

Gender and Technology

Advancement of Women in Rural India

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You can tell the condition of a nation by looking at the status of its women.

- Jawaharlal Nehru, First Prime Minister of India

Gender equality is more than a goal in itself. It is a precondition for meeting the challenge of reducing poverty, promoting sustainable development and building good governance.

- Former U.N. Secretary General Kofi Annan





July 15 Headlines in...

**IT parks to be completed by
September**



Some Challenges Related to Women in Rural India

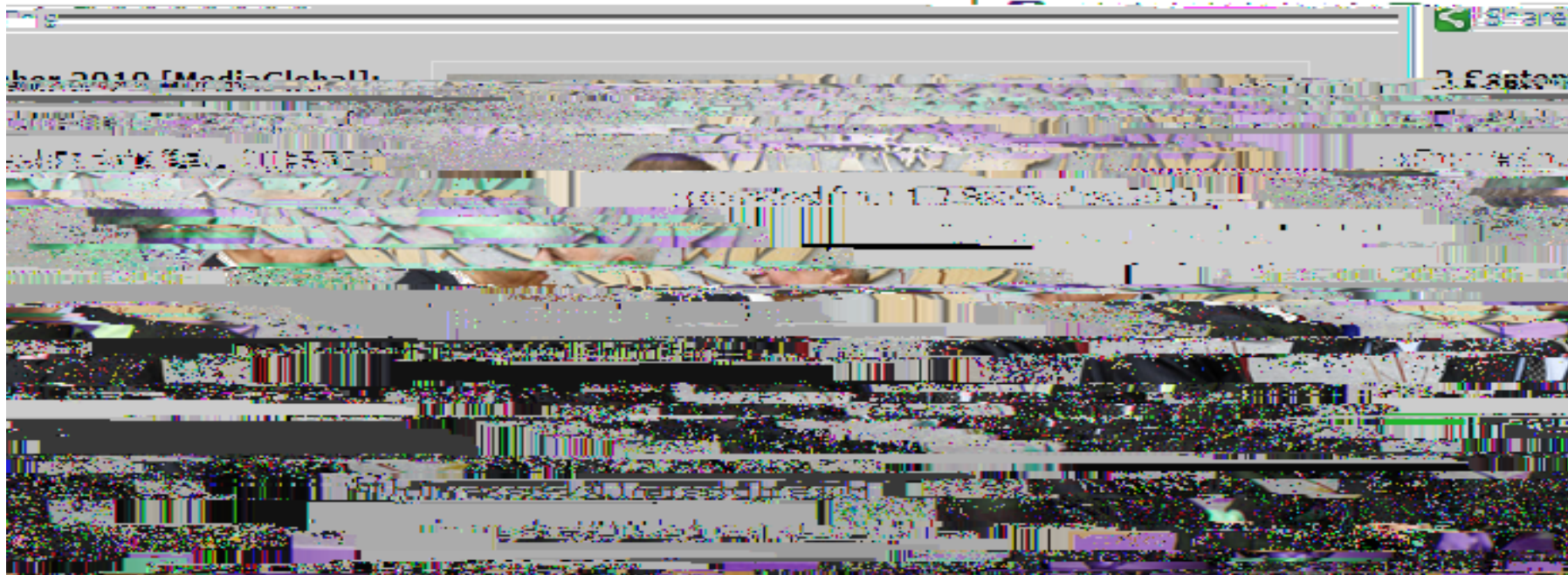
- ∅ Many jobs held by women have been displaced by technology, especially heavy machinery (now operated by men)
- ∅ High infant, child and maternal mortality rates
 - š Reasons: illiteracy, lack of knowledge, lack of medical care
- ∅





2015

By Eryn Bailey



has 2014 (MediaGlobal)

3. Eastern

allowing citizens global
development

Secretary-General Meets: Chair of UN-GAID. (Photo Credit: UN Photo/Eskinder Debebe)

approach to various
objectives in a firm

Uganda Ki-ancum approved this week of 5000 to create a web program for internet this
er of 20000. Ki-ancum is now the Honorary Chair of 25000, helping to reduce the
which will be the first of the digital age.

Secretary-General
MDGs in 2000
concrete effort will

The chair, Dalal Abu Ghazaleh, met with delegates from across the information and technology
world to discuss the impact of ICT on the MDGs and the role of the private sector in achieving
the goals. The meeting was held in a large conference room with a stage and a large audience.

Technology Initiatives in India

- ∅ Kiosks, cell phones, portals, etc. etc.
- ∅ At least 150 known Internet kiosk projects existed around 2004
- ∅



Project



**Initiative:
800 villages in India**

**Research project:
10 of those villages
+
10 adjacent villages**



Broad Objectives

- Ø Fair pricing of agricultural commodities
 - š Reduce abuse of farmers and tradespersons
- Ø Education
 - š

Ø



What Data Did We (Are We) Collect(ing)?

