

# IDDS Botswana 2016

## Final Data Summary

June 25 – July 23, 2016

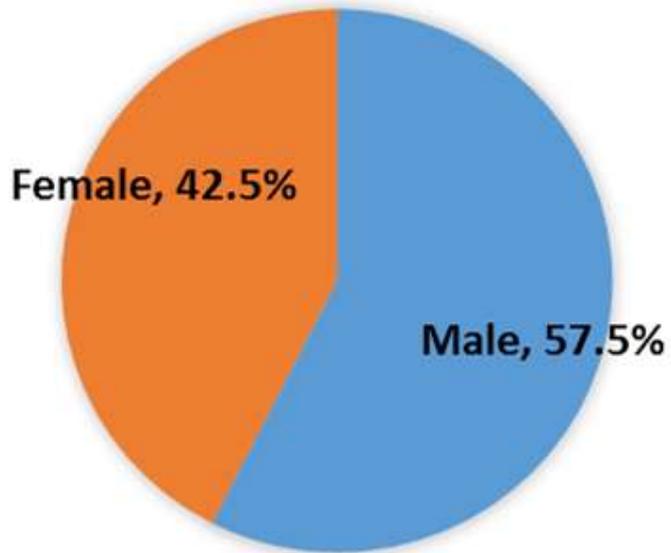


4 weeks, 40 participants, 6 prototypes

# Who are the participants?

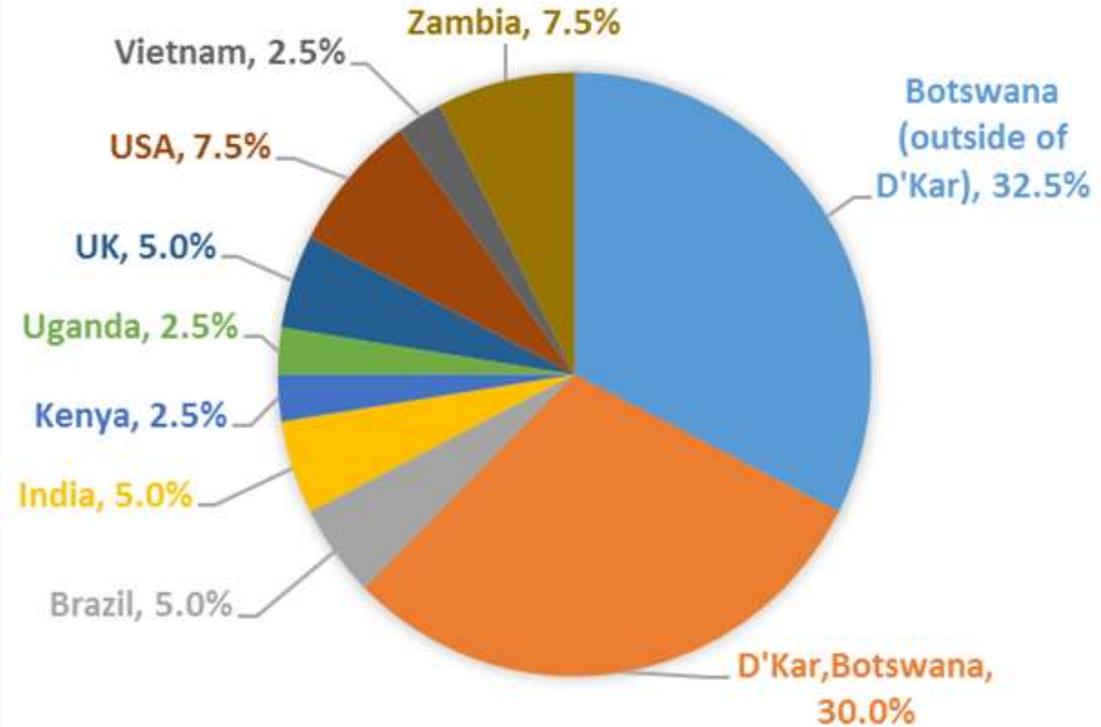


## GENDER



Average Age: **33**

## CITIZENSHIP



Youngest: **21**

