

HERE'S A QUESTION...

How should Project Hello World understand, improve and communicate it's impact?

A five step plan.



FIVE STEPS

- 01 Define your Impact Goal**
 - + Sounds simple enough, but it can be a minefield.
- 02 Consider what evidence exists**
 - + Is it relevant?
 - + Is it complete?
 - + And most importantly, what does it tell us?
 - + Does it add up to a theory of change?
- 03 Set some testable hypotheses**
 - + This step is all too often skipped, but is the key to learning.
 - + Underneath our theory for change, what should we specifically test?

- 04 Measure to prove and improve**
 - + Sources of data.
 - + What to do with them.
- 05 Regularly Revisit**
 - + Social issues don't stand still, and neither should your approach to measurement.



01 DEFINE

There are two sources: experts and users.



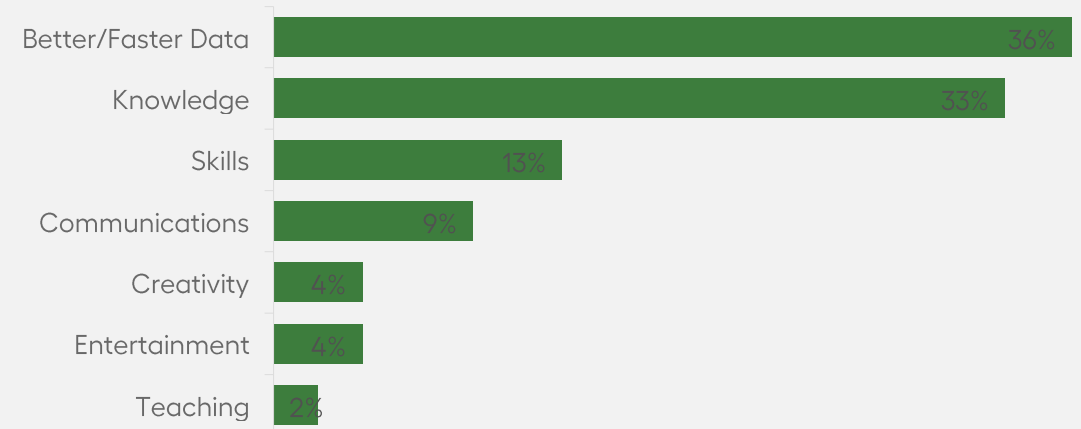
EXPERTS SAY:

- “Hello World builds solar-powered outdoor Internet Hubs in close partnership with local communities. The Hubs are WiFi-enabled and loaded with educational software and applications, giving children the opportunity to educate themselves. With Hello World children with no or limited access to education have a chance to improve their learning via apps, software, games and the internet. In addition, the Hubs are important resources to teachers - offering information, lesson plans and access to online learning tools.” Hello World Team
- “Self-organised digital learning might be the solution for children who lack access to formal schooling, allowing them to shape their own learning and create a brighter future for themselves... [We’ve conducted] 14 years of research expertise, showing that children with access to the Internet can learn almost anything. These self-organised learning environments (SOEs) allow students to learn collaboratively using the Internet, while providing important data for future research and development... A Hello Hub, to me, is like the grandchild of the 'Hole in the Wall', 16 years later.” Sugata Mitra

USERS SAY:

When we spoke to users of the Hub in Uganda, more than three quarters identified significant, positive changes in their lives as a result of the Hubs. When we asked why they identified the following reasons.

Q: Please explain how your quality of life has changed (n=55)
Open ended, coded by Lean Data



01 DEFINE

Which leads us to the following two impact ambitions:

PRIMARY: EDUCATION

We aim to demonstrate that by sparking curiosity, encouraging creativity and problem-solving, and by teaching new skills, digital education can radically improve learning and educational outcomes for even the most disadvantaged children.

SECONDARY: CONNECTIVITY

By improving access to, and affordability of, the internet, we can play a role (especially in the short-medium term) in helping communities access the world's body of knowledge, communicate outside of their immediate environment, and better record their story.

02 EVIDENCE: EXISTING

We've looked at a bunch of evidence, especially on the link between technology and education:

What forty years of Research says about the impact of technology on learning.

One of the more relevant pieces of evidence is a meta-analysis of prior studies.² In general the studies show positive impact of technology on educational outcomes. As important the studies show a consistency of impact ranging between 0.3 – 0.35. Translating this into an easy to understand number, what this suggests is that an average student will perform 12 percentage points higher if exposed to computer-assisted or computer-instructed technology.

Additionally the literature review suggests that in general technology that supports instruction has a marginally higher average effect size compared to technology that provide direct instruction.

