Twinning to Scope and Stop/Close the Digital Divide for Equitable Access to Quality Health and Education in Resource-Constrained Communities (TS^2 Project)

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✖ Bachelor's in Information Technology with six years of experience with IT.

CHALLENGE

- Inequitable access to Internet
- 95% fiber optic coverage in Rwanda
- From primary to university there is little exposure to tech and computer literacy

Study Setting

◇ Musanze District

- 23.4% have no education

- 56.6% attained the primary level

- 12.4% attained secondary level

- 2.1% attained university

- 2% of the rural population classified as computer literate (NA 4%)

Musanze District: An entry to Volcanoes National Park

Study Setting

◇ Move Up Global Supports

- ■ Nyabirehe K-9 (950 students)

- ■ Rwinzovu High School (587 students)

- ■ Secondary and university graduates from the community

◇ Students must pass national exam to qualify for higher education which includes ICT

◇ Teachers need to be prepared to meet the needs of students to pass exams

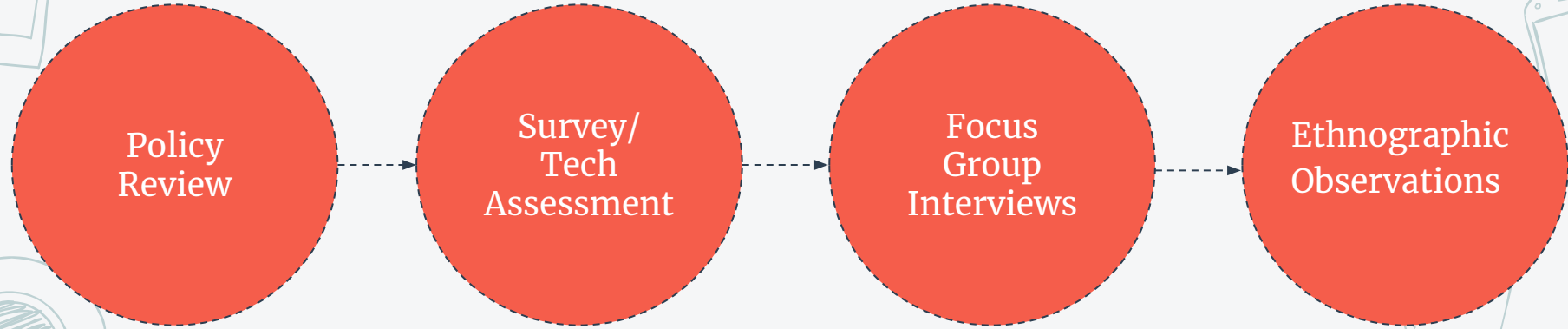◇ Gradutes need to be prepared to a technological labor market

IREME (IESI) Staff giving explanation about ICT Assessment

Research Questions

◊ What are the tech skills of teachers and unemployed HS and University graduates?

◊ What is systems and facilities readiness for ICT learning?

◊ What policies are in place affecting equitable access to technology and equipment in Rural communities in Rwanda?

◊ What are the factors associated with tech literacy among teachers and recent graduates in rural Rwanda?

Methods: mixed method convergent study design

Policy review

Policies Effecting Digital Divide						
Relevant Policy	**Year**	**ICT Learning/ Digital Literacy**	**Broadband Access**	**Equity**	**HR Capacity Building**	**To Be Accomplished By**
Policy on Science, Technology, Innovation	2006	X			X	2020
Teacher Development and Management Policy	2007				X	
Higher Education Policy	2008	X			X	
Broadband Policy	2013	X	X	X		2017
Adult Education Policy	2014	X		X		2020
Technical and Vocational Education and Training Policy	2015	X		X	X	
ICT in Education Policy	2016	X	X	X	X	2018-2019
Rwanda Child Online Policy	2017	X				2019
Science, Technology, and Innovation Policy	2020	X				2050
ICT Sector Strategic Plan	2018-2024	X	X	X		

