

IT Literacy Drive through Spoken Tutorials

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Technology as an Enabler of Education
Higher Education Forum

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Outline

- ▶ **IT literacy training for employment through Spoken Tutorials**
- ▶ **Low cost netbooks**



Motivation

- ▶ **50% of Indians are below 25 years**



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- ▶ **Two thirds below 35 years**



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- ▶ Pain points



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- ▶ **Pain points**
 - ▶ **Education quality, finding good teachers, providing jobs**
- ▶ **In terms of markets and opportunities, India is like a continent**
- ▶ **IT training can improve employment scenario and quality of life**



Massive IT training through Spoken Tutorials



- ▶ **Should train students without teachers**



- ▶ **Should train students without teachers**
- ▶ **Make the content suitable for self learning**



- ▶ **Content should be suitable for self learning**



- ▶ **Content should be suitable for self learning**
- ▶ **Do a novice check of script before recording**



- ▶ Learning pedagogy should be effective



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- ▶ Side by side learning method developed:

Copyright (c) 2011-2012
Copyright (c) 1989-2010
Copyright (c) 1989-2010

Startup execution:
loading initial environment

```
-->p=[1 2 3]
p =
    1.    2.    3.

-->q = [2,3,4]
q =
    2.    3.    4.

-->
```

Video

Software

Kannan M. Moudgalya



- ▶ Learning pedagogy should be effective
- ▶ Side by side learning method developed:

The screenshot displays a side-by-side learning environment. On the left, a video player shows a Scilab console window with the following text:

```
Startup execution:  
loading initial environment  
  
-->p=[1 2 3]  
p =  
  
1. 2. 3.  
  
-->q=[2,3,4]  
q =  
  
2. 3. 4.  
  
-->
```

The word "Video" is written in red text over the video player. On the right, a Scilab Console window shows the same text as the video player, but with the word "Software" written in red text next to the output. The console also shows copyright information at the top: "Copyright (c) 2011-2012", "Copyright (c) 198...", and "Copyright (c) 198...".

- ▶ Possible only with open source software



- ▶ Lack of computers



- ▶ **Lack of computers**
- ▶ **Low cost computers (< \$100)**



▶ Lack of computers



- ▶ **Lack of computers**
- ▶ **Conduct organised workshops through colleges**



- ▶ **Lack of computers**
- ▶ **Conduct organised workshops through colleges**
- ▶ **SELF Workshops: Spoken tutorial based Education and Learning through free FOSS study workshops**



SELF Workshops: Spoken tutorial based Education and Learning through free FOSS Study Workshops



Self learning, organised workshops

- ▶ 2 hour workshops



Self learning, organised workshops

- ▶ **2 hour workshops**
- ▶ **Can be organised by a volunteer - expert is not required**



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- ▶ One volunteer can run different workshops - method is same



Self learning, organised workshops

- ▶ 2 hour workshops
- ▶ Can be organised by a volunteer - expert is not required
- ▶ One volunteer can run different workshops - method is same
- ▶ Can be offered through educational institutions - individual computers are not required



- ▶ Lack of awareness of our free tutorials



- ▶ **Lack of awareness of our free tutorials**
- ▶ **Signed MOU with several universities and colleges - 2,000 colleges!**



- ▶ Lack of English fluency



- ▶ **Lack of English fluency**
- ▶ **Dub into all 22 languages of India**



Case Study: IT Skills

Assamese (dubbing)

Bengali (Sci)

Indian English (PHP)

Hindi (Linux)

Khasi (CS)

Malayalam (Synaptic)

Mythili (CS)

Oriya (dubbing)

Rajasthani (CS)

Sindhi (CS)

Telugu (Sci)

Bodo (Synaptic)

Bhojpuri (dubbing)

Gujarati (Xfig)

Kannada (Synaptic)

Konkani (CS)

Marathi (Sci)

Nepali (LibreOffice)

Punjabi (xfig)

Sanskrit (L^AT_EX)

Tamil (Ubuntu)

Urdu (Sci)



- ▶ **Employment in IT industry needs English**



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- ▶ **Dub only the audio**



- ▶ Employment in IT industry needs English
- ▶ Dub only the audio
- ▶ Dubbing requires only 5% effort