We conclude that this evidence points to the significant benefits that technology can play in education.

Sugata Mitra's hole in the wall findings

When working in groups, children do not need to be "taught" how to use computers. They can teach themselves. Their ability to do so seems to be independent of educational background, literacy level, social or economic status, ethnicity and place of origin, gender, geographic location (i.e., city, town or village, or intelligence).

Using the Hole in the Wall within three months children, with little to no prior access, can get a foundational understanding of computer usage including: basic computer navigation functions, such as click, drag, open, close, resize, minimize and menu selection; drawing and painting pictures; loading and saving files; downloading and playing games, music and videos; running educational software and other programs; surfing the Internet; setting up email accounts, sending and receiving email; using social networking programs; simple troubleshooting

In addition, local teachers and field observers noted that children demonstrated improvements in enrolment, attendance and performance on school examinations, particularly in subjects that deal with computing skills; English vocabulary and usage; concentration, attention span and problem-solving skills; and working cooperatively and self-regulation.³

Select other research and papers.

Research looking at the One Laptop per Child Program suggests that the use of fixed or portable computers alone may have limited impact.² **This supports our view that hardware alone is insufficient, and is likely to be effective only in conjunction with great software.**

Further evidence suggests that computer based learning may be limited when access to ICT is dependent on being in a classroom.⁵ **This underscores the importance of making computer assisted learning/instruction available in public spaces.**

Multiple studies, reviews and articles highlight the value of internet connectivity for teacher lesson planning and content delivery.⁴ **This highlights the potential value of Hubs not just to students but to teachers.**

A range of papers have tried to gauge the benefits to students in terms of "softer" skills beyond formal learning outcomes. Such studies focus on understanding creativity and Innovation: students being able to find solutions to complex problems or tasks not typical of the classroom.⁵ **Whilst much remains to be learned, we believe that a key part of the Hello Hub impact is on broader skills and perceptions including self-confidence, self-awareness, and curiosity.**

02 EVIDENCE: GAPS

Whilst there have been many interesting findings, gaps in knowledge persist:

Many of these findings are from wealthy countries, do they apply in the low income and low-middle income countries Hello World works in?

One of the major gaps in evidence is whether findings drawn from wealthy countries translate to the countries in which we work.

Save for the evidence provided by Newcastle University, as far as we can tell, surprisingly little has been studied on the roll of computing on educational impact. Since social changes are highly context dependent this is a significant gap in knowledge.

It is why improving this knowledge plays a significant role in our Theory of Change (p. 7).

And what about the benefits to impact connectivity more generally?

It is clear that Internet connectivity in of itself carries significant benefits. Indeed the UN now declares internet access as a Basic Human Right, and has passed a resolution condemning unequivocally any measures to intentionally prevent or disrupt access to or dissemination of information online.

But what affects does it have on financial and economic outcomes, particularly for women.

A randomized evaluation being lead by Tavneet Suri of M.I.T. is currently underway and will measure the impact of providing free cellular data to mobile phone users on access to jobs and skills, access to formal and informal credit, use of the internet (including use of social networking), and political and social attitudes.⁶

And of the impact of specific educational Apps?

Not much is known. Nottingham University has conducted previous evaluations of the onebillion apps, which have provided evidence of promise. This included a trial involving 389 pupils aged 4-5 years drawn from 11 primary schools across Nottinghamshire. The trial examined the efficacy of the app both when it was used instead of 30 minutes of maths activity, and when used as well as normal maths activity. There was a promising evidence for both implementations. The team has also undertaken trials across schools in Malawi.

To build on this a team at the University of Oxford has been appointed as the independent evaluator and will run a two-armed randomised controlled trial (RCT). The evaluation report will be published in Autumn 2019.⁷

02 EVIDENCE: THEORY OF CHANGE

PROBLEM STATEMENT: 263 Million children are out of school.0 because the current education model is not either not working, or not working fast enough to meet their needs. The burden of this education deficit is borne disproportionately by the poorest.

IMPACT GOAL: To demonstrate that by sparking curiosity, encouraging creativity, and teaching new skills, digital education can radically improve learning and educational outcomes for even the most disadvantaged children. By improving access to, and affordability of, the internet, we help communities access the world's body of knowledge

INPUTS & ACTIVITIES

1. Hello World hubs built in local schools and communities providing full internet access plus software, apps and educational games with personal devices reserved for educational usage. Hubs also include solar USB charge points and free data.

2. Hello World deploys a community-based model - training locally-based engineers and 'Hub Mothers' to support the technology and community engagement and learning sides of Hello World's impact in - leaving communities with the maintenance materials, training and support required to manage hubs.

3. Hello World commits to ongoing learning about the role of technology and internet access in educational outcomes.

4. Hello World works to influence key stakeholders in policy and funding decision making at the government and wider funder level.

5. Hello World creates open-source materials outlining community engagement and engineering models to encourage replication.

OUTPUTS

1. Children and young people access educational materials, games and internet access to complement formal education

2a. Hub mothers ensure equity of access to Hubs

2b. Engineers ensure maintenance of Hubs and continued operation.

2c Remote support resolves bugs to ensure continued operation.

3. Research papers and impact analysis of Hub efficacy.

4. Increase in knowledge about and resourcing to tech based educational solutions for most marginalised groups.

5. Replication of Hubs

OUTCOMES

1. Improved educational and life-skill learning

2. HW workforce with improved management/technical skills

3. Supports HW long term sustainability and improved operations

4. Funding is more widely available for impact-driven community-led ed-tech solutions.

5. The Hello World model is delivered by others

03 HYPOTHESES

Based on the what is known already we set the following hypotheses to test that our theory of change holds:

01

H₀: Children use Hubs for educational purposes

H₁: Children use Hubs for purposes that don't contribute to educational outcomes.

02

H₀: Learning tools effectively augment instructional education

H₁: Learning tools provide no tangible benefit to improved educational outcomes

03

H₀: Community based model ensures Hubs are valued and managed effectively

H₁: Hubs are under-valued and eventually stop working, or are effectively captured by minority

04

H₀: Local engineering and remote support ensure continued functionality

H₁: Hubs break and cannot be fixed.

05

H₀: Hello World and other organisations further build compelling evidence base for roll of digital education

H₁: Measurement and evaluations fail to demonstrate impact.

06

H₀: Hello World and other organizations scale offerings

H₁: Hello World and other organizations remain as pilots only.

07

H₀: Online guides are effective to encourage replication.

H₁: Hello World's ability to implement cannot easily be communicated online.

04 MEASUREMENT: APPROACHES

We can test these with hypotheses through three data sources:

Passive Data: Hub Usage

What is this data? The hubs generate considerable data of their own. Tools such as Screen Time can be used to track offline app usage, and intermittent System Use Data pulls of Internet Usage capture the number and types of URL entries.

What can it tell us? This data will show what the hubs are being used for.

What limitations are there? At present Hello World does not have individual logins, which makes tracking individual usage impossible. As a result it will not be clear whether individuals are dominating the hubs, and/or the variance of what users focus on at the hubs.

For Hypotheses **01 06**

Active Data: Surveys

What is this data? qualitative and quantitative surveys to create time series, and hopefully panel data.

What can it tell us? A wide range of themes useful for answering such as: Respondent profile (gender, poverty level applying the Poverty Probability index, age, disability using the Washington Group Questions); Experience of Hello World Hubs, including challenges faced; Self-perceived Impact of Hello World; Feedback on skills acquisition; Access to alternatives; Suggestions for improvement etc.

What limitations are there? Understanding formal learning outcomes as key part of 02 will be difficult.

For Hypotheses **01 02 03 05 06**

Active Data: Tests

What is this data? Formal test based data to look at improvements in numeracy and literacy outcomes

What can it tell us? Whether Hello Hubs are working based on conventional measures of educational improvements.

What limitations are there? This is traditionally more expensive. Also setting up a control to satisfy those most skeptical of Hello Hubs will add further expense, complexity and potential ethical questions.

