

Wednesday July 27 2005

Met on the floor and give short tour leaving 15 minutes for people to explore on their own.

Met back at the classroom at 3:00 to introduce ourselves.

Jamie Bell welcomes everybody and then kicks it over to Joe Hastings who introduces the FIRST TexNET INSTITUTE

Participants introduce themselves and their institutions and share any thoughts. Lucinda Presley – Discovery Science Place – she thanks us and wants to use the work we will do here in her upcoming teacher workshops.

George – Tyler school district and board member at Discovery Science Place

Anita – science magnet middle school

Kris – Discovery Science Place

Katy – Discovery Science Place

Melissa Cigarroa – Laredo Children’s Museum - Acting Director

Juan Torres – Laredo Children’s Museum - Exhibits Manager

Cordy Salinas – Laredo Children’s Museum - Science Instruction Specialist

Antonia Juarez – Laredo Children’s Museum - Board Member

Charlie Walter – FWMSH Chief Operating Officer– excited to get everyone here

Joe Hastings – Exploratorium – Director, Center for Museum Partnerships

Brandi West – FWMSH - Special Projects

Megan Adams – FWMSH – Assistant Director of Guest Programs - Excited to be here and to see the original exhibits from the sets she knows

Sandy Henry – Science Spectrum - President

Rachel Harmon - Science Spectrum – Happy to be here. She has much public school experience (principal & distance learning)

James Nesmith - Science Spectrum - oversees all staff

Chip Lindsey – FWMSH – Vice President of Creative Development. He is off working with Barry right now.

Now that we are back together again let's pick up the threads from last time.

Charlie – yes, it is time to step back and check our pulse... we have all done a lot since we were last together.

We are all looking forward to getting these exhibits into our shops and then once we have them, planning what we will do with them – leveraging this partnership so we make good use of the exhibits while we have them.

It is fitting we are here and begin with inquiry because the Exploratorium does it very well so it is good to see the exhibits and do inquiry here.

I think you all can use inquiry to get your community involved back home.

Homework –Michelle sent me the list of what we all were supposed to look into and say lets just go down the list and check in.

Lubbock is getting ready for the next Institute at their place September 21 – 23. The logistics of exhibitions, floor staff, and just a lot about exhibitions.

We have a list of advisors – folks who we thought would be great to have part of this group. Instead of getting all of the advisors together to meet it would be better if you all look over the grant and see which advisors would fit best with our upcoming gatherings and include the people you feel could have the most to share.

Charlie – I am checking with our grant officer at NSF to see what can be done regarding buying computers.

Charlie – Joe, your homework was all about this meeting... we are here so you're done.

Melissa – Our homework was to look into education materials for Spanish speaking audiences.

Brandy - reimbursements – and pdf of graphics to hand out as take homes.... Get that to David Barker.

Barbara – A teacher event to go with the upcoming meeting in

Lucinda – Education materials, Mindfest, Professional Development we have a grade level meeting (PD) with our teachers when I get back and we will have arts integration and follow-up materials... the teachers will have a hand in choosing the activities they will do with their students.

Michelle – did I e-mail everyone his or her homework... also we would put what we brought to Ft Worth on the web

Megan – collect photos from?? Laughter Floor interpreters field guide (training primer for floor staff)

Melissa – I talked with Dave and all that Spanish stuff is not going to work... it will not be a direct translation we will just have to come up with something in Spanish that makes sense. Direct translations often do not work out.

Lucinda – can you help me understand how the bilingual will work – I know the exhibit text will be bilingual but how will we be able to make everything we can be bilingual?

Joe – Anything you all collect please distribute so we can share it around.

Lucinda – can we bring a group over to Mindfest (October 21, 22, 23) to observe can we get a TCA mini grant to cover travel to this?

Charlie – lets look over the agenda... what is up with meeting Tom Rockwell?

Jamie – well he is new and will be taking us in some new directions as an institution.

Melissa – I want to do automata who can I talk with?

Chip – speaks a little about Automata visit -
<http://pie.exploratorium.edu/scrapbook/cabaret/>

Mass Exodus to Learning studio to look at examples of automata

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Discussion of Tops Activity (Led by Barry)-

Identifying Characteristics of the Different (A, B, C) Approaches chart
-Everyone first works independently on the chart to recall what they found interesting about having specific directions (A), specific directions with goals to meet (B), and relatively no direction (C).

Brainstorm of Characteristics-

A-

Prescribed
Required to work as individuals
One very specific goal
Prescribed and limited materials
Design was uniform

B-

Competitive
Choice of materials
Option to work in teams
Mostly self-directed
Design specifications
Sense of Accomplishment or Failure
Goal oriented

C-

Learner-driven
Teamwork
More interaction
Trial and Error
More Materials
"Levels" of success
Artistic component
Different objectives
Wider range of learning possibilities
More of a facilitator rather than instructor model

Each (A, B, C) has some benefits and drawbacks-

Where would A be best?- audience is a key factor; it might work for a class left on their own/when time, materials and instruction are limited/if there is specific info. for everyone to see/ - Similar to Pendulum Snake exhibit

Where would B be best?- older age group, competitