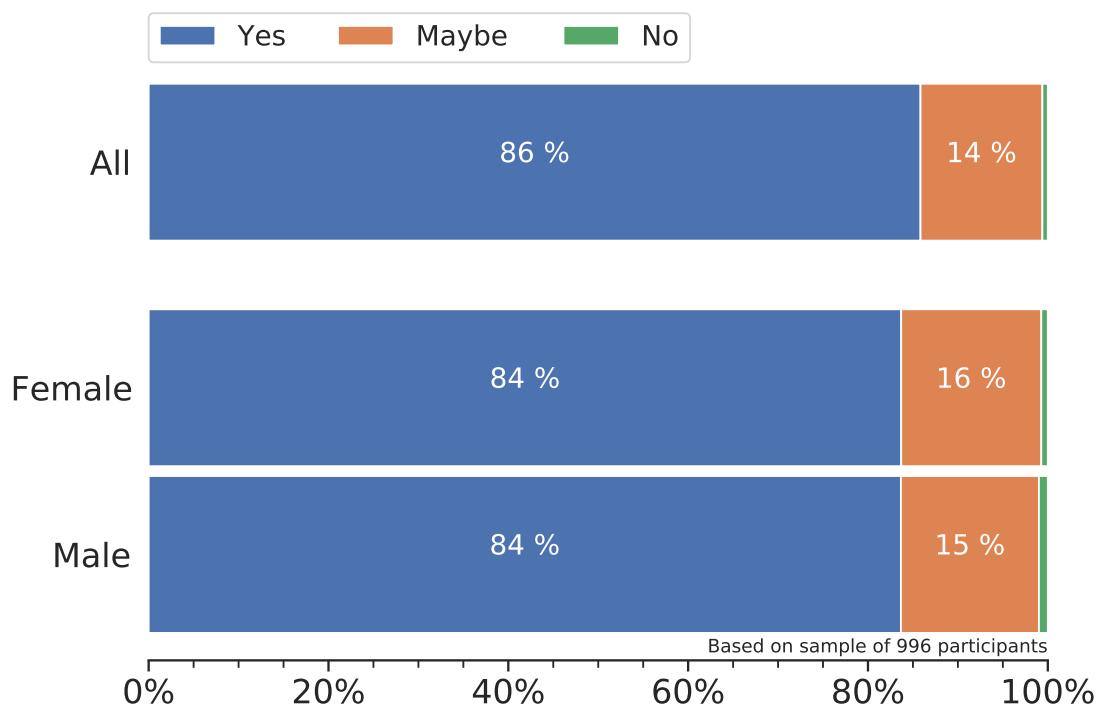


Figure 2.16: The participants were asked whether they would visit the library regularly if the devices [micro:bit and Kano] are made publicly available. The vast majority answered positively (with 84 per cent answering yes), highlighting the potential for attracting new library users through the introduction of innovative new services.

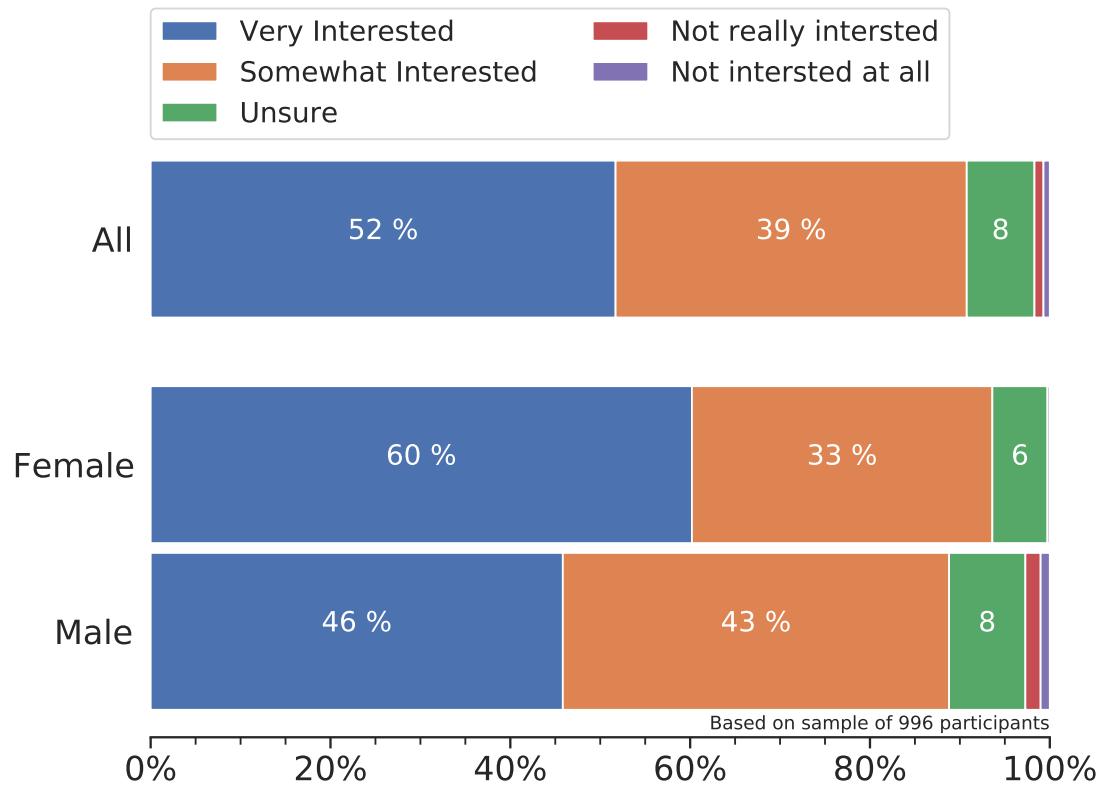


Figure 2.17: The participants were asked before the workshop how interested they are in visiting the library. The vast majority express an interest in using the library, with 52 per cent reporting to be "very interested" and a further 39 per cent "interested".