For Hypotheses **02 06**

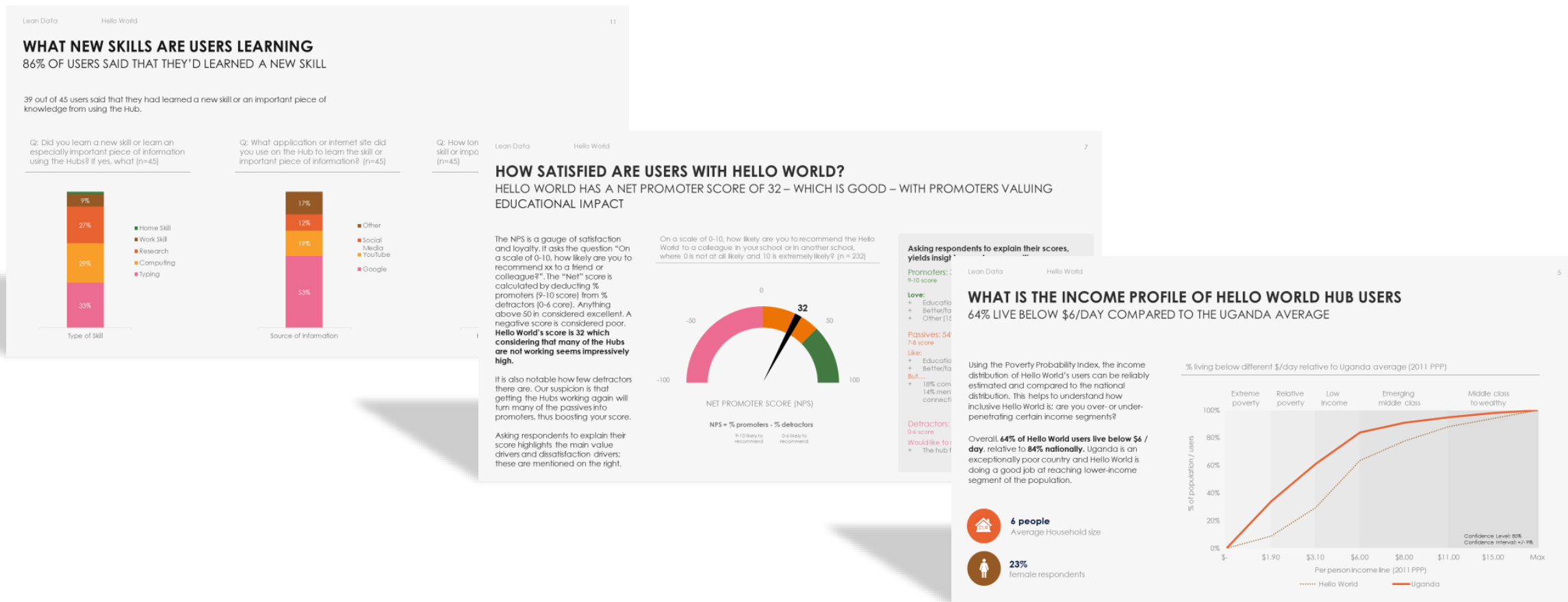
04 MEASUREMENT: IMPLEMENTATION

And this is how and when we will collect the data:

Activity	Date Start	Date End	Deliver Partner	Status	Notes
01 Remote Tracking of Usage	January 2019	Ongoing	Avenues	Not working	Avenues to send passwords to the iPad groups (status?), but Screen Time (the Apple software used to track app usage) is not working for remote data. Potential causes include a firewall issue, buggy Apple software, or something other. This is preventing capturing app usage remotely (Avenues suggest can't be resolved – as of late Jan) and manual iPad usage tracking may be needed.
02 Lean Data Surveys	TBD	3 months after start	60 Decibels	Behind	Currently the 60 Decibels team are unable to gather phone numbers needed for remote surveying from community leads.
03 Reviews of other relevant research	Ongoing	Ongoing	Various	On track	Thanks to effective networking Hello World team is well aware of relevant studies that will help build the impact case. Most promising is the evaluation of the onebillion app due in Autumn 2019.

05 REVISIT

We have done a little work to date using Lean Data and plan to compare the new results to those:



REFERENCES

1. <https://unesdoc.unesco.org/ark:/48223/pf0000219687>
2. **“What Forty Years of Research Says about the Impact of Technology on Learning: A Second-Order Meta- Analysis and Validation Study”** Rana Tamim et al. Review of Educational Research, 2011, 81(1), 4–28
3. <http://www.hole-in-the-wall.com/Publications.html>
4. **“Technology and Child Development: Evidence from the One Laptop per Child Program”**, Inter-American Development Bank and The Institute for the Study of Labor (IZA). 2012, <http://ftp.iza.org/dp6401.pdf>
5. <http://blogs.worldbank.org/edutech/research-questions-about-technology-use-education-developing-countries>
6. <http://www.diva-portal.org/smash/get/diva2:438827/FULLTEXT01.pdf>
7. **Using project based learning to teach 21 st century skills: Findings from a statewide initiative Jason Ravitz Buck Institute for Education**, Jason Ravitz et al, 2012, https://www.researchgate.net/publication/258188193_Using_project_based_learning_to_teach_21_st_century_skills_Findings_from_a_statewide_initiative_Jason_Ravitz_Buck_Institute_for_Education
8. https://www.article19.org/data/files/Internet_Statement_Adopted.pdf
9. <https://www.poverty-action.org/study/impact-internet-connectivity-kenya>
10. <https://educationendowmentfoundation.org.uk/projects-and-evaluation/projects/onebillion-app-based-maths-learning/>

QUESTIONS?