Oldest: **56**

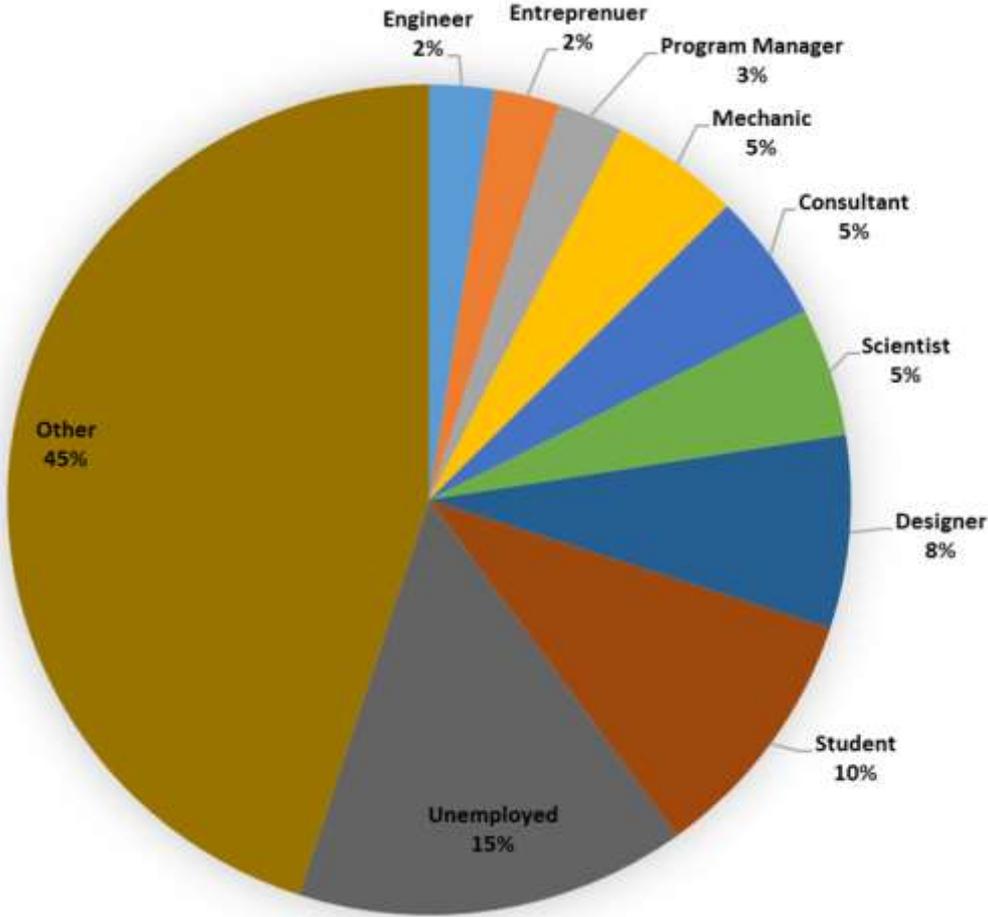
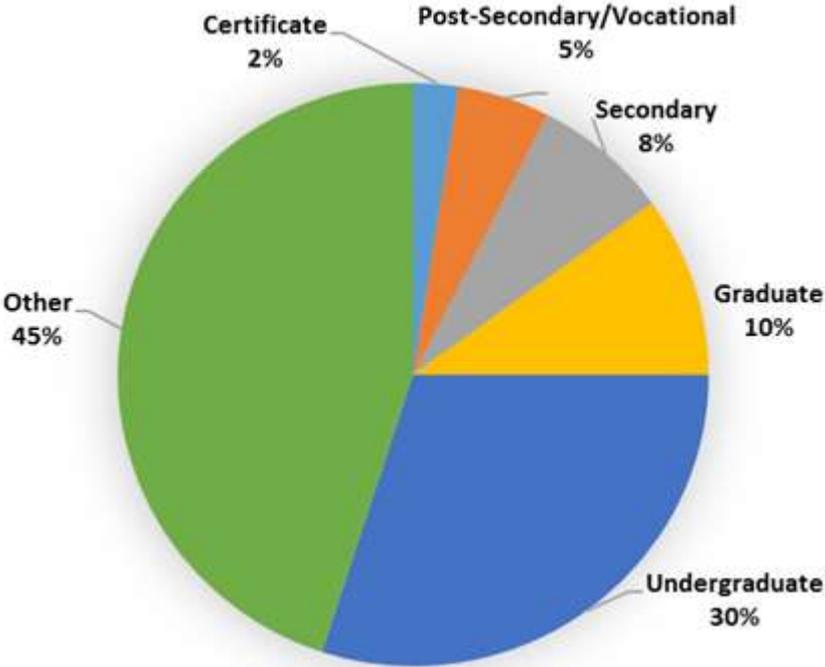
Who are the participants?

What did they do?

What will they do next?

# PROFESSION

# EDUCATION LEVEL



Languages Spoken: **15**

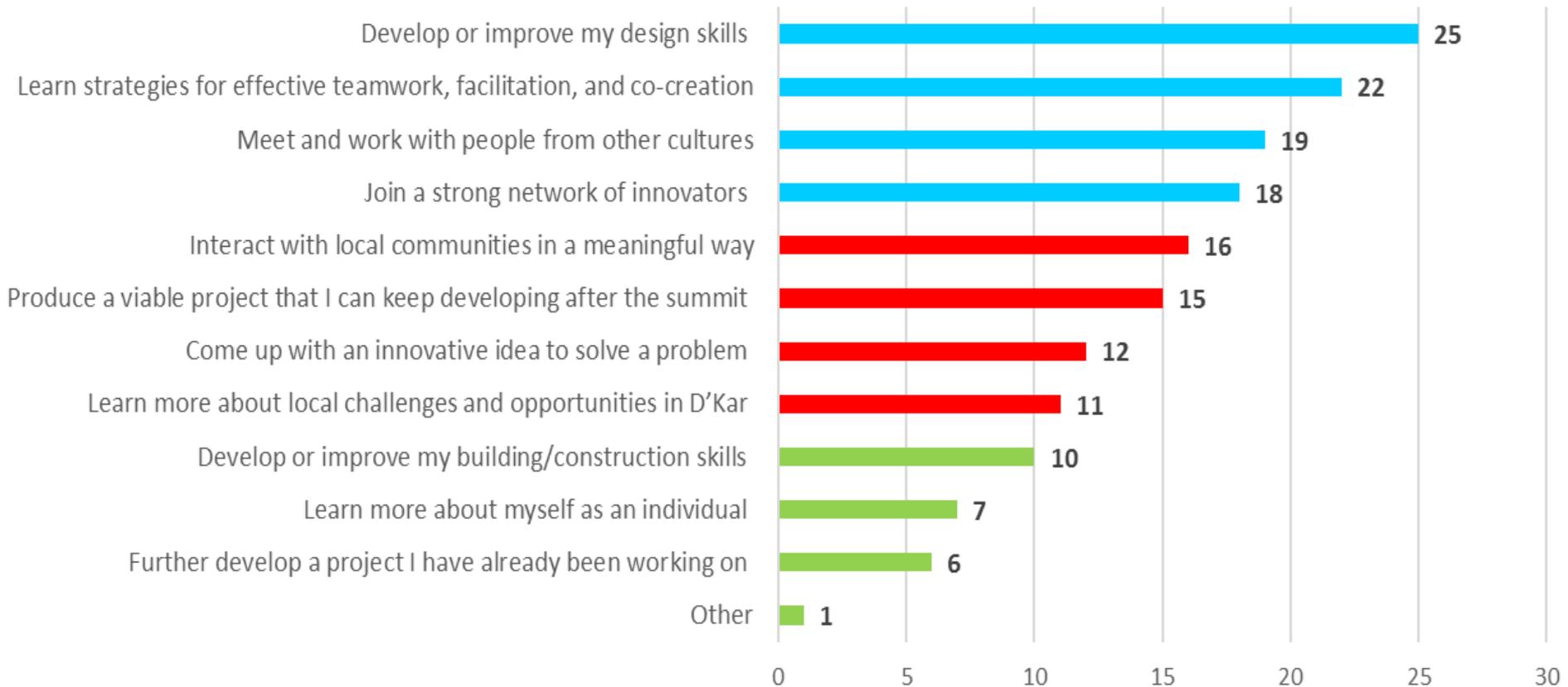
Who are the participants?

