

*REPORT OF DR. TASNEEM ZEHRA HUSAIN'S
WORKSHOP*

Creative Techniques in the Teaching of Science

Venue: Institute for Professional Learning (IPL) Idara-e-Taleem-o-Aagahi

(26-B, Sarwar Road, Lahore Cantt)

Dated on: Wednesday 22nd Sep, 2010

Timing: (11:00am – 05:00pm)



Dr. Tasneem Zehra Husain's Profile

TASNEEM ZEHRA HUSAIN is a scientist, writer and educator. Pakistan's first woman string theorist. Tasneem obtained her PhD from Stockholm University and went on to join Harvard's High Energy Theory Group as a Research Scholar. Currently, she is in Boston, on leave from her position as Assistant Professor at the LUMS School of Science and Engineering.

In addition to being an active researcher, Tasneem is also keenly interested in science popularization. She has delivered several talks to non-scientific audiences and conducted mini-courses designed to expose O'Level and A'Level students to advanced concepts in theoretical physics.

Recently, Tasneem has been involved with the Math Circle activities at Harvard, trained with the Eric Carle Museum of Picture Book Art in Amherst and worked as part of a group of children's authors in Cambridge, Mass.

Tasneem's writing has appeared in several publications, both national and international. She is a featured author in "Are We There Yet?" an anthology of popular science articles on string theory, to be published by Betham Science Publishers in Fall 2010.

Tasneem has been conducting teacher training workshops for over a decade. She has worked with schools both in the Government and private sectors, with teachers whose students are anywhere between 4 – 18 years old.

Vision

Of

Dr. Tasneem Zehra Husain's Workshop

"To focus on the oft- neglected aspects of teaching (and even practicing) science: the realization that creativity lies at the very core of the process"

Workshop's AIMS

Seeing that there is a need to have a solid grasp on creativity in science, the following objectives are to be delimited:

- To let the participants know about the Basic understanding of science is an essential component of literacy
- To make the participants familiar with the scientific process and implementation
- To make them able to comprehending the natural world
- To make the participants able to use the Inquiry method in science as a way of achieving knowledge
- To make the participants convinced for making an experimental environment in their classrooms where children make their own discoveries
- To let the participants know how to construct hypotheses the basis of observations, how to tested, how to re-evaluated in light of the findings & then how to practice them in the better class-rooms in order to lead to excellent results
- To make the participants acknowledged that before ideas can be evaluated, they must first be generated
- To make them linear to this thought that before experiments can be conducted, they must first be designed
- To make the participants realize that creativity lies at the very core of the process
- To let them discuss how to design environments conducive to its repeated appearance
- To make them know about how creativity, in a large measure, depends on the freedom to gather, compare and reshuffle ideas
- Through exercises and group activities, participants will learn to look at things, generate ideas and strengthen connections
- To make the trainees learn how the brain works, and how to work with the natural flow of the mind, rather than against it.

Methodology

The participants were being engaged in learning through

- ✓ Inquiry / investigation method
- ✓ Demonstrations (looking at individual taught)
- ✓ Hands-on approaches
- ✓ Minds-on approaches
- ✓ Discussion method (Trainer & Trainee)
- ✓ Activity based learning

ITA-IPL Representatives / Coordinators

- Dr. Rafia Ali
- Ms. Beena Raza
- Ms. Saba Latif
- Ms Tahira Maqbool
- Sadia Ayesha Hasan
- Ms. Abida Chishti
- Mr. Adnan Khalil

List of Participants

Sr. #	Name	Name of Schools
1.	Dr Rafia Ali	ITA-BOD
2.	Adnan Khalil	ITA-IPL
3.	Tahira Maqbool	ITA-IPL
4.	Saba Latif	ITA-IPL
5.	Abida Chishti	ITA-IPL
6.	Sadia Ayesha Hasan	ITA-IPL
7.	Munazzah Yousuf	ITA-Teacher
8.	Amna	ITA-Teacher
9.	Salma Liaqat	ITA-Teacher
10.	Sadia Aslam	ITA-Teacher
11.	Fizza Batool	ITA-Teacher
12.	Lubna Cheema	ITA-Teacher
13.	Sabir Ali	ITA-Teacher
14.	Danish Aslam	ITA-Teacher
15.	Salman Ali	ITA-Teacher
16.	Shah Nawaz	ITA-Teacher
17.	Muhammad Riaz	Alif Laila
18.	Sofia Zafar	Alif Laila
19.	Sadia Butt	Alif Laila
20.	Mansoor Shah	Lahore Grammar School
21.	Nadeem Anwar	Lahore Grammar School
22.	Fareeha Shahid	Sanjan Nagar Public Education School
23.	Saimon Robin	Sanjan Nagar Public Education School
24.	Masood Khalid	PEAS
25.	Muhammad Azeem	PEAS
26.	Hoor Sultana	Ali Institute of Education
27.	Sobia Tahir	SAHE
28.	Sadaf Nawaz	SAHE
29.	Ambreen Farooq	SAHE

Creative Techniques in the Teaching of Science

By Dr. Tasneem Zehra Husain

SESSION PROCEEDINGS

What Dr. Tasneem Zehra Husain presented.....!

