Awareness-Usability Issues in IT-initiatives for difficult geographies

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Abstract

The study tries to quantify and measure two abstract phenomenon of awareness and usability with respect to IT-initiatives. Indexes have been developed to measure both and a thorough analysis revealed a gap between the two. Further the effects training on the two variables were studied and it revealed a significant pre and post training gap.

Keywords: IT-Initiatives, Awareness-Usability gap, difficult geographies

1. Introduction

IT has been a catalyst for major developments in the world. IT tools have been the boon for the creation of global village. Initiative is a deliberate attempt on the part of an individual, society or government to carry out specific objectives. It is an endeavour to achieve the so-far-unattained objectives. Initiative is taken for the larger welfare of the society. Initiatives are assumed to be aimed at strengthening the grass root of any society because ultimately the outcome of an initiative facilitates in bringing about a transformational impact for the welfare of one and all. Since it is a deliberate attempt therefore, needs special emphasis and push.

Information Technologies as we have realized and witnessed, have great transformational prowess. The way Information Technologies have changed the world is truly amazing. The human society has been immensely impacted by the agriculture and industrial waves in its long journey but the information wave that swept across the planet in the 20th century, no doubt created an indelible mark on it. The impact simply has been tremendous. In the list of inventions that took place in last 25 years -The 'Internet' tops the list. The economies got changed to Information Economies and therefore, there have been deliberative attempts on part of the companies, organizations, countries, and states to take leverage out of Information Technology's ever expanding application-spectrum. This attempt can also be referred to as Information Technology Initiatives or IT initiatives. As a consequence, the world over, there have been attempts to launch IT Initiatives. Primarily, IT applications have been initiated to increase efficiency and reduce time. The manual human activities have been **'electronified'** and IT has provided the necessary tools to become accessible and available as an application, at any distance and place as and when required. Contrary to human failings of prejudice and biases - Technologies and especially IT in particular has become ubiquitous, unbiased and democratic - 'equal to all'. The following are some of the features that IT-initiatives may provide:

Oxford dictionary defines Awareness as knowledge or perception of a situation or fact [1]; hence it can be seen as a necessity before usability comes into picture. The AIDA model describes awareness as the initial step for taking action. For the use of IT a person must be at first aware of IT and then he/she can use and get benefited by IT. The skills required for citizens in the 21st century are changing as the Internet and technology transforms the way we do business. Projects need to raise awareness amongst organizations and citizens. Ignoring ICT is not an option; it will impact on the livelihood [2].

The benefits of awareness building can be accelerated when key decision makers, from both government and civil society, make public statements of acceptance and encouragement for Internet service to rural and remote communities. Such champions can help pull support from uncommitted decision makers and smooth the way for awareness building initiatives. Efforts should be made to identify such champions and support their work [3].

The study was conducted in a village to see the level of awareness and usability at grass root levels. The following sections deals with the criteria for selection of village, followed by the village profile, methodology, data analysis and finally the conclusion and recommendations.

2. Selection of the village

The selection of village was done after a careful evaluation of many factors.

A. Proximity to the state capital: The geography in question i.e. village got to be near the capital of the state, Dehradun which is a thriving city of educational institutes; the hub of policy making and a comparatively developed city of Uttarakhand. We wanted to see the prevailing conditions in a village having proximity to the capital.

B. The Hilly State: Uttarakhand is a hilly state and hence the choice got to reflect the difficult geographical terrain comparable to the other villages of the state.

C. Agro Based: The village should be agro based and the primary occupation of the people residing there should be agriculture.

'Samalta' village, in the Kalsi Taluka, Vikasnagar near Dehradun satisfied all the conditions and hence was selected for the study.

3. Methodology

The study used questionnaire schedule to assess the levels of awareness and usability and find if there existed and difference between the same. A difference between usability and awareness will indicate a gap which must be addressed.

Good questionnaire writing is a low cost option in any survey, which has major rewards in delivering the best, or most accurate, answers [4]. Further questionnaire plays a major role in making the experience enjoyable and in motivating the respondents to answer the questions [5].

3.1 Scope
a. The study is carried out in Samalta Village.

b. It uses the quantitative method of research.

3.2 Objective
- To measure pre training Awareness Usability and importance

- To measure post training awareness

Research Questions:

1. What is the level of awareness with regards to IT?

2. What is the change in awareness post training?

3.3 Unit of Analysis
A set of 50 villagers were administered the questionnaire from the village to check initial awareness level, 45 of these received training and provided post training feedback.

4. Design of instrument

Questionnaire schedule was used as the research instrument. The formulation of any questionnaire to be used in a survey must be integral part of the research design .A questionnaire is essentially a measurement tool, an instrument to collect particular kinds of data [6]. The questionnaire schedule was filled out by the researchers based on the answers provided by the villagers since many of them were illiterate.

It consisted of two parts the first part included the questions on demographic variables like Age, Gender, Education, Income etc. followed by Questions measuring awareness to ICT tools followed by Usability of these tools, the same pattern as followed for IT initiatives.

Two indexes were prepared to measure awareness and usability. Awareness and usability were measured with respect to the IT tools and Govt. IT initiatives. Awareness Index on a scale of o to 100 represented the level of awareness. Zero being the least to 100 being the maximum.

Awareness questions asked the respondent on whether they had seen the devices like mobile laptop pen drive etc. for tools and Aadhaar, Aarohi etc. for IT initiatives. Usability Index too reflected if the tools and initiatives were being used; 0 being no usage to 100 being full usage. The same options as awareness were given for usability. The usability questions focussed on if the respondents had used those devices and/or IT initiatives.

The index were computed with the following formula

(Score Achieved/Maximum Score) * 100

5. Data Analysis and Findings

The scores were computed to identify the awareness and usability indexes for different levels i.e. awareness level for IT tools, awareness level

for IT initiatives and Total Awareness; same computations were done for Usability. These indexes indicate the awareness and usability levels of the whole sample.

5.1 Awareness and Usability indexes Pre Training

Pre Awareness Tools-The mean pre awareness index for tools was found to be 45.733.
The mean pre awareness of the sample is below 50% which shows that people are not aware about many IT tools.

Pre Awareness Initiatives-The mean pre awareness index for initiatives was found to be 21.6
The mean pre awareness value less than half of the awareness for tools which indicates that IT initiatives have not reached the masses so as to the extent of tools which itself is low.

Total Pre Awareness- The mean Total Pre Awareness index for initiatives was found to be 36.08.

The total awareness is very low hence raising awareness is the key to success of IT in rural India.

5.2 Training

A custom crafted training program was created based on the deep understanding of the needs of the people since before any training efforts begin; researcher must have some information about the characteristics and needs of the participants [7].

The training consisted of familiarizing villagers to basic it tools and initiatives in manageable groups ranging from one to fifteen. Learning Insights profile reveal that 75% proffered learning as a part of group rather than learning by themselves [8]. A non-formal and interactive design for the training was prepared which included cartoons, videos, music and verbal coaching.

5.3 Post Training

Post Training after a gap of one week the post training questionnaire was administered to check changes in awareness level. The usability change could not be studied in such short time hence a proxy variable asking them if they were willing to use IT tools and initiatives in future was asked.

5.4 Awareness and Usability indexes Post Training

Post Awareness Tools-The mean post awareness index for tools was found to be 79.2.
The above 75% value of mean post awareness indicates that training is very helpful in raising the awareness level of people.

Post Awareness Initiatives-The mean post awareness index for initiatives was found to be 61.8.
The mean post awareness though below 75% but is above 50% and hence it indicate that better training could be provided where the benefits of the initiative could be demonstrated as was the case with training for IT tools.

Total Post Awareness- The mean Total Post Awareness index for initiatives was found to be 70.48
The total mean Total Post Awareness is above 50% and is a very good figure for training effort for short duration.

Effect of training

Table 1: Normality Test

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Awareness Index	45	100.0%	0	.0%	45	100.0%
Usability Index	45	100.0%	0	.0%	45	100.0%
Post Awreness Index	45	100.0%	0	.0%	45	100.0%
Post Usability Index	45	100.0%	0	.0%	45	100.0%

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Awareness Index	.114	45	.173	.936	45	.015
Usability Index	.210	45	.000	.824	45	.000
Post Awreness Index	.141	45	.025	.902	45	.001
Post Usability Index	.283	45	.000	.611	45	.000

a. Lilliefors Significance Correction

The above table presents the results from two well-known tests of normality, namely the Kolmogorov-Smirnov Test and the Shapiro-Wilk Test. We Shapiro-Wilk Test is more appropriate for small sample sizes (< 50 samples) but can also handle sample sizes as large as 2000. For this reason, we will use the Shapiro-Wilk test as our numerical means of assessing normality [9].

We can see from the above table that for the Sig. value of the Shapiro-Wilk Test is below 0.05 hence the data significantly deviates from a normal distribution and hence non parametric tests were employed for further statistical analysis.

The effect of training on the awareness was measured through Wilcoxon signed rank test on the 45 respondents that were common in pre and post training sessions.