What did they do?

What will they do next?

# What are their short-term goals?

Between now and the end of IDDS, what do you MOST hope to accomplish?



**37 Participants responded**

Who are the participants?

What did they do?

What will they do next?

# Short-Term Goals

“I hope that I would be able to learn design, so that I can **improve outcomes** where I come from so that they can be able to **create the technology for themselves**. Getting the skills and knowledge will be of great help.”

“I want to learn new strategies and become more confident in facilitating co-creation between people from different backgrounds and disciplines that I can apply back home.”

“I'm interested in understanding the lives and traditions of the people of D'kar, **gaining direct experience working on in-the-field** research and design projects, and working toward creating tools and practices that support the **development and sustainability of livelihoods**.”

“I want to make **new friends and learn about others**.”

“Mainly I want to improve my **prototyping and construction skills** to turn my **concepts into reality**.”

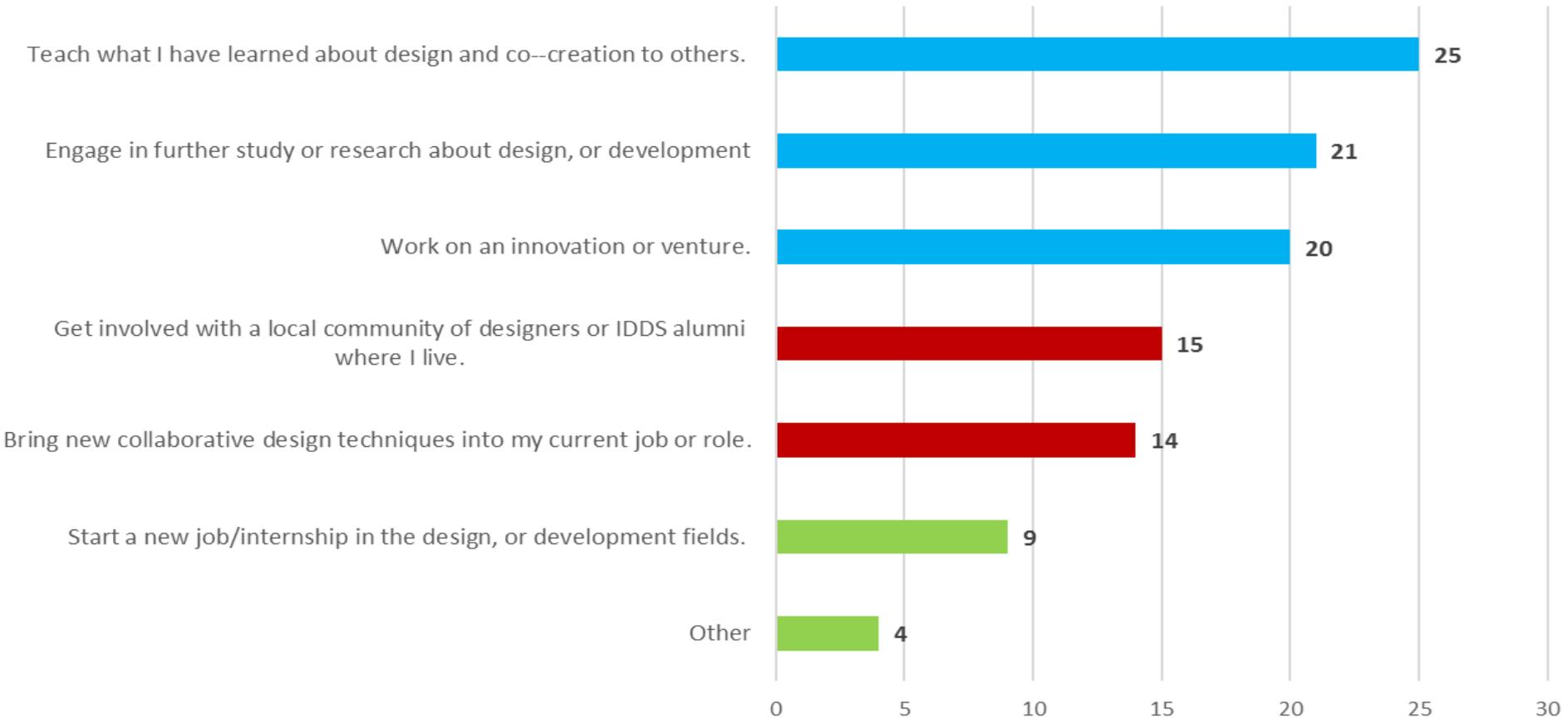
Who are the participants?

What did they do?

What will they do next?

# What are their long-term goals?

What do you MOST hope to accomplish in the 12 months after IDDS?



**37 Participants responded**

Who are the participants?

What did they do?

What will they do next?

# Long-Term Goals

“Work on my prototype into a finished project **viable to use** by community members.”

“To **build friendship** with people who are interested in doing projects that are similar to my dream. To **find mentors** who are into mechanical engineering.”