- o At the start.....recognition of the picture:

They are neurons....after a long thinking nobody answered but Dr. Tasneem Zehra Husain revealed.



- o Lets talk about the picture
- o Making personal decisions and finding creative solutions to problems like....
Tears, Eye, World, Baby, Flowers, Butterflies, Names, happiness, sadness, hope, insecurity, attraction etc.
- o **Hypotheses** - constructed on the basis of **observations** – should be rigorously tested, and then re-evaluated in light of the findings). These, very valuable, insights are now practiced quite commonly in the better class-rooms and almost always lead to excellent results.



- o Discussions done about mind-maps and clustering; generating and clarifying thoughts; making associations and strengthening neural networks; the importance of images, and appropriate ways to implement all of these concepts with secondary school children



- o Participants took some time on learning how the brain works, and how we can align ourselves to work with the natural flow of the mind, rather than against it, thus ensuring greater rewards for our teaching efforts



Comments by Dr. Rafia Ali

Participants at work

- o Dr. Tasneem Zehra emphasized about the **Basic understanding of science**; is an essential component of literacy in-order to **comprehend the natural world** But she told that **familiarity with the scientific process is also important** because it can enhance an **ability to implement the scientific method in their daily life**



- o The best thing that ever thought was **Science is best learnt in an experimental environment where children make their own discoveries** so **Inquiry** should be emphasized as a way of achieving knowledge;



- o The method of teaching should itself reflect how science is actually done

- o Dr. Tasneem Zehra Husain Reveled this thing that we must acknowledge that **before ideas can be evaluated, they must first be generated & before experiments can be conducted, they must first be designed**; after theories are proven, their implications must be explored and their applications must be created in the better class rooms.





- o The realization that creativity lies at the very core of the process

- o Through exercises and group activities, participants learnt to look at things in fresh and novel ways, generate ideas and insights and strengthen connections

Dr. Tasneem Zehra Husain
distributed a pair of cards:

Then all participants & Trainer talked about how creativity, in a large measure, depends on the freedom to gather, compare and reshuffle ideas



Certificates distribution ceremony



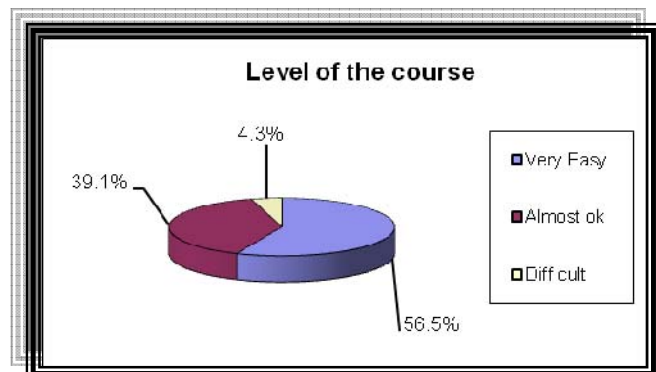
Best Wishes for Dr. Tasneem Zehra from ITA



Evaluation of the Training by graph

❖ Level of the Course

	Frequency	%
Very Easy	13	56.5%
Almost ok	9	39.1%
Difficult	1	4.3%
Total	23	100%

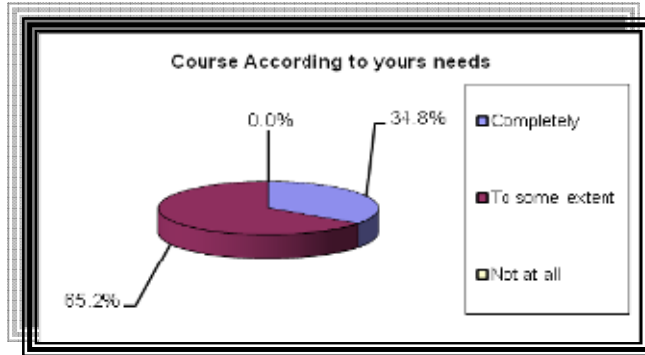


Suggestion by Dr. Rafia Ali:

Participants came from diverse background, some with no connections with science. So the participants found it a bit difficult to catch & responses varied personally reinforced the value if clustering mind-maps & use of images as a teaching tool.