- ▶ Employment in IT industry needs English
- ▶ Dub only the audio
- ▶ Dubbing requires only 5% effort
- ▶ Show dubbing in a few languages



▶ Lack of Internet



- ▶ **Lack of Internet**
- ▶ **Offline download application**



- ▶ **Lack of Internet**
- ▶ **Offline download application**
- ▶ **Reach increased by 15 times!**



Web Statistics

- ▶ **3.2 million page views in 2014**



Web Statistics

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- ▶ **More than doubling every year**



Web Statistics

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- ▶ 15 minute average visit time



Web Statistics

- ▶ **3.2 million page views in 2014**
- ▶ **More than doubling every year**
- ▶ **15 minute average visit time**
- ▶ **Less than 20% bounce rate**

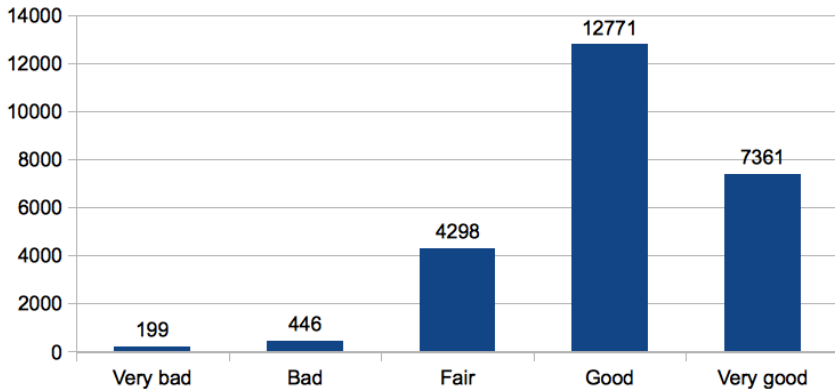