Village chars (survey)	Individual/ household (survey)	Behavior (system logs)	Outcomes (archival)
<ul style="list-style-type: none">•Location•Crops grown•Demographic profile•Governance modes	<ul style="list-style-type: none">•Demographics•Personality (e.g., Big-5)•Culture variables•Social networks (advice, friendship, hindrance) from men, women and children	<ul style="list-style-type: none">•Use data—direct and proxy	<ul style="list-style-type: none">•Income•Crop information and agri-production (target and neighboring villages)•Health-related variables



Mortality Rates*

Year	Control group (10 villages)	Intervention group (10 villages)
2002	73.1	73.5
2003	70.3	70.8
2004 (intervention)	68.4	68.5
2005	66.2	65.1
2006	64.1	61.8
2007	61.8	56.4
2008	59.4	52.2
2009	57.3	49.1

* Coded as an index of infant, child and maternal mortality per 1000 live births (still-born data accuracy was low, thus excluded)

Kiosk Use by Women

Year	% of men using kiosks	% of women using kiosks
2004 (intervention)	19.5	4.8
2005	24.5	5.5
2006	28.2	6.9
2007	26.9	7.5
2008	28.1	8.2
2009	28.4	8.8



Model



Predicting Medical Care: Level 0

	1	2	3	4	5
R ²	.24	.29	.34	.35	.43
ΔR ² (see note 2)		.05***	.10***	.10***	.08***
<i>Control variables:</i>					
Age	.17***	.15**	.13**	.13**	.13**
Marital status	-.12**	-.11**	-.08	-.08	-.08
Family size	-.03	-.02	-.02	-.02	-.02
# of children	.07	.05	.03	.03	.03
Education level	.15***	.13**	.11**	.07	.07
Mortalities in family	.15***	.15***	.13**	.11**	.11**
Knowledge	.17***	.12**	.13**	.13**	.13**
Need (pregnancy)	.25***	.20***	.20***	.16***	.15***
<i>Social network constructs (strong ties):</i>					
Eigenvector centrality		.17***		.12**	.07
<i>Social network constructs (weak ties):</i>					
Eigenvector centrality			.26***	.20***	.04
<i>Social network constructs (strong ties X weak ties):</i>					
Eigenvector centrality					.33***



Predicting Medical Care: Multilevel

	1	2
R ²	.28	.48
ΔR ² (see note 2)		.20***
<i>Level-1</i>		
<i>Control variables:</i>		
Village population	-.05	-.03
Year	-.15***	-.12**
<i>Lead users:</i>		
% of lead weak-tie lead users		-.21***
<i>Level-0</i>		
<i>Control variables:</i>		
Age	.17***	.12**
Marital status	-.12**	-.07
Family size	-.03	-.02
# of children	.07	.03
Education level	.15***	.06
Mortalities in family	.15***	.11**
Knowledge	.17***	.13**
Need (pregnancy)	.25***	.14**
<i>Social network constructs (strong ties):</i>		
Eigenvector centrality		.06
<i>Social network constructs (weak ties):</i>		
Eigenvector centrality		.03
<i>Social network constructs (strong ties X weak ties):</i>		
Eigenvector centrality		.32***

Predicting Mortality

	1	2
R ²	.23	.39
ΔR ² (see note 2)		.16 ^{***}
<i>Control variables:</i>		
Age	.14 ^{**}	.12 ^{**}
Marital status	-.12 ^{**}	-.11 ^{**}
Family size	-.07	-.02
# of children	.05	.02
Education level	-.16 ^{***}	.12 ^{**}
Mortalities in family	.13 ^{**}	.12 ^{**}
Knowledge	-.16 ^{***}	.14 ^{**}
Need (pregnancy)	.28 ^{***}	.23 ^{***}
<i>Medical care</i>		
Medical care (visits)		-.40 ^{***}



What Reduces Mortality Rates?