❖ Does the workshop meet your needs?

	Frequency	%
Completely	8	34.8%
To some extent	15	65.2%
Not at all	0	0.0%
Total	23	100%

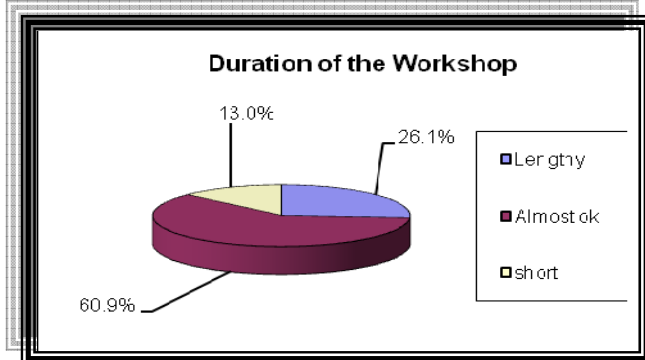


Suggestion by Dr. Rafia Ali:

Participants found the course according to their needs up-to some extent

❖ Duration of the workshop

	Frequency	%
Lengthy	6	26.1%
Almost ok	14	60.9%
short	3	13.0%
Total	23	100%

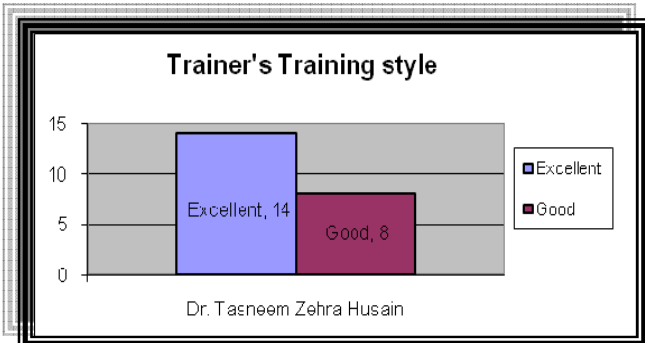


Suggestion by Dr. Rafia Ali:

Workshop started late & not had time to read the content, participants kept dropping in, so the trainees found the duration of workshop almost O.K.

❖ Trainer's training style

	Excellent	Good
Dr. Tasneem Zehra Husain	14	8

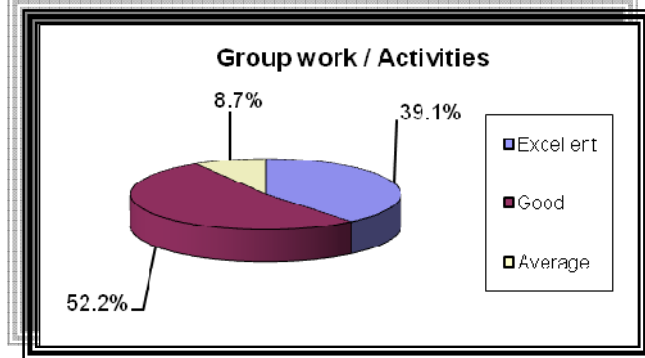


Suggestion by Dr. Rafia Ali:

According to Dr. Rafia Ali, the Trainer was good to her content knowledge, grasp & matter used.

❖ **Group work / Activities**

	Frequency	%
Excellent	9	39.1%
Good	12	52.2%
Average	2	8.7%
Total	23	100%

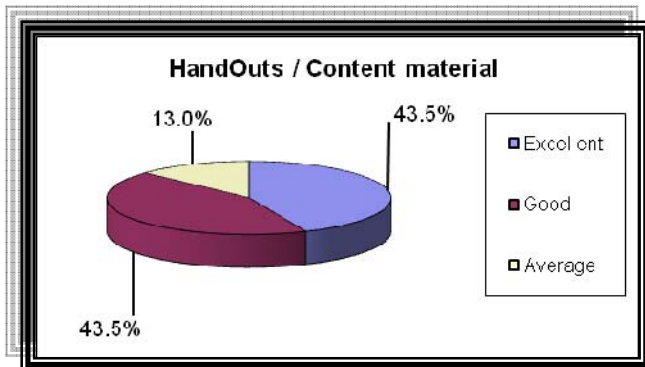


Suggestion by Dr. Rafia Ali:

Not enough time for sufficient group work / activities; Dr. Rafia Ali said.