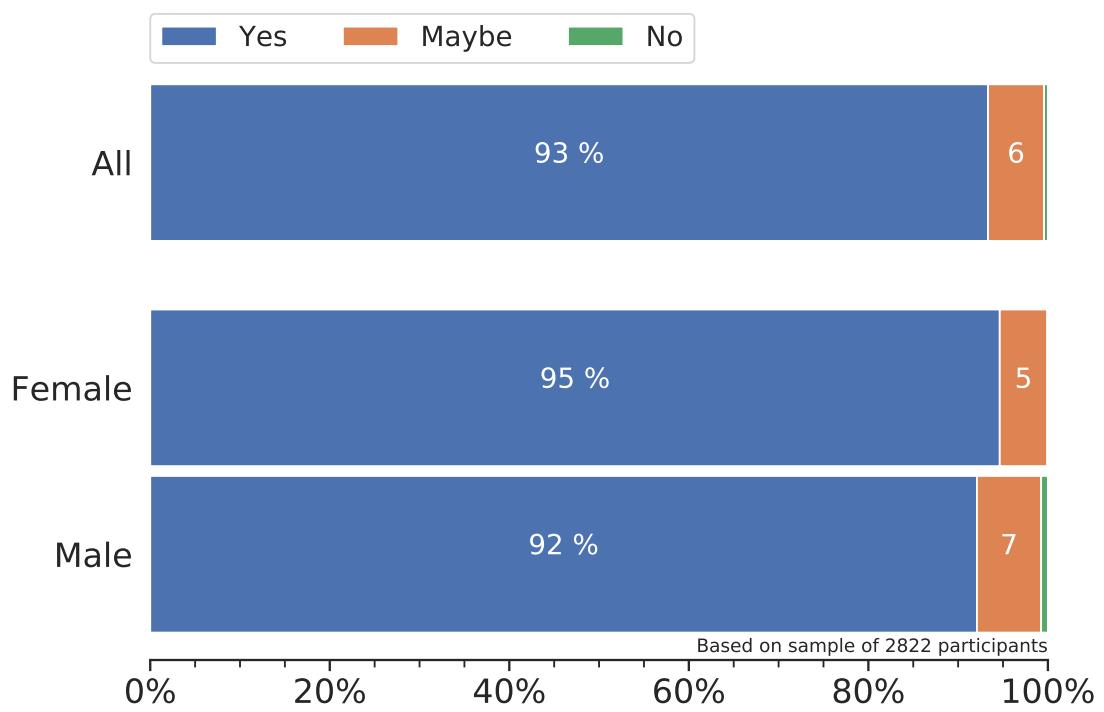


Figure 2.18: The participants were asked “if the devices [micro:bit and Kano] were publicly available in the library would you use them?”. The vast majority answered positively (with > 95 per cent answering yes). This question has been retired.

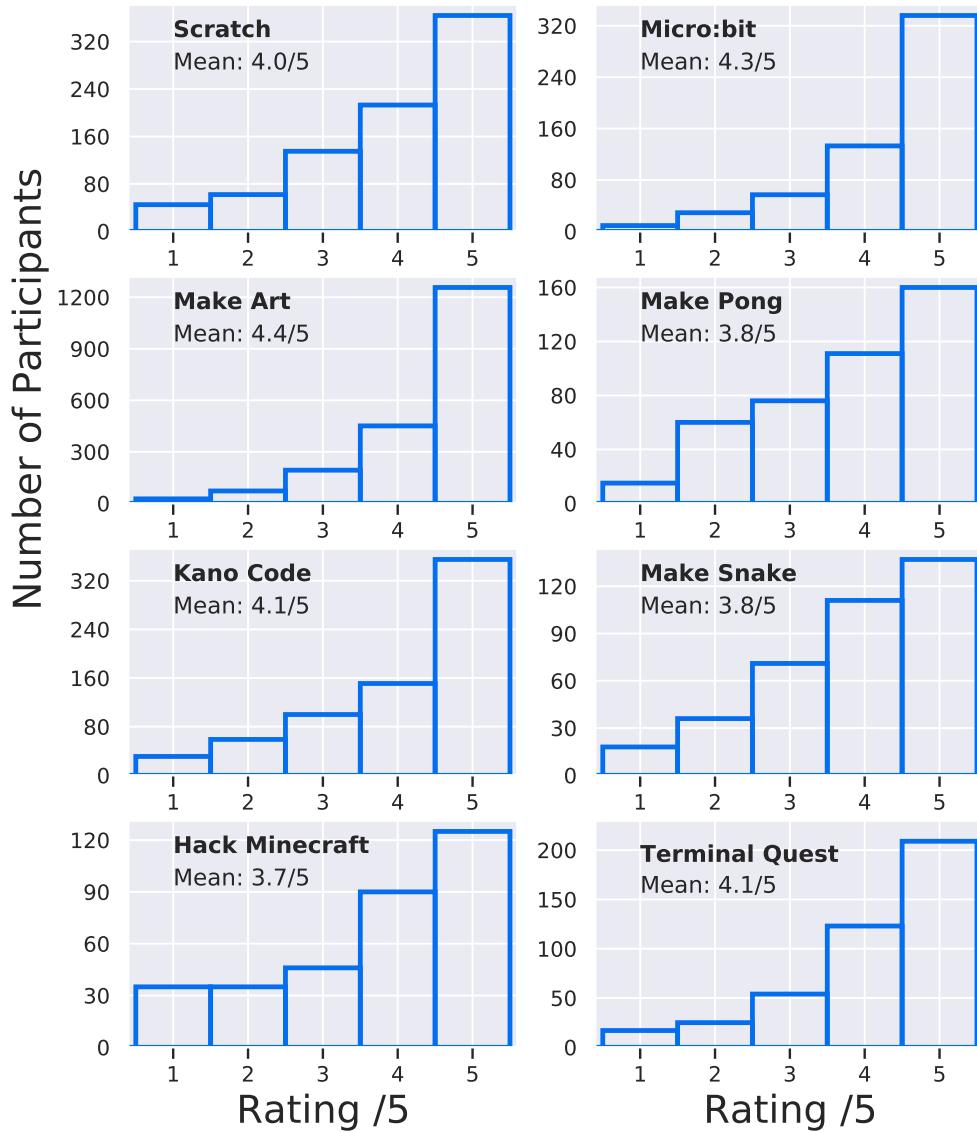


Figure 2.19: The participants were asked which coding app or activity they participated in and to rate this out of five (where 0 is hated it and 5 is loved it). These histograms show the distribution of ratings for each app, as well as the mean rating for each app. This question is primarily for our internal understanding. Make Art and micro:bit have proven to be the most favored activities with the participants.

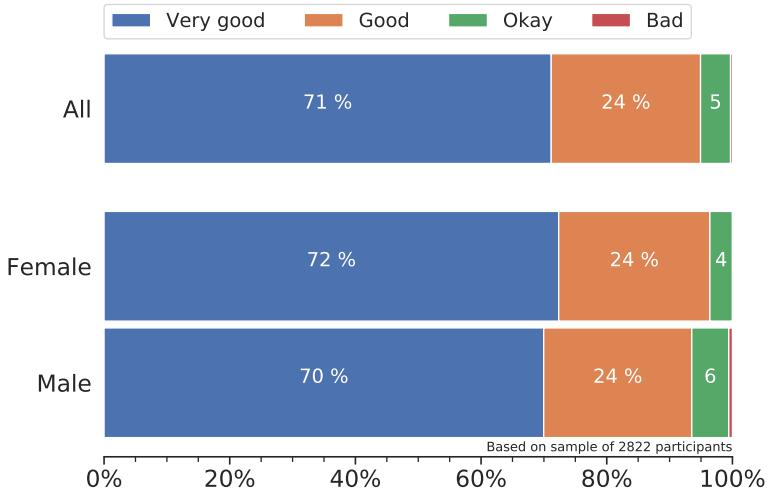


Figure 2.20: The participants were asked to rate their overall experience on the Kano. Clearly the vast majority of participants have had a positive experience of the Kano devices. This question was revised in October 2019 to the more general form of rating the overall workshop (given in Fig.2.6). This question is now retired.