“After IDDS Botswana, I will **START** the maker space/collaborative thinking-designing lab back home, to enable me to **share the skills** learnt with communities in Uganda and to allow D-labs/myself to **grow the innovators network** exponentially.”

“The venture I have co-founded in Odisha (India) is about co-designing innovative low cost technologies which make lives of people simpler and also can be used for earning livelihood. My goal for attending is to be able to use skills and network created at this summit to replicate low cost technology innovations in Odisha.”

“I am now on a sabbatical, and I am trying to create the conditions to not go back to my job, making a new career in the innovation area.”

Who are the participants?

What did they do?

What will they do next?

# To me, IDDS will be a success if...

“a prototype that stands alone, replicable, innovative, easily repairable, with supply chain and an entire ecosystem for technology to function is designed”

“I have built **strong relationships** with my colleagues (co-participants and organizers/facilitators)”

“we can successfully create products to **solve global problems** and **empower** each other & host communities in the process.”

“it starts a manufacturing base to design **products** for **market.**”

“I learn **new skills** (practical skills, and also related to design process) and if I **expand** my **network.**”

Who are the participants?

What did they do?

What will they do next?

# What did they do?



# Favorite Moments?

Build-Its!

Design Philosophy!

Participant Presentations!

Community Research!

Ora Molelo!

Design for [x]!

Empathy Exercise!

Sharing different cultures and backgrounds!

Innovation Center

Launch!

Community Presentations!

Stargazing!

Morning circle!

San Cultural Night!

Working in Diverse Teams!

International Snack Fest!

Maun Trip!

Who are the participants?

What did they do?

What will they do next?



San Cultural Night



Built-its: Hack Saw

# Favorite Moments



International Snack Fest



Community Presentations

Key Features

- Uses recycled glass
- Uses solar energy
- Easy to carry
- Durable
- User friendly
- Easy to maintain

# What were their favorite activities?

## *Morning Circle*



“Very valuable, well executed and it helps in getting to know each other well”

“It is valuable because solutions of problems were extracted from it”

“It brings in perspective for the day and fills my heart with dreams”

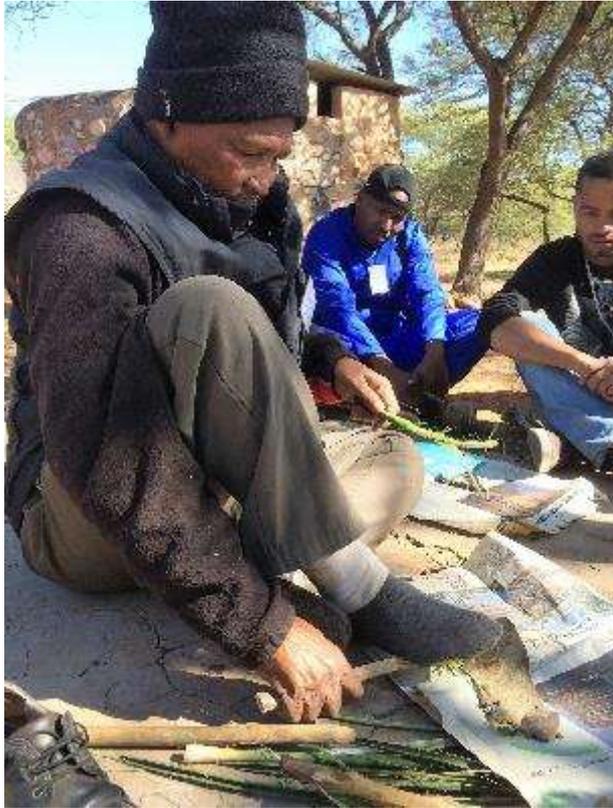
Who are the participants?

What did they do?

What will they do next?

# What were their favorite activities?

## ***Build-Its***



*Traditional Rope Making*

“It reminded me how to use many tools in the workshops which I had used a long time ago.”

“Perfect instructions, short time”

“Amazing even though we didn't finish the product”



*Building a Toolbox*

Who are the participants?

What did they do?

What will they do next?

# What were their favorite activities?

## *Market Activity*



“It was fun and interacting, at the same time educational”

“It was one of the best activities in IDDS!”

“The fact that it was sort of a real market helped us understand what happens in the real world and the review after that was really helpful.”

Who are the participants?

What did they do?

What will they do next?

# The Prototypes





# Xg'ae (Interlocking Blocks)

## TEAM

Jacob Camm  
Jennifer Brook  
Otsile Kgogwane  
Oteng Phillip G  
Nkaketsang Ditsheko  
Bruce Tushabe

## Design Facilitator:

Jamie Noon



## Problem Statement

*During the floods in 2015, many of the homes in D'Kar were damaged or destroyed. Because of this, there is a desire within the community for more durable, cost-effective housing. Buildings made of concrete blocks are expensive—they require a lot of cement to produce, need mortar with a high cement content to hold together, and skilled labor to assemble.*

## Key Features:

- Durable
- Affordable
- Easy to Operate
- Blocks interlock and are easy to handle
- Energy Efficient



## Product Description

*We have made a press that makes cost-effective interlocking blocks. These blocks can be assembled into rondavels (traditional round houses) of all shapes and sizes with little to no mortar or skilled labor. This will create comfortable, durable homes that support the health, safety, and well-being of the people of D'Kar..*



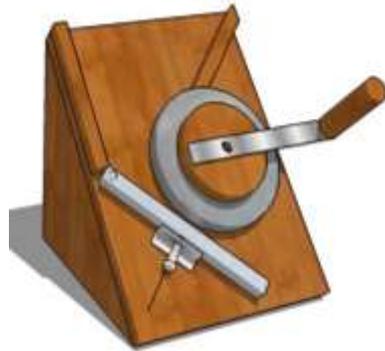


# Cgui (Morama Nut Sheller)

## TEAM

- Lucy Patterson
- Palak Aggarwal
- Komtsha Sixpence
- Oda Scatolini
- Elivas Nyirenda
- Setshego Tibi