- ∅ As has been known for a while, medical care is crucial
- ∅ Strong ties are detrimental
- ∅ Weak ties are valuable
- ∅ Technology kiosks are helpful
- ∅ Lead users being more embedded via weak ties is helpful



Technology and Gender Differences: Lessons Learned from Developed Countries

	Low on Demographic variables			High on Demographic variables		
	Women	Men	Significance of difference	Women	Men	Significance of difference
<i>Age</i>						
Attitude	J J J	J J J	X	J	J J J	J J J
Social infl	J	J	X	J J J	X	J J
Beh'l control	J	J	X	J J	X	J
<i>Income</i>						
Attitude	J J J	J J J	J J	J J J	J J J	J J
Social infl	J J J	X	J J	J J J	X	J J
Beh'l control	J J J	X	J J	J J J	X	J J
<i>Education</i>						
Attitude	J J J	J J J	J J	J J J	J J J	J J
Social infl	J J J	X	J	J J	X	J
Beh'l control	J J J	X	J	J J	X	J
<i>Occupation</i>						
Attitude	J J J	J J J	J J	J J	J J J	J J J
Social infl	J J J	X	J J	J J J	X	J
Beh'l control	J J	X	J	J J J	X	J J

Notes:

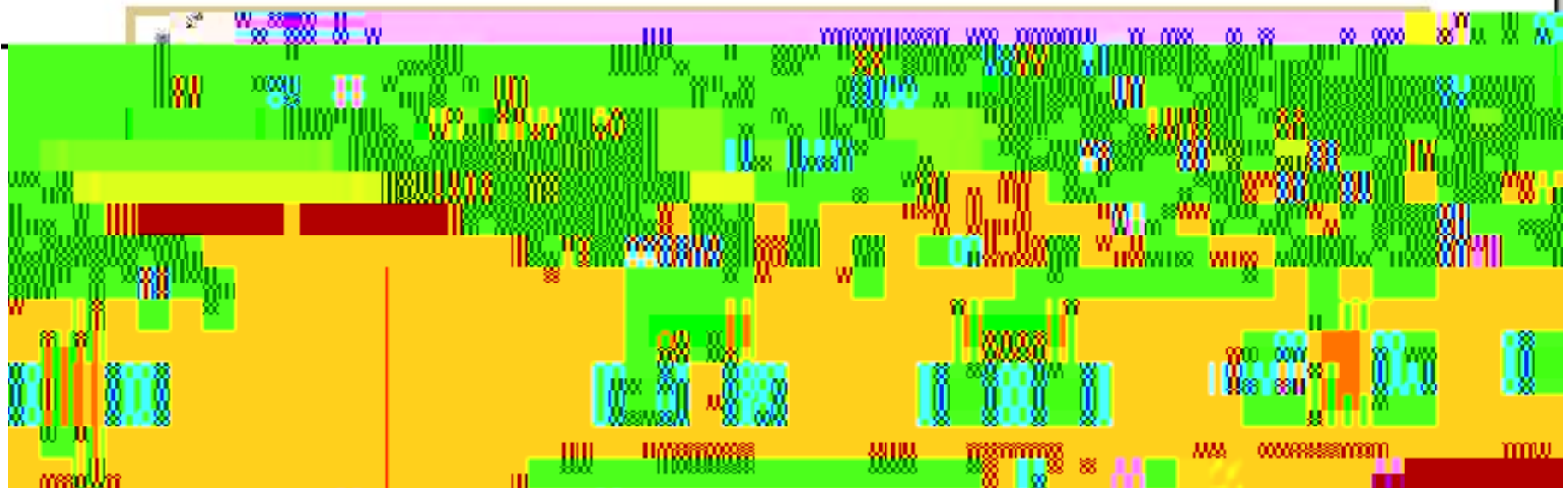
1. Attitude: extent of liking to use the tech; Social influence: extent of peer pressure to use the tech; Behavioral control: extent to which internal and external factors are in place to facilitate techn use.
2. Significance of difference represents the significance of the interaction term (e.g., A X GENDER), and was also confirmed by test of beta differences across independent samples using Chow's test.



Study Design and Data Collection Challenges

Things We Cannot/Could Not Control	What We Tried to Do
<ul style="list-style-type: none">∅ India is culturally diverse∅ Different crops grow in different parts of India∅ Monsoons in India vary from year to year∅ Different interviewers∅ Different trainers∅ Population growth in India	<ul style="list-style-type: none">J Measure cultural charsJ Collect adjacent control group (village) dataJ Collect adjacent control group (village) dataJ Compare across interviewersJ Compare across trainersJ Nothing @





(a) a kiosk at a railway station, (b) a kiosk at a railway station, (c) a staff member collects a deposit from a microfinance client, (d) the same staff member makes a deposit at a local bank.

Economic factors: *India's rapid infrastructural growth is a major driver of its economic growth.* *India's rapid infrastructural growth is a major driver of its economic growth.* *India's rapid infrastructural growth is a major driver of its economic growth.*

Another Indian cultural trait Hofstede notes is a high **collectivism index**. This indicates a "high level of in-group cohesiveness and loyalty." This can exist between social groups, such as the caste system, and within the same group, such as the family. **Cooperative** communities sometimes display a diminished sense of personal autonomy.