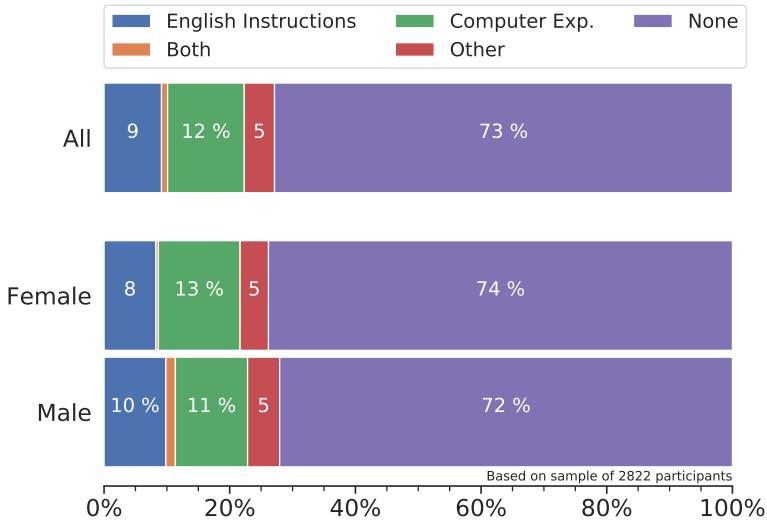
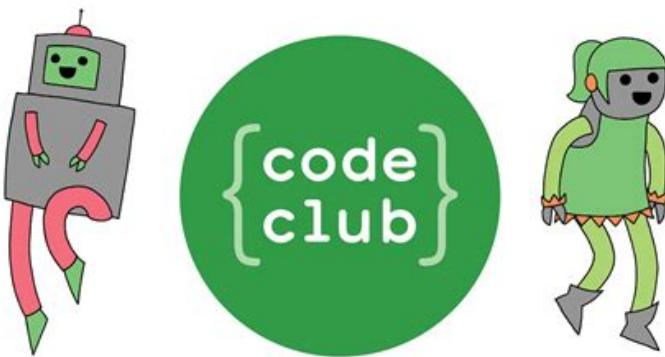


Figure 2.21: The participants were asked which aspect of their Kano experience was most challenging. The following options were given: “Understanding and following English language instructions”, “I am inexperienced in using computers”, “Other” and “None”. This question was used for internal review so we could understand and address the challenges faced by the participants. The data confirmed our empirical observations that those kids new to computers generally struggle most. This question is now retired.

Chapter 3

Code Club



Code Clubs are regular structured meetings where a volunteer mentor from the local community assists young people in some coding activities. The aim is to establish a club in as many libraries as possible. These will then meet at least once a week for approximately two hours, during which time participants will be assisted through some coding activities.

Code Club, which is an initiative spearheaded by the *Raspberry Pi Foundation*, provides a complete curriculum covering modules in a variety of programming languages, including Python, HTML, Scratch and micro:bit. Upon completion of a module a certificate will be presented to the participants. Libraries Unlimited will also be developing some custom modules based around robotics and climate action accessory kits for the micro:bit, which will be provided to each library. A training boot-camp will be held with the Code Club mentors in order to demonstrate the proper use of these kits.

To date, there are Code Clubs established in 25 district government public

libraries with total 231 (106 female & 125 male) participants meeting regularly. A total of 112 sessions have been completed across these clubs, with four coding languages (Python, HTML & CSS, Micro:bit and Scratch) being taught. Eight clubs have already completed their first course.

Online Code Clubs were launched in April 2020 to cover the period of library closures due to the Covid-19 pandemic. Two classes are held per week covering a variety of coding languages. As of 15 June 2020, 18 classes have been conducted with a combined total number of 280 participants.

The Code Club participants complete a general questionnaire when they first join a club and then for each module another questionnaire will be completed at the beginning and the end of the module. The general questionnaire is aimed at measuring attitudinal impacts from the Code Clubs, such as participant's perceived ability to do coding, their interest in coding, whether they believe learning to code will be beneficial to their future careers, etc. The module specific questionnaires are focused on measuring learning outcomes such as the participant's familiarity with core programming concepts.

Data collection is still underway for the Code Clubs, with insufficient data available for an analysis to be presented at this stage.

Chapter 4

Do Your Bit



4.1 Introduction

do your :bit is a global micro:bit campaign aimed at inspiring young people to think about how to combine technology and creativity to develop practical solutions to the UN's Sustainable Development Goals (SDGs). The campaign is led by the *Micro:bit Educational Foundation* alongside *ARM*, and *World's Largest Lesson* (in partnership with *Unicef*). With a focus on SDGs 14 and 15, *Life Below Water* and *Life on Land*, the 2019–2020 campaign (which ran until February 2020) encouraged kids to try to solve environmental problems with the micro:bit. Libraries Unlimited have conducted a series of two-day workshops focusing on *do your :bit* in government public libraries across Bangladesh.

Each workshop included a general introduction to the SDGs, an introduction to the specific SDGs 14 and 15 and a series of micro:bit activities relevant to the particular SDGs. The activities included programming the micro:bit to act as species counter, an anti-poaching collar, a tree protector and an auto-farmer for SDG 15 (*life on land*), and programming the micro:bit as a guiding light for sea-turtle hatchlings, a bright and loud device to attach to a fishing net to avoid

by-catch, an ocean health monitor and a prototype oil spill cleaner for SDG 14 (*life below water*).

These activities were spread over two full days with the same group of participants. Note that the first workshop was one day-long, but this proved to be insufficient time to cover the necessary material.

At beginning and end of each workshop a pre- and post- questionnaire was distributed to each participants to complete. The results in this report are generated from an analysis of these forms.

4.1.1 The Key Aims:

The key aims for the *do your :bit* campaign within Libraries Unlimited is to:

- Inspire a desire to do coding and provide a more in-depth coding experience to young people (relative to the introductory coding workshops).
- Develop problem solving skills and creative thinking in the service users.
- Educate people about the SDGs.
- Inspire young people to think about how coding and technology can be applied practically in the real-world.
- Educate people to better understand how technology works, develop computational thinking and inspire future tech innovators.
- Increase the scope of the activities available within the public library network and attract more users to the libraries.

4.2 Workshop Details

Libraries Unlimited has conducted three *do your :bit* workshops in Govt. District Public Libraries in Bangladesh as part of the 2019–2020 campaign. An overview of the workshops held is presented in Table 4.1.

#	Location	Date	Number of Participants:		
			Total	Female	Male
1	Sufia Kamal National Library	24/09/2019	16	6	10
2	Coxs Bazar Public Library	(16 & 17)/11/2019	23	14	9
3	Mymensingh Public Library	(11 & 12)/01/2020	21	0	21
		Total	60	20	40

Table 4.1: Details on the workshops held to date.