Feedback of 25,000 Participants



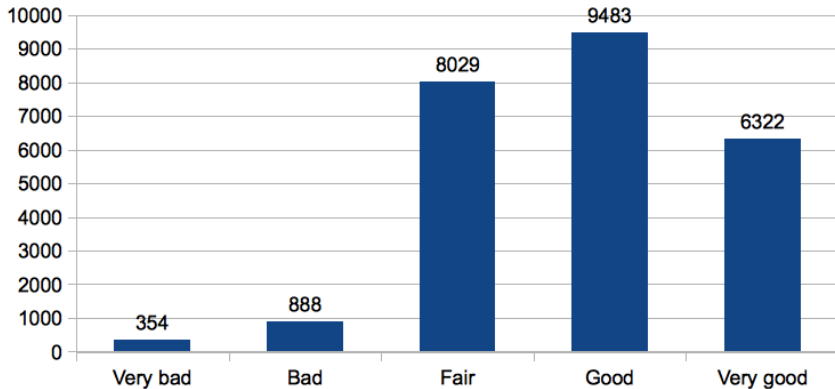
Quality of Instructional Material

Quality of instructional material



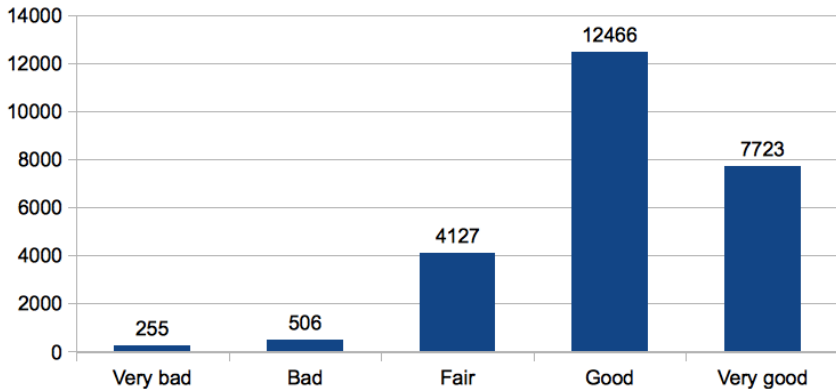
Quality of Infrastructure

Quality of infrastructure at the colleges



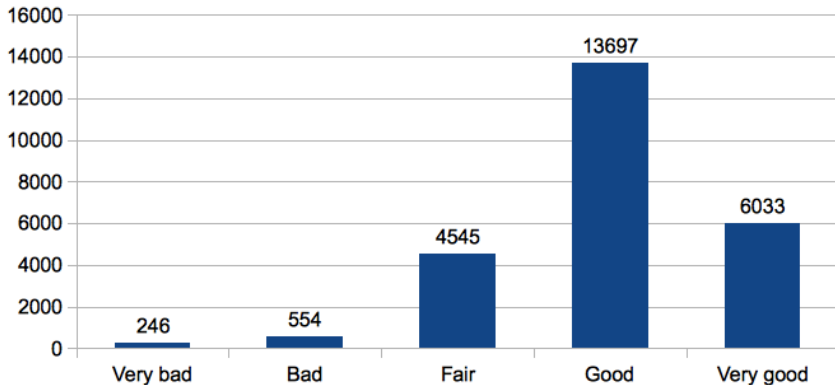
Quality of College Organiser

Quality of SELF workshop conductor in colleges



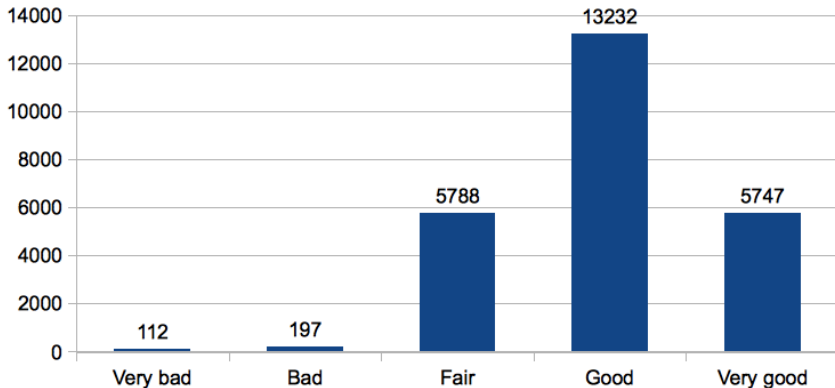
Quality of IIT Bombay Mentor

Quality of IIT Bombay mentor who joined through Skype



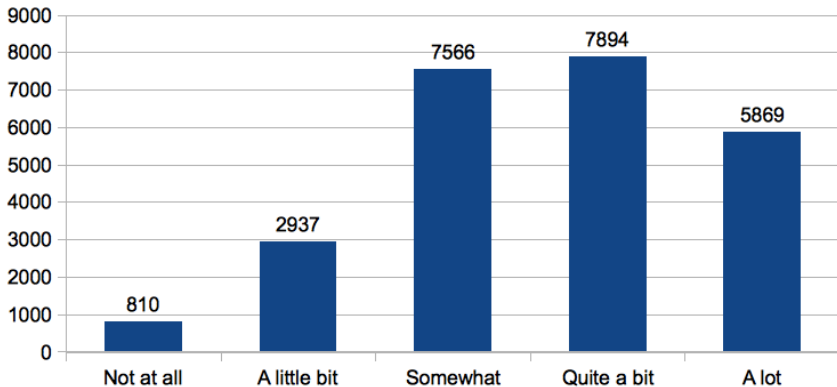
Overall Quality of SELF Workshop

Overall quality of SELF workshops



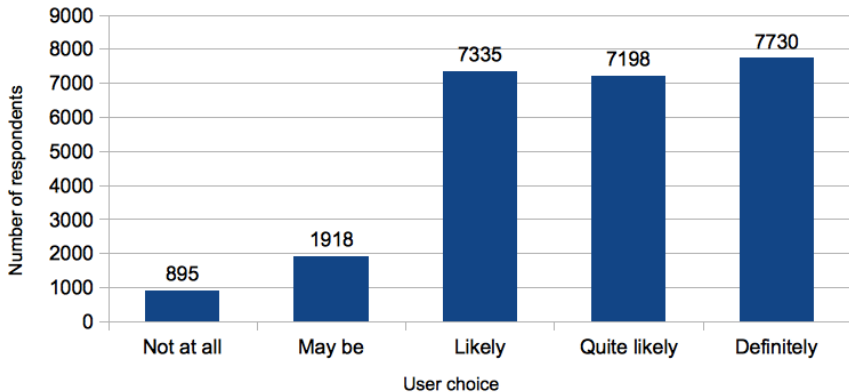
Usefulness of Topic Studied

Extent of applicability of what is learnt in SELF workshops



Will they recommend ST to others?