**Design Facilitator:**  
Thabang Moiphisi



## Problem Statement

*Morama is an indigenous nut of the Kalahari Desert that can be found around D'Kar. It is a valued and healthy source of food for local families and a good source of income if sold. However, the traditional method for shelling the nuts by cracking with stones or sticks is time-consuming (20-30mins per kg), laborious, and can cause injuries.*

## Key Features:

### Hand Cracker:

- Safe
- Affordable
- Easy to Make

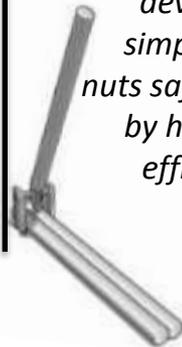
### Rotary Cracker:

- Safe
- Efficient
- High Capacity



## Product Description

*The aim of our project is to work with local people to develop two devices which will improve and impact lives in D'Kar. Firstly, a simple handheld cracker for households that can shell morama nuts safely at a faster rate (from 12 nuts per minute when shelled by hand to 25 nuts per minute). Secondly, a rotary machine for efficiently cracking larger quantities of nuts to empower local entrepreneurs to make and sell morama products.*





# Cgui Tsam (Morama Nut Hot Beverage)

## TEAM

Lucy Patterson  
Palak Aggarwal  
Komtsha Sixpence  
Oda Scatolini  
Elivas Nyirenda  
Setshego Tibi

**Design Facilitator:**  
Thabang Moiphisi



## Problem Statement

*Morama is an indigenous nut of the Kalahari Desert, valued by local people for its good flavor and high nutritional content. It can be used for a variety of projects, but the potential for entrepreneurship around these have not been tapped due to a variety of challenges. Morama is seasonal and yields vary from year to year. The various processing techniques (shelling, roasting, grinding etc. required to make different products are often inefficient. Those wishing to start a business around morama are not well supported; local people have difficulty gaining access to markets and start up financing.*

## Product Description

*We explored the potential for producing a morama based hot drink "Cgui Tsam" that could be produced locally, with the potential to create new local entrepreneurs.*



## Key Features:

- Delicious
- Nutritious
- Easy to make
- Generates Income
- Locally made



# Ez Ncoro (*Human-Powered Washing Machine*)

## TEAM

Frank Gaseitsiwe  
Joseph Chipyoka  
Joseph Dii  
Liz Hunt  
Sakhile Ndlovu  
Sixpence Sixpence  
Tabaxlae Kaashe

**Design Facilitator:**  
Carolina Menezes



## Problem Statement

*Washing clothes is a time-consuming and labor-intensive activity for the women of D'Kar. It often takes them a full day each week to clean their family's clothes. Water scarcity further complicates the process. In addition to the usual challenges of washing and rinsing clothes by hand, many women must walk a kilometer or more each way to fetch water from a community tap*

### Key Features:

- Human powered
- Built with locally-sourced materials
- Simple and easy to use
- Low cost (Purchase & Maintenance)
- Water conscious



## Product Description

*Our team created a simple, low-cost, human-powered washing machine and wringer to reduce the time and effort needed to wash clothes and conserve water in each step of the process. By using this product, the women of D'Kar can spend their extra time on other household chores, with their family and community, or generating income.*



# Cam Qg'am *(Solar Bead Furnace)*

## TEAM

Tempei Borba  
Asit Kumar Purohit  
Nicodemus Barkard  
Jester Sealetsa  
Dimpho Moatshe  
Wendy Banja  
Beauty Tjienda  
Nxabe Tase  
Qasa Tsixa

## Design Facilitator:

Lulu Chuulu



## Problem Statement

*Jewelry making in D'Kar is important to the people's livelihood and culture. The jewelry is commonly made using ostrich egg shells and glass beads. However, glass beads are expensive to buy from the local craft shops and this sometimes hinders the jewelry makers from meeting the demand of the jewelry. In other countries glass beads are made using a firewood furnace, however, firewood is a scarce resource in D'Kar.*

## Key Features:

- Uses recycled glass
- Uses solar energy
- Easy to carry
- Durable
- User friendly
- Easy to maintain



## Product Description

*We are introducing a solar bead furnace which will harness the power of the sun and use it to make glass beads. With the solar bead furnace, jewelry makers in D'Kar can customize their jewelry by making molds to make their own glass beads that will carry their identity and the culture of the people of D'Kar.*



# Huiku *(Deep Sand Wheelchair)*

## TEAM

Ketelelo Moapare  
Haily Tran  
Xgaiga Qomaxa  
John Nambwa  
Coexae Mpho  
Keemenao Matale,  
Pierce Gordon  
Helen Amarin  
Monkgogi Otlhogile  
Kebonye Sethunya Leburu



## Design Facilitator:

Aaron Wieler  
Matt McCambridge,

## Problem Statement

*Active wheelchair riders in D'Kar have difficulty moving through the sand and gravel terrain, which limits their mobility and their interactions throughout community. They often have to exert a lot of effort to move independently or rely on others to help move around and beyond the house*

## Key Features:

- Wider wheels
- Large front wheel
- Dual level-drive and push rim mechanism
- Less effort
- Comfortable grip on lever and push handles
- Thorn resistant



## Product Description

*We have developed accessories, including wider, more durable wheels and levers to drive those wheels that can be adapted to existing wheelchairs so that the riders can retain the comfort of their current products while moving through sand more easily. We hope this promotes better access to more resources and opportunities in the community to increase their abilities to live more independent and fulfilling lives.*



# Ceekg'am (*Sustainable Tea Maker*)

## TEAM

Badisa Ntlape  
Chidemu Juma  
Basha Manyolo  
Harry Bonnell  
Mathambo Ngakaeaja