4.2.1 Participant Demographics

The gender distribution of the participants was two thirds male and one third female (see Figure 4.2). This is unfortunately skewed toward boys because of the all male participants at the Mymensingh workshop. However, invitation of the kids is in the remit of the librarians and the schools have the decision regarding which students to bring.

See Figure 4.3 for the age distribution of participants. The vast majority (85 per cent) of participants were aged 12 to 15, with a median age of 14. Note that this is by design as we communicate this as the desired age range when planning the workshops.

4.3 Feedback Results

This section will explore the results of the feedback collected. Figures 4.4–4.10 graphically illustrate feedback results. A summary of the key results is given here:

- We asked the participants to rate their overall experience of the workshop. The results were positive: 88 per cent said it was very good and the remaining 12 per cent said good (see Figure 4.4).
- The workshop substantially improved the confidence of the participants in their ability to do coding. Prior to the workshop only 34 per cent of participants felt they were able to do coding, 33 per cent of participants answered that were unable to do coding and 33 per cent didn't know whether they could. Following the workshop, 88 per cent felt they were able to do coding,

only 12 per cent were unsure and zero participants felt unable to do coding (see Figure 4.5).

- The workshop increased the level of interest in the participants towards coding. Prior to the workshops, 24 per cent of participants were unsure or not interested in coding, whereas after the workshop this dropped to nine per cent. The proportion of participants who are very interested in doing coding increased from 48 per cent before the workshop to 78 per cent after (see Figure 4.6).
- Prior to the workshop there was a high awareness of the potential to use technology to solve problems with 91 per cent of participants answering they believe technology can be used to solve environmental problems. The workshop increased this awareness further to 98 per cent after the workshop (see Figure 4.7).
- There was an initial high awareness of the SDGs in general amongst the participants, with 83 per cent of participants saying they have heard of the SDGs prior to the workshop. After the workshop this had increased to 100 per cent (see Figure 4.8).
- Awareness of the specific SDGs 14 and 15 were substantially improved by the workshop. The proportion of participants who said they did not know about either SDG 14 and 15 decreased from 74 per cent before the workshop to seven per cent after the workshop (see Figure 4.9).
- The workshop increased the perception of the importance of the SDGs in the participants. After the workshop 84 per cent felt the SDGs are very important compared to 63 per cent before the workshop. The proportion who were unsure or thought they are unimportant decreased from 14 per cent before the workshop to seven per cent after the workshop (see Figure 4.10).



Figure 4.1: A selection of photos from the Dhaka and Cox's Bazar *do your :bit* library workshops.

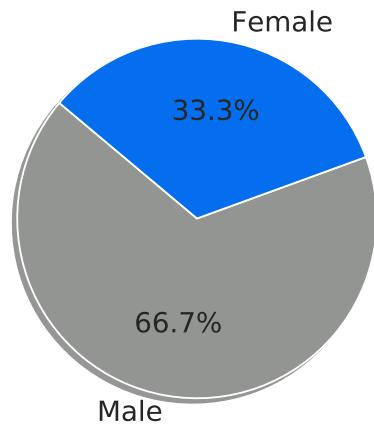


Figure 4.2: The gender distribution of participants at the *do your :bit* workshops.

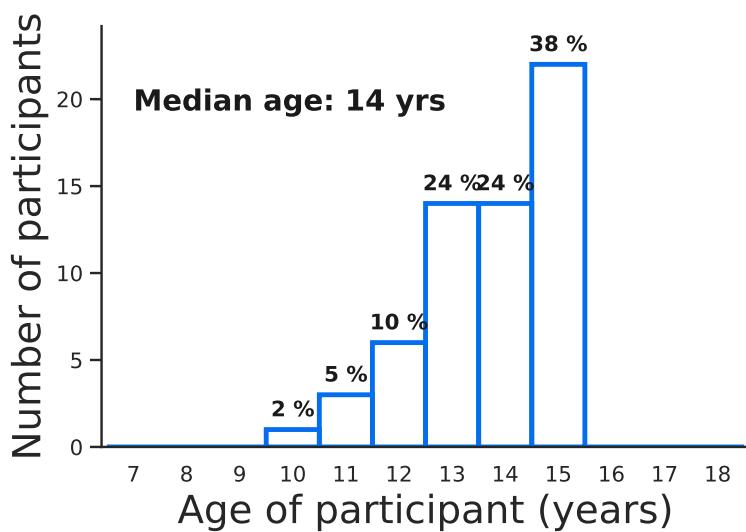


Figure 4.3: The age distribution of participants at the *do your :bit* workshops.

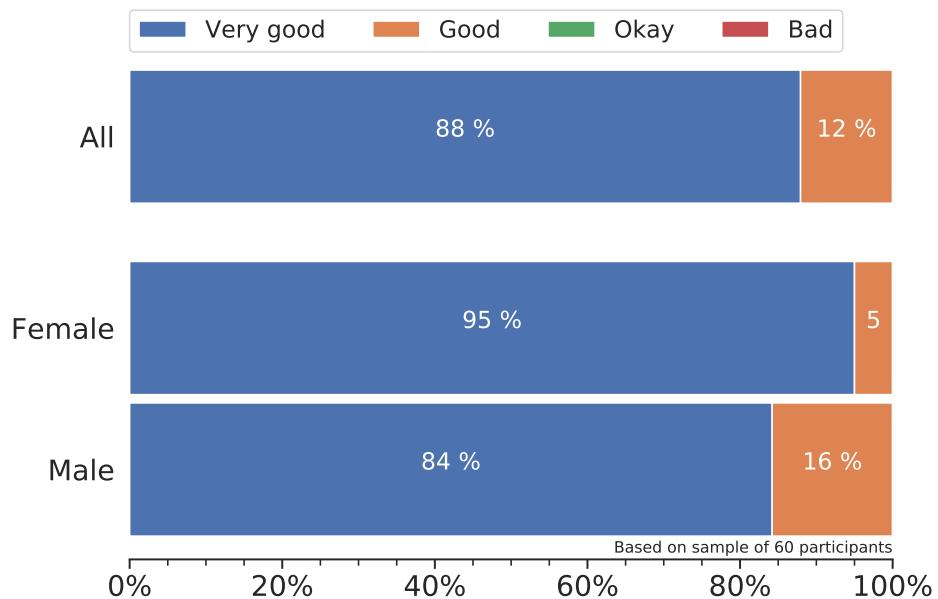


Figure 4.4: The *do your :bit* participants were asked to rate their overall experience of the workshop. The feedback was very positive with 88 per cent saying it was very good, 12 per cent saying good and no one saying it was only okay or bad.