❖ **Handouts / Content material**

	Frequency	%
Excellent	10	43.5%
Good	10	43.5%
Average	3	13.0%
Total	23	100%

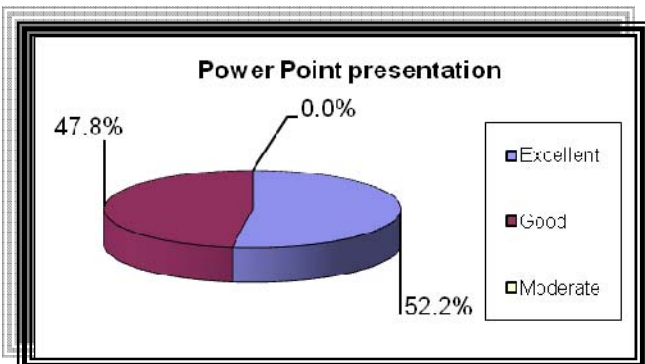


Suggestion by Dr. Rafia Ali:

Not had enough time to read all the content given by Dr. Tasneem Zehra Husain.

❖ **Power Point presentation**

	Frequency	%
Excellent	12	52.2%
Good	11	47.8%
Average	0	0.0%
Total	23	100%

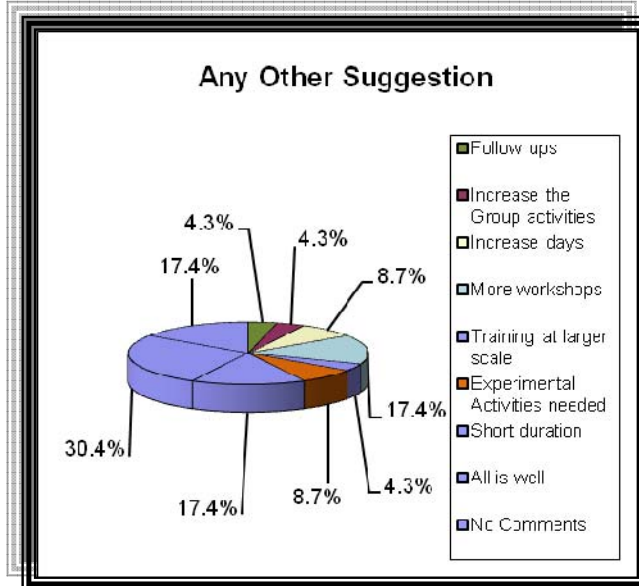


Suggestion by Dr. Rafia Ali:

The presentation delivered by Dr. Tasneem Zehra Husain was excellent.

❖ **Any other suggestions**

	Frequency	%
Follow ups	1	4.3%
Increase the Group activities	1	4.3%
Increase days	2	8.7%
More workshops	4	17.4%
Training at larger scale	1	4.3%
Experimental Activities needed	2	8.7%
Short duration	4	17.4%
All is well	7	30.4%
No Comments	4	17.4%



Suggestion by Dr. Rafia Ali:

I think Dr. Tasneem Zehra's potential was not put to full use because of the motley mix participants & there is also a need to do assessment of participants should be incorporated in the registration form.

Lessons Learnt / Views of the participants:

- It was highly observed that participants were profoundly taking part / interest in discussions.
- All participants felt a change in their learning graph.
- The training's environment was very friendly and interesting.
- The time seems too short for more learning.
- The material provided by Dr. Tasneem Zehra Husain was very helpful for enhancing the scientific idea / concept of participants.
- Resource Person focused on Activity Based Learning.

Annexure:

Material Used by Dr. Tasneem Zehra Husain is Attached here as an Annexure:

Could be find on ITA's Website: <http://www.ipl.edu.pk/>

OR by **Ctrl + Left click** on the followings:

[1 Affinity Diagrams](#)

[2 Alan Lightman](#)

[3 Briane Greene](#)

[4 Case Studies](#)

[5 Children Paying Attention](#)

[6 Deep Play](#)

[7 Diane Ackerman](#)

[8 Don't](#)

[9 Einstein](#)

[10 Einstein's Letter](#)

[11 Five Easy Lessons](#)

[12 Invented Worlds](#)

[13 Metaphor](#)

[14 Metaphor In Science](#)

[15 Mind's Eye](#)

[16 Novelty](#)

[17 Play Elixir of Creativity](#)

[18 Provocation](#)

[19 Question](#)

[20 Students understanding of energy](#)

[21 Thinking Hats Diagram](#)

[22 True North Thinking](#)

[23 Vocalize](#)

[24 What is Science](#)

[25 Writing the Natural Way](#)

REPORTED BY:

ADNAN KHALIL (ITA)