**Design Facilitator:**  
Nani Setlhatlhanyo,



## Problem Statement

*Families in D'kar find firewood is becoming scarce and harder to find, but the outdoor fire is central to life in the Kalahari.*

## Key Features:

### The Stove:

- Boils 500ml of water in 5 minutes
- Uses only 60g of briquettes
- Less harmful gas emissions

### The Briquettes:

- Can easily be made at home
- Burn for over 45 minutes
- Easy to light



## Product Description

*We have sought to create fuel briquettes from agricultural and animal waste (maize stalks and donkey waste). We have also created a stove to efficiently use this fuel and firewood more efficiently. While not expecting to fully replace the morning and evening family fire, these products will be especially valuable for smaller quantities of water boiled throughout the day, making already stretched resources go further.*

# Value of IDDS Botswana

What aspects of the IDDS experience have been most valuable to you? (*Coded responses*)



**35 participants responded**

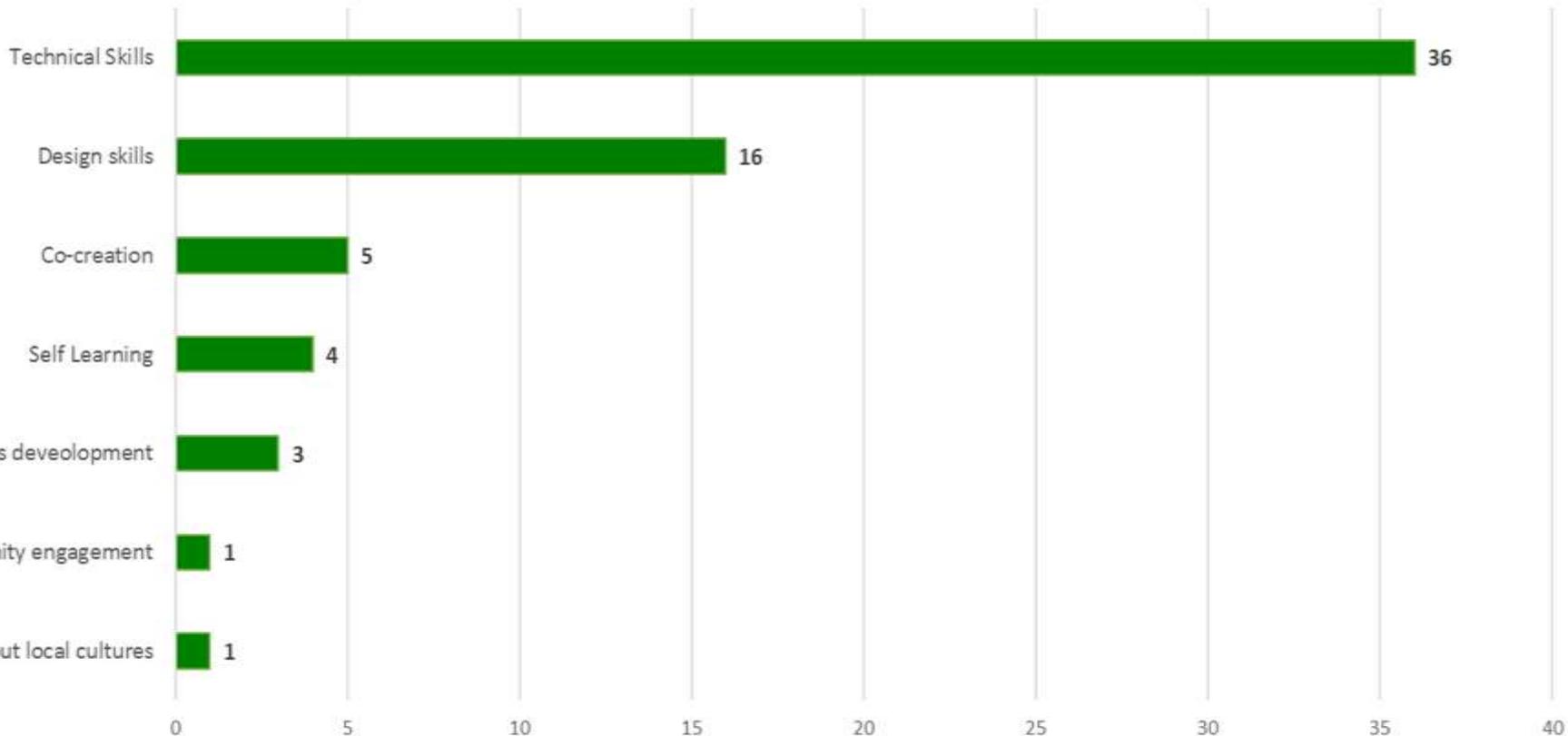
Who are the participants?

What did they do?

What will they do next?

# Skills and Knowledge

What skills and/or knowledge do you feel you have gained or developed over the past four weeks as a result of participating in IDDS? (*Coded responses*)