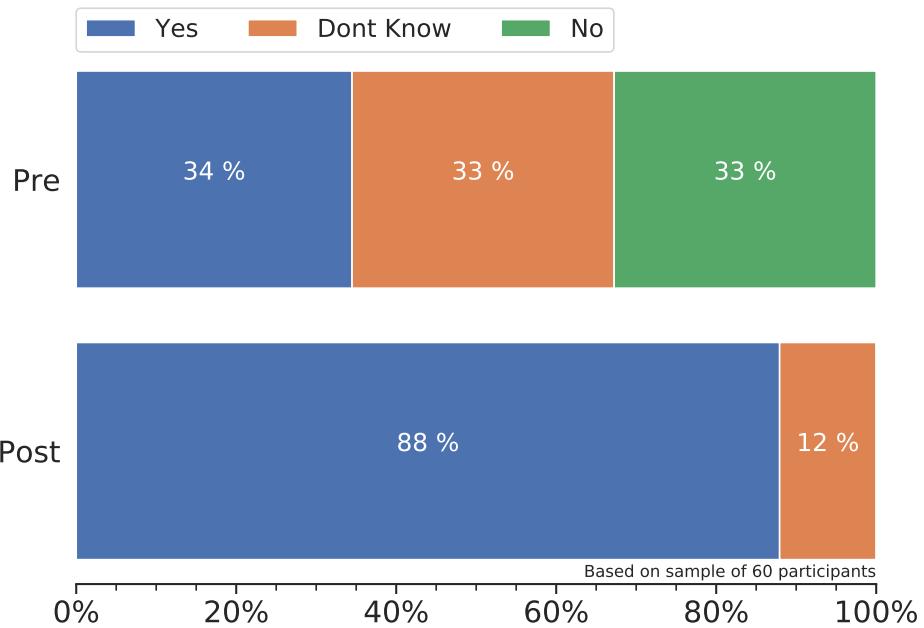


Figure 4.5: The *do your :bit* participants were asked before and after the workshop whether they believed they could do coding. There is a clear increase in confidence for the participants and their perceived ability to do coding. Prior to the workshop only 34 per cent of participants felt they were able to do coding, 33 per cent of participants answered that were unable to do coding and 33 per cent didn't know whether they could. Following the workshop, 88 per cent felt they were able to do coding, only 12 per cent were unsure and zero participants felt unable to do coding.

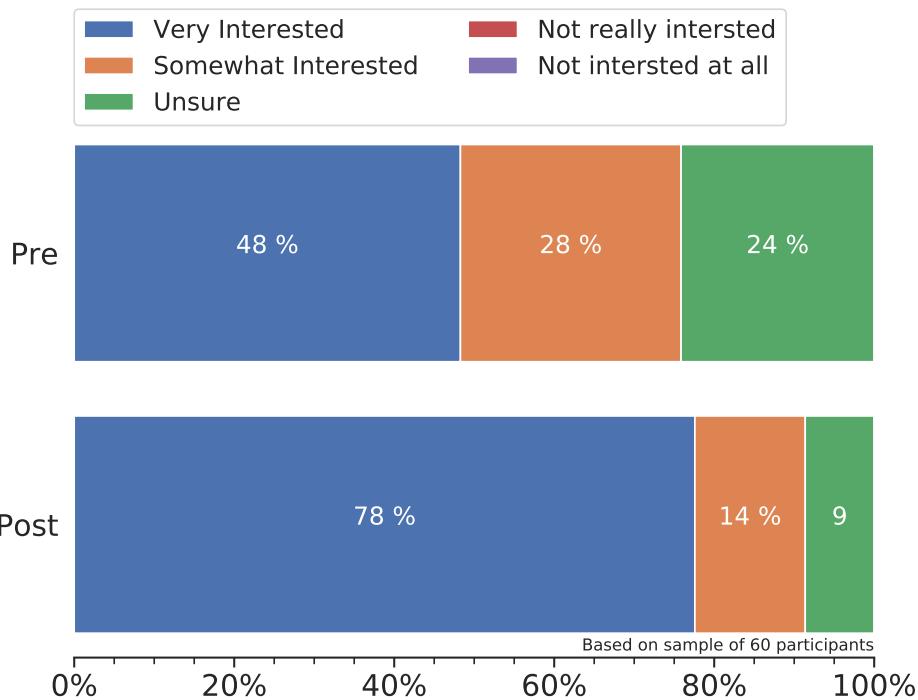


Figure 4.6: The *do your :bit* participants were asked before and after the workshop how interested they are in doing coding. The workshops increased their interest in coding. 24 per cent of participants were unsure or not interested in coding, whereas after the workshop this dropped to nine per cent. The proportion of participants who are very interested in doing coding increased from 48 per cent before the workshop to 78 per cent after.

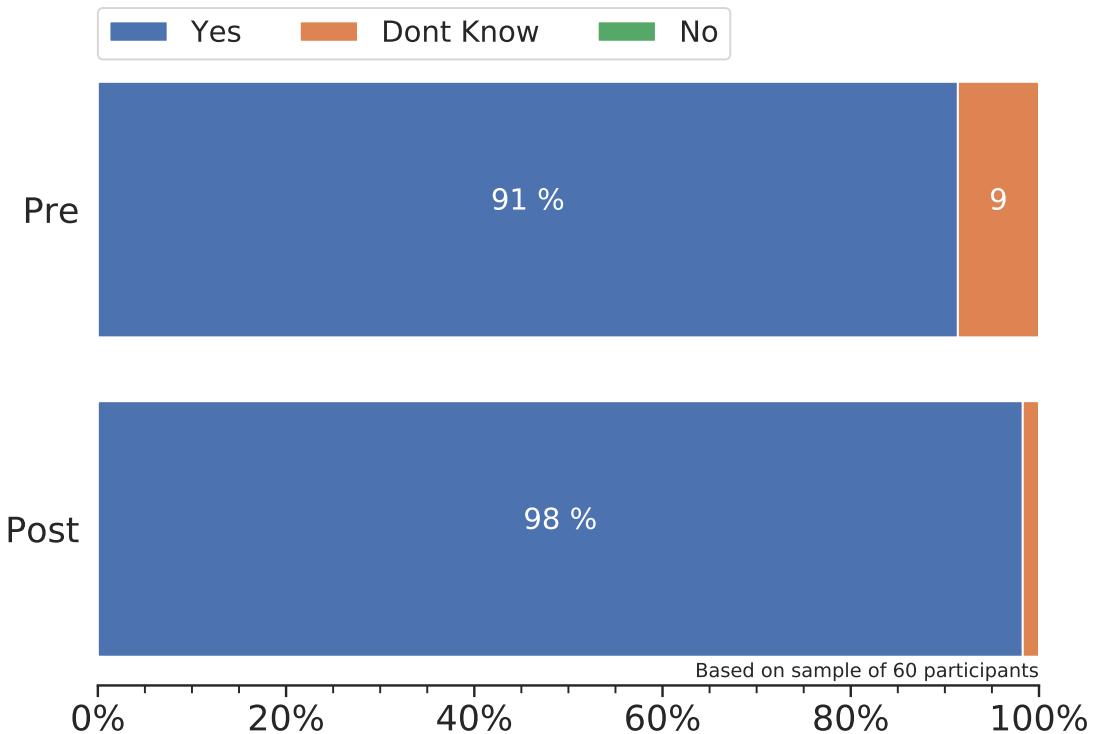


Figure 4.7: The *do your :bit* participants were asked before and after the workshop whether they believed you can use technology to solve environmental problems. Prior to the workshop there was a high awareness of the potential to use technology to solve problems. The workshop increased this further (from 91 to 98 per cent).