Would the participants recommend ST methodology to others



Summary: Spoken Tutorial Method

- ▶ **10 min long screencast**



Summary: Spoken Tutorial Method

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- ▶ Created for self learning
- ▶ **Dubbed into all 22 Indian languages**



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Summary: Spoken Tutorial Method

- ▶ 10 min long screencast
- ▶ Created for self learning
- ▶ Dubbed into all 22 Indian languages
- ▶ Teaches IT through open source software
- ▶ Massive IT training through universities and colleges



SELF Workshops (Partial)

- ▶ **C, C++, Java**
- ▶ **Python, Perl, Ruby**
- ▶ **PHP/MySQL**
- ▶ **GNU/Linux / Ubuntu**
- ▶ **Bash**
- ▶ **Scilab**
- ▶ **Oscad**
- ▶ **OpenFoam**
- ▶ **L^AT_EX**
- ▶ **LibreOffice**
 - ▶ **Writer, Calc, Impress, Math, Draw, Base**
- ▶ **ORCA**
- ▶ **GeoGebra**
- ▶ **FireFox, Thunderbird**
- ▶ **Blender, GIMP, Inkscape**



Statistics of SELF Workshops

- ▶ **Trained 6,00,000 people in 3 years**



Statistics of SELF Workshops

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- ▶ **3,50,000 of them in 2014 alone**



Statistics of SELF Workshops

- ▶ **Trained 6,00,000 people in 3 years**
- ▶ **3,50,000 of them in 2014 alone**
- ▶ **Expect to train 7,00,000 in 2015**



Generalisation

- ▶ **Efficacy of this method established for IT skills**
- ▶ **Applicable to all demonstration based subjects**



General Skills Training

- ▶ **Carpentry**
- ▶ **Plumbing**
- ▶ **Circuit layout**
- ▶ **etc.**



Etiquette Skills

- ▶ **How to stand in a queue**
- ▶ **How to climb the stairs**
- ▶ **How to open a door**
- ▶ **How to enter when a door is opened**
- ▶ **How to use the wash room in an airplane**



Jobs

- ▶ **Teaching what career options are available**
- ▶ **How to locate job openings through Internet**
- ▶ **How to participate in an interview**



Bridging Digital Divide

- ▶ **How to buy train tickets through <http://irctc.co.in>**
- ▶ **How to locate low cost agricultural loans**
- ▶ **How to do web search to locate the shop that sells TVs at the lowest price - housewives are also entitled to Internet technology!**



Health Related Skills

- ▶ **Boiling water**
- ▶ **What to do when a dog bites**
- ▶ **First aid in case of a heart attack**
- ▶ **First aid for fracture**
- ▶ **How to prevent cancer**
- ▶ **During child birth every woman spends about four months at home**
 - **has enough time to learn**



Low Cost Netbook

- ▶ **Aakash project successful**



Low Cost Netbook

- ▶ **Aakash project successful**
- ▶ **Shortcomings identified**



Low Cost Netbook

- ▶ **Aakash project successful**
- ▶ **Shortcomings identified**
- ▶ **Solved in the Netbook**



Low Cost Netbook

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- ▶ **Shortcomings identified**
- ▶ **Solved in the Netbook**
- ▶ **Cost = Rs. 4,990 + tax, customs, etc.**



Low Cost Netbook

- ▶ **Aakash project successful**
- ▶ **Shortcomings identified**
- ▶ **Solved in the Netbook**
- ▶ **Cost = Rs. 4,990 + tax, customs, etc.**
- ▶ **Conducting a pilot study with 1,000 netbooks**



Conclusion

- ▶ **Spoken Tutorial is an effective method for skills training**
- ▶ **It has the potential to make us a developed country**
- ▶ **Let all of us use it**



Thanks

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