**35 participants responded**

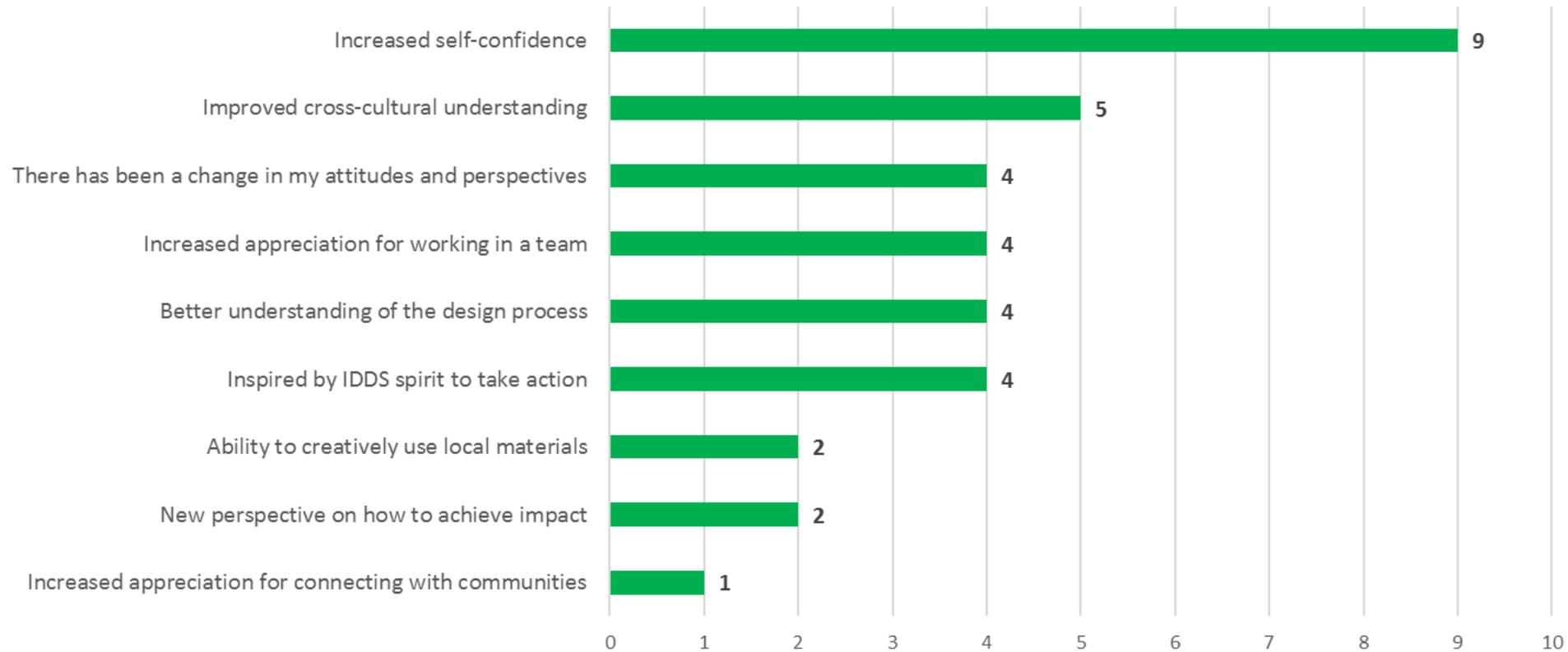
Who are the participants?

What did they do?

What will they do next?

# Attitudes and Perspectives

Have your attitudes or perspectives changed in any way over the past four weeks as a result of participating in IDDS (*Coded responses*)



**35 participants responded**

Who are the participants?

What did they do?

What will they do next?

# Self Assessment

*The participants evaluated their own skills in the beginning and in the end.  
After the summit....*

Over 50% of participants said they feel more comfortable (*2+ point increase in ratings*) in:

- Making things with wood, metal, and other materials
- Using the design process to solve problems
- Working together with users to create solutions (co-creation)

Over 60% of participants said they feel more confident (*2+ point increase in ratings*) in:

- Expressing/Presenting their ideas to a group of people

**Ratings:** 5 = Very comfortable, 4 = Somewhat comfortable, 3 = Neutral,  
2 = Not very comfortable, 1 = Not at all comfortable

Who are the participants?

What did they do?

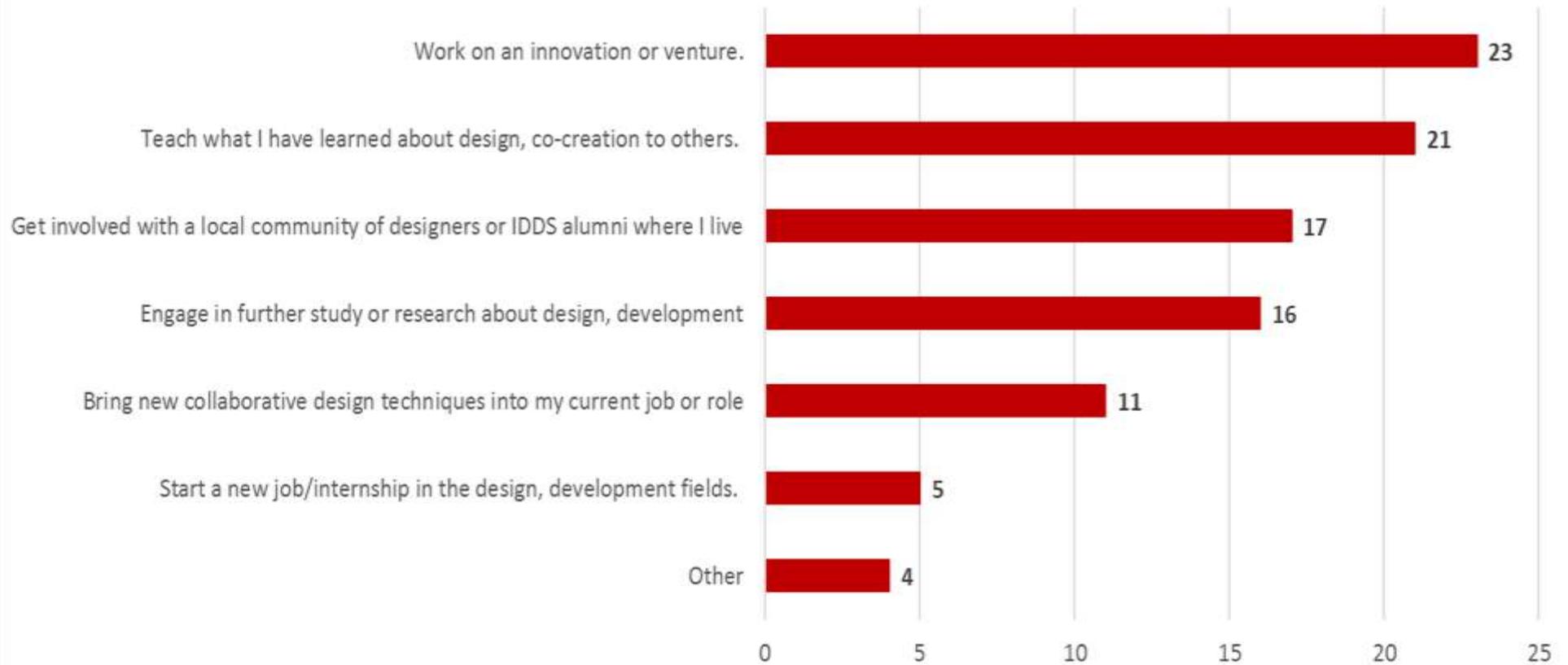
What will they do next?