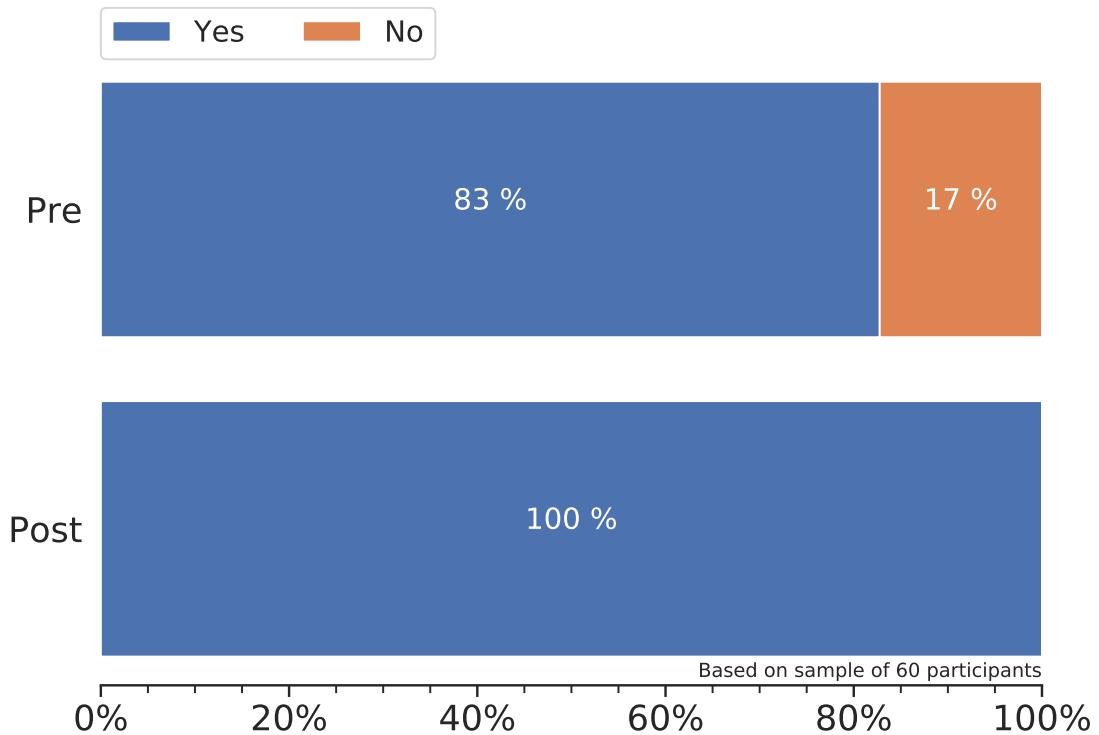


Figure 4.8: The *do your :bit* participants were asked before and after the workshop whether they are familiar with the SDGs. There was an initial high awareness of the SDGs in general amongst the participants, with 83 per cent of participants saying they have heard of the SDGs prior to the workshop. After the workshop this had increased to 100 per cent.

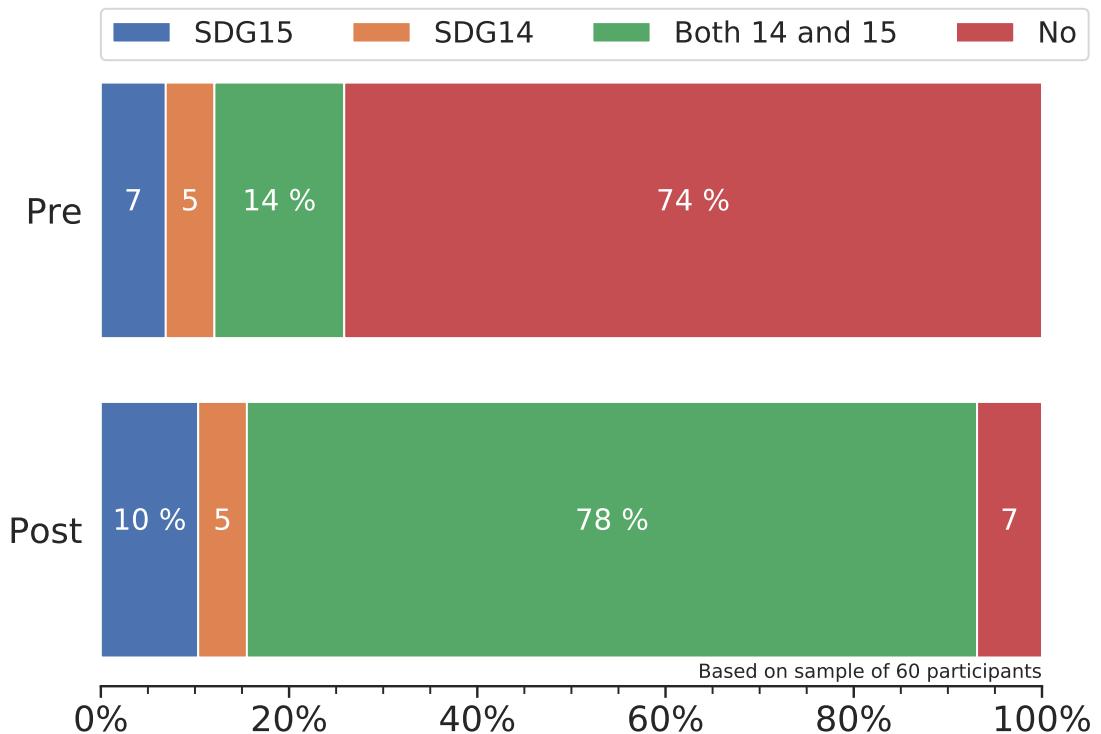


Figure 4.9: The *do your :bit* participants were asked before and after the workshop whether they are familiar with the SDGs 14 and 15 specifically. Awareness of the specific SDGs 14 and 15 were substantially improved by the workshop. The proportion of participants who said they did not know about either SDG 14 and 15 decreased from 74 per cent before the workshop to seven per cent after the workshop.

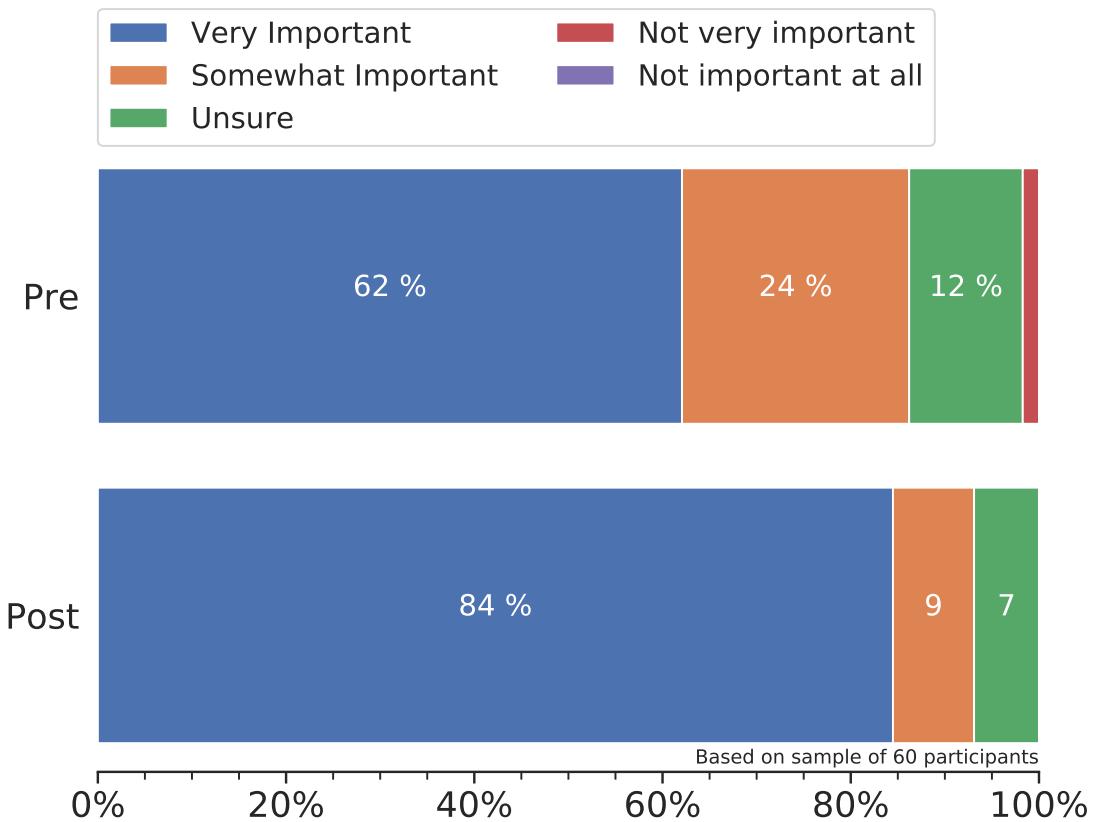


Figure 4.10: The *do your :bit* participants were asked before and after the workshop how important they felt the SDGs are. The workshop increased the perception of the importance of the SDGs in the participants. After the workshop 84 per cent felt the SDGs are very important compared to 63 per cent before the workshop. The proportion who were unsure or thought they are unimportant decreased from 14 per cent before the workshop to seven per cent after the workshop.

Chapter 5

Appendix: Questionnaires

Here we provide examples of the feedback forms that are used to collect the data shown in this report. Note, that these are in Bengali.

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দয়া করে নিচের প্রশ্নগুলোর উত্তর দাও
নাম?
মূল?
শ্রেণী?
আজকের তারিখ?

- 1) লিঙ্গ? হেলে মেয়ে অন্যান্য

2) বয়স?

3) তোমার কি মনে হয় তুমি প্রোগ্রামিং করতে পারো?

হ্যা না আমি জানি না

4) তোমার জীবনে প্রোগ্রামিং কভটুকু গুরুত্বপূর্ণ?

একবারেই গুরুত্বপূর্ণ নয় গুরুত্বপূর্ণ নয় আমি জানি না গুরুত্বপূর্ণ খুবই গুরুত্বপূর্ণ

5) তুমি প্রোগ্রামিং/কোডিং করতে কভটুকু আগ্রহী?

একবারেই আগ্রহী নই আগ্রহী নই আমি জানি না আগ্রহী খুবই আগ্রহী

6) তোমার কি বাসায় বা স্কুলে নিয়মিত কম্পিউটার ব্যাবহার করার সূচ্যোগ আছে?

হ্যা, বাসায় না, আমি নিয়মিত কম্পিউটার ব্যাবহার
 হ্যা, স্কুলে না, আমি জানি না
 করার সূচ্যোগ পাই না

7) তুমি কভটা নিয়মিত কম্পিউটার ব্যাবহার করো?

আজকে প্রথমবার ব্যাবহার করলাম একদমই না (বছরে দুই এক বার)
 মাঝে মাঝে (মাসে প্রায় একবার) নিয়মিত (সঞ্চাহে অন্তত একবার)
 ঘন ঘন (সঞ্চাহে অনেকবার)

8) গণগন্ধাগার/প্রাবলিক লাইব্রেরিতে তুমি কভটা নিয়মিত যাতায়াত করো (তোমার স্কুলের লাইব্রেরি বাদে)?

আমি আজকে প্রথমবারের মতো আসলাম একদমই আমা হয় না (বছরে দুই এক বার)
 মাঝে মাঝে আসি (মাসে প্রায় একবার) নিয়মিত আসি (সঞ্চাহে অন্তত একবার)
 ঘন ঘন আসি (সঞ্চাহে অনেকবার)

9) তুমি লাইব্রেরিতে নিয়মিত আসতে কভটুকু আগ্রহী?

একবারেই আগ্রহী নই আগ্রহী নই আমি জানি না আগ্রহী খুবই আগ্রহী

এখানেই থামো! পিছনের পৃষ্ঠাটি কর্মশালা শেষ হবার পরে পূরণ করবে!

Pre- and Post- Questionnaire

Govt. District Public Library Coding Workshop

Figure 5.1: An example of the feedback form used with the coding workshop participants. Page 1 of 2. 44

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দয়া করে নিচের প্রশ্নগুলোর উত্তর দাও। **কর্মশালার শেষে এই প্রশ্নগুলোর উত্তর দাও**

10) কর্মশালা শেষে তোমার কি মনে হয় তুমি প্রোগ্রামিং করতে পারো?

- হ্য না আমি জানি না

11) কর্মশালা শেষে এখন তুমি প্রোগ্রামিং/কোডিং করতে কতটুকু আগ্রহী?

- একবারেই আগ্রহী নই আগ্রহী নই আমি জানি না আগ্রহী খুবই আগ্রহী

12) কর্মশালা শেষে এখন তোমার জীবনে প্রোগ্রামিং কভটুকু গুরুত্বপূর্ণ?

- একবারেই গুরুত্বপূর্ণ নয় গুরুত্বপূর্ণ নয় আমি জানি না গুরুত্বপূর্ণ খুবই গুরুত্বপূর্ণ

13) সব মিলিয়ে কানো কর্মশালাটি তোমার কাছে কেমন লেগেছে?