IJCSI International Journal of Computer Science Issues, Vol. 10, Issue 2, No 2, March 2013
ISSN (Print): 1694-0814 | ISSN (Online): 1694-0784
www.IJCSI.org

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Table 2: Wilcoxon Test

Wilcoxon Signed Ranks Test

Ranks

		N	Mean Rank	Sum of Ranks
Post Awareness Index - Pre Awareness Index	Negative Ranks	3ᵃ	11.17	33.50
	Positive Ranks	38ᵇ	21.78	827.50
	Ties	4ᶜ		
	Total	45		

a. Post Awareness Index < Pre Awareness Index
b. Post Awareness Index > Pre Awareness Index
c. Post Awareness Index = Pre Awareness Index

Test Statisticsᵇ

	Post Awareness Index - Pre Awareness Index
Z	-5.147ᵃ
Asymp. Sig. (2-tailed)	.000

a. Based on negative ranks.
b. Wilcoxon Signed Ranks Test

The Wilcoxon Signed-Rank Test is the nonparametric test equivalent to the dependent t-test. It is used when we wish to compare two sets of scores that come from the same participants [10]. This can occur when we wish to investigate any change in scores from one time point to another or individuals are subjected to more than one condition. As the Wilcoxon Signed-Ranks Test does not assume normality in the data it can be used when this assumption has been violated and the use of the dependent t-test is inappropriate.

6. Interpretation

The rank table shows that out of 45 participants, 4 participants did not have any impact on awareness level post training but a whopping 38 participants had increase in awareness.3 participants reported decrease in awareness, these cases were identified and enquired about. It was found that they had wrong knowledge of many IT initiatives whose names resembled common Hindi phrases (i.e. Shikhar, Janadhar and Aadhaar) and in the training they knew that their assumption was wrong

This change is statistically significant at 99% confidence level with z value of -5.147 and sig value of .000

6.1 The Gap

Gaps were seen between awareness and usability indicating that even though people were aware of IT but did not use it.

6.1.1 The Awareness Usability Gap

There is a drastic difference between mean awareness and mean usability levels.
Delta = 33.47 for It tools
Delta = 40.2 for It initiatives
The gap of awareness and usability is greater in the IT initiatives then IT tools.

6.1.2 The Pre Post Awareness Gap

The pre and post training awareness gap is also remarkable which indicates the vital role training can play in raising awareness.

Delta=34.4 i.e. an increase of an astonishing 34.4 units was achieved by providing training.
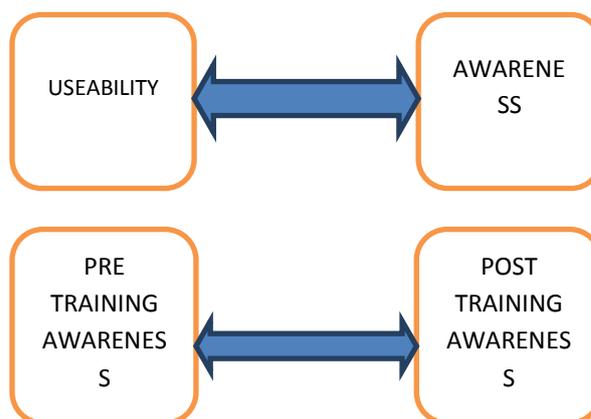

Fig.1. Gaps

Table 3: Training Usefulness and response to future usability

Frequency Table

Was the training usefull?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	38	79.2	79.2	79.2
	No	10	20.8	20.8	100.0
	Total	48	100.0	100.0	

Will you be able to use IT better?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	36	75.0	75.0	75.0
	No	12	25.0	25.0	100.0
	Total	48	100.0	100.0	

79.2 % people reported training to be beneficial and 75% reported that they would be better able to use IT tools and initiatives after the training.

7. Conclusion
The paper tracked how efficient training can be used for increasing the awareness levels of IT tools

IJCSI International Journal of Computer Science Issues, Vol. 10, Issue 2, No 2, March 2013
ISSN (Print): 1694-0814 | ISSN (Online): 1694-0784
www.IJCSI.org

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and initiatives in difficult geographies. The paper proves through the construction of indexes as to how the change in awareness was recorded after

training. Training is seen as a remarkable vehicle for raising awareness and usability.

Prof. K.K. Ghanshala is the chairman of Graphic Era University, Dehardun, the capital of Uttarakhand, India. He founded Graphic Era in the year 1993 as one of his bold ventures towards providing quality educational inclusion to the society at large and people living in difficult geographies in particular.

Dr. Durgesh Pant is Professor of Computer Science, Department of computer science at Kumaun University, Nainital, Uttarakhand which he founded way back in 1989. Presently, he is working as Professor and Director of the School of Computer Science & IT at Uttarakhand Open University, Campus Dehradun, India. India To Prof. Pant's credit goes the distinction of taking computing & informatics to its present level in this part of the world.

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Acknowledgments