# What will they do next?



# After IDDS Botswana

Now that you've completed IDDS, what are your primary goals for the next 12 months?



**35 participants responded**

Who are the participants?

What did they do?

What will they do next?

# How do you plan to continue working on your IDDS project in the future?



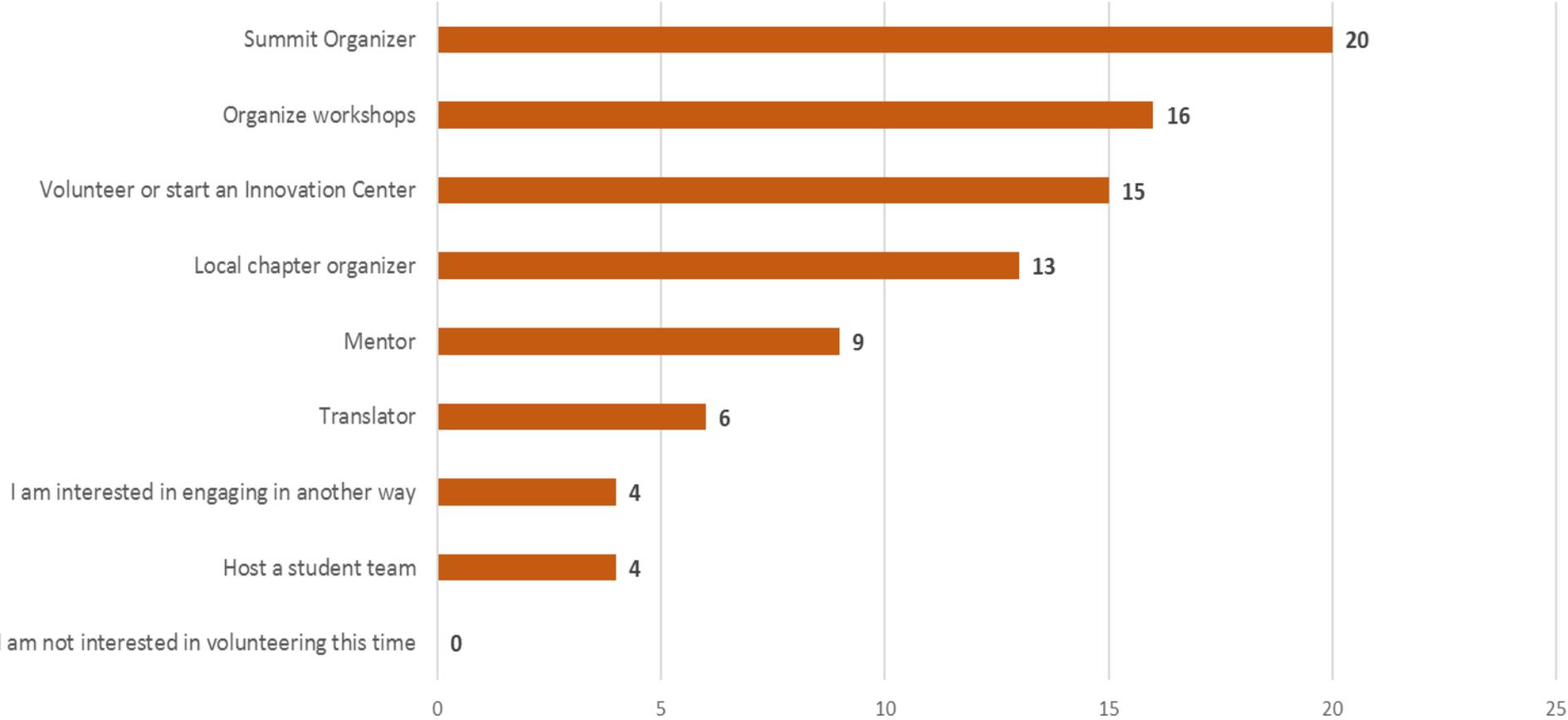
***35 participants responded***

Who are the participants?

What did they do?

What will they do next?

# Interest in Volunteering with IDIN



**35 participants responded**

Who are the participants?

What did they do?

What will they do next?

# Anything else?

- “From the person who envisioned to all those who came together to make this happen—some behind the scenes and some forefront. It was a beautiful journey, it was lovely!”
- “I have personally discovered that my passion is in design and technology. IDDS has helped me discover that I want to develop further in this experience by learning more on the process. Thank you IDIN for this and I hope I can do more to be involved in the activities”
- “I feel honored to be a part of this incredible experience. I would like to appreciate all the organizers and participants for their knowledge and time to the projects and this IDDS. I will encourage my other friends, near and dear to be a part of the future summit.”
- “I'm happy to contribute to articles/posts online about the experience, share call for applications with my network or make recommendations for people who might be great participants”
- “It has been a wonderful experience, both mental and emotional and I feel more confident and proud to be who I am leaving this place. The summit challenged me in more ways than one and I am truly grateful for helping shape the engineer, the woman, the human being that I am going to be in the future and now.”

# Thank you!