- খুব ভালো মোটামুটি
 ভালো ভালো লাগেনি

14) তুমি নীচের যেই আ্যস্পুলো ব্যবহার করেছ তার পাশে টিক চিহ্ন দাও, এবং আ্যস্পুলোকে এক থেকে পাঁচ এর ভেতর রেটিং করো। সর্বমিন্ন ১ মানে তুমি একদমই পছন্দ কর নি, এবং সর্বোচ্চ পাঁচ মানে তুমি তীব্র পছন্দ করেছ!

- | | |
|--|---|
| <input type="checkbox"/> Scratch (স্ক্রাচ)/৫ | <input type="checkbox"/> Kano Code (কানো কোড)/৫ |
| <input type="checkbox"/> Micro:bit (মাইক্রো:বিট)/৫ | <input type="checkbox"/> Make Snake (মেক স্নেক)/৫ |
| <input type="checkbox"/> Make Art (মেক আর্ট)/৫ | <input type="checkbox"/> Hack Minecraft (হ্যাক মাইনক্র্যাফ্ট)/৫ |
| <input type="checkbox"/> Make Pong (মেক পং)/৫ | <input type="checkbox"/> Terminal Quest (টার্মিনেল কোডেস্ট)/৫ |

15) গ্রহণার যদি এরকম আরো কার্যকলাপের আয়োজন করে, তুমি কি আরো নিয়মিত ভাবে গ্রহণার এ আসবে?

- হ্য হ্যতো না

16) এই যন্ত্র যদি জনসাধারণের ব্যবহারের জন্য রাখা হয়, তুমি কি লাইব্রেরিতে নিয়মিত আসবে?

- হ্য হ্যতো না

17) তোমার কোনো মন্তব্য আছে? কর্মশালার কি কি তোমার ভালো লেগেছে? আরও কি করলে ভালো হত?

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Govt. District Public Library Coding Workshop

Figure 5.1 (cont.): An example of the feedback form used with the coding workshop participants. Page 2 of 2.



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দয়া করে নিচের প্রশ্নগুলোর উত্তর দাও
নাম
স্কুল

শ্রেণী
১। তোমার লিঙ্গ কি?
 ছেলে মেয়ে অন্যান্য

২। তোমার বয়স কত?
.....

৩। তোমার কি মনে হয় তুমি প্রোগ্রামিং করতে পারো?
 হ্য না আমি জানি না

৪। তুমি প্রোগ্রামিং করতে কতখানি আগ্রহী? ১ থেকে ১০ এর মধ্যে রেটিং দিয়ে জানাও।
(এখানে ১ মানে সবচেয়ে কম, ৫ মানে মধ্যম, ১০ মানে সবচেয়ে বেশি)
.....

৫। তোমার কি মনে হয় প্রযুক্তি ব্যবহার করে তুমি আমদের চারপাশের পরিবেশ সংক্রান্ত সমস্যা
সমাধান করতে পারবে ?
 হ্য না আমি জানি না

৬। তুমি কি 'টেকসই উন্নয়ন লক্ষ্যমাত্রা' (Sustainable Development Goals or SDGs) এর সম্পর্কে
কিছু জানো বা শুনেছ কখনো?
 হ্য না

৭। তুমি কি 'টেকসই উন্নয়ন লক্ষ্যমাত্রা' ১৪ বা ১৫ (Sustainable Development Goal 14 and 15)
সম্পর্কে বিশেষভাবে কিছু জানো? (১ টির বেশি ঘরেও দাগাতে পারো)
 হ্য আমি SDG 14 হ্য আমি SDG 15 না
সম্পর্কে জানি

৮। তোমার মতে 'টেকসই উন্নয়ন লক্ষ্যমাত্রা' (Sustainable Development Goals) আমদের জীবনে
কতখানি গুরুত্বপূর্ণ? ১ থেকে ১০ এর মধ্যে রেটিং দাও। (এখানে ১ মানে সবচেয়ে কম, ৫ মানে মধ্যম,
১০ মানে সবচেয়ে বেশি)
.....

Pre-session questionnaire

"Do your :bit" Workshop – Dhaka – 24/09/2019

Figure 5.2: An example of the 'Do Your Bit' workshop questionnaires. Page 1 of 2.



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ଦୟା କରେ କର୍ମଶାଲାର ଶେଷେ ଏହି ପ୍ରଶ୍ନଗୁଲୋର ଉତ୍ତର ଦାଓ
ନାମ
.....

১। কর্মশালা শেষ করার পরে এখন কি তোমার মনে হচ্ছে তুমি প্রোগ্রামিং করতে পারো?

୩୫

৩

□ আমি জানি না

২। কর্মশালা শেষে এখন তুমি প্রোগ্রামিং করতে কতখানি আগ্রহী? ১ থেকে ১০ এর মধ্যে রেটিং দিয়ে জানাও। (এখনে ১ মানে সবচেয়ে কম, ৫ মানে মধ্যম, ১০ মানে সবচেয়ে বেশি)

۱..... ۲..... ۳..... ۸..... ۴..... ۶..... ۹..... ۸..... ۹..... ۱۰

৩। তোমার কি এখন মনে হচ্ছে যে প্রযুক্তি ব্যবহার করে তুমি আমাদের চারপাশের পরিবেশ সংক্রান্ত সমস্যা সমাধান করতে পারেশে পারে?

୩୫

১৮

□ আমি জানি

৪। কর্মশালা শেষে তুমি কি 'টেকসই উন্নয়ন লক্ষ্যমাত্রা' (Sustainable Development Goals or SDGs) এর সম্পর্কে সাধারণ ধারনা পেয়েছো?

୩୫

১৩

৫। কর্মশালা শেষে তুমি কি টেকসই উন্নয়ন লক্ষ্যমাত্রা ১৪ বা ১৫ (Sustainable Development Goal 14 and 15) সম্পর্কে বিশেষভাবে জানতে পেরেচো? (১ টির বেশি ঘোষণা দ্বারা পেরাবো)

শ্যামলী SDG 14

শ্রাবণি SDG 15

১

৬। তোমার মতে 'টেকসই উন্নয়ন লক্ষ্যমাত্রা' (Sustainable Development Goals) আমাদের জীবনে কতখানি গুরুত্বপূর্ণ? ১ থেকে ১০ এর মধ্যে রেটিং দাও। (এখানে ১ মানে সবচেয়ে কম, ৫ মানে মধ্যম, ১০ মানে সবচেয়ে বেশি)

୧ ୨ ୩ ୪ ୫ ୬ ୭ ୮ ୯ ୧୦

১। সর মিলিয়ে ক্ষেত্রগতিটি কোন কাছ কোন লোগো?

ପ୍ରକାଶକ ନାମ

ପ୍ରତିକାଳିକ

୧୮

ମୋଡାମୁଦ

৮। তোমার কোনো মন্তব্য আছে? কর্মশালার কি কি তোমার ভালো লেগেছে? আরও কি করলে ভালো

Post-session questionnaire

"Do your :bit" Workshop – Dhaka – 24/09/2019

Figure 5.2 (cont.): An example of the 'Do Your Bit' workshop questionnaires.
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