Results (Survey)

Characteristics	N	%
Age	61	
21-30	21	35%
31-40	16	26%
41-50	16	26%
51+	8	13%
Gender	61	
Male	38	62%
Female	23	38%
Monthly Household income	51	
$0-99 USD	46	74%
$100-199USD	5	8%
Level of education	48	
Secondary (7-12 years)	46	96%
Post sec (13+)	2	4%
Mothers Education	61	
None	19	31%
Primary (1-6 years)	37	61%
Secondary	5	8%
Fathers Education	59	
None	12	20%
Primary (1-6 years)	44	75%
Secondary	3	5%
Tech Literacy	61	
Yes	**11**	**18%**
No	50	82%

Results (Relationship)

Table 2. Relationship between demographics and tech literacy

| | Tech Literacy (TL) | | | | X^2 (df) | p |
| | No TL | | TL | | | |
	N	(%)	N	(%)		
Age					.98(3)	.81
21-30	16	32%	5	45%		
31-40	14	28%	2	18%		
41-50	13	26%	3	27%		
51+	7	14%	1	9%		
Gender					2.18(1)	.14
Male	29	58%	9	82%		
Female	21	42%	2	18%		
Monthly Household income*					5.73(1)	.02
$0-99 USD	39	95%	7	70%		
$100-199USD	2	5%	3	30%		
Level of education**					9.04(1)	.003
Secondary (9-12 years)	39	100%	7	78%		
Post sec (13+)	0	0%	2	22%		
Mothers Education					2.06(1)	.36
None	14	28%	5	45%		
Primary (1-6 years)	31	62%	6	55%		
Secondary	5	10%	0	0%		
Fathers Education					.46(1)	.79
None	10	21%	2	18%		
Primary (1-6 years)	36	75%	8	73%		
Secondary	2	4%	1	9%		

* p<.05 **p<.01

Results (Relationship)

Table 3: Determining Factors of Tech Literacy			
Factors	**Logistic Regression**		**Confidence Interval**
	OR	**p**	
Age	.92	.15	.8335724 - 1.023365
Secondary	(omitted)		
$0-$99	2.98	.48	.148489 - 59.72095
Age	.93	.09	.8653061 - 1.009553
$0-$99*	13.84	.02	1.431535 - 133.8001
* p<.05			

Focus group key takeaways

◊ Participants wanted to be taught Microsoft Suite products

◊ The mentioned that there is not enough equipment for everyone

◊ English language as a barrier and wanting curriculum in Kinyarwanda

"We are not at the same level. Some of us know how to use different ones [software]. Help us according to our level"

Facility Observations

The Groupe Scolaire RWINZOVU smart classroom
(Currently used by Secondary section only)

◇ Rwinzovu High School equipped with a Smart classroom with 20 laptops, and projector equipment. Up to 30 students in grade 10-12 use the classroom. There are also 3 ICT teachers

◇ Nyabirehe K-9 has no designated ICT area. They have 15 laptops and 1 projector set up. They do not have ICT teachers

What Does it mean?

Monthly HH Income

The income relationship could be an indication that financial burden hinders ability to dedicate time to ICT learning.

Policy Disconnect

We plan to organize community hackathons to explore the root causes of poverty and potential Tech and social entrepreneurship solutions.

Curriculim Development

The landscape analysis is the first phase and the next phase is the develop a curriculum based on the results of the study.

Surprises

Most indicated wanting to learn Microsoft Suite, but a couple expressed interest in GIS and Film Making.

LIMITATIONS

Small Sample Size

 Sample size was 61.

Hawthorne Effect

Participants modified behavior in response to being observed. In the cultural context people tend to answer in more favorable ways.

Discussion

Thanks!
Any questions?

Credits

Special thanks to all the people who made and released these awesome resources for free:

✖ Presentation template by SlidesCarnival

✖ Photographs by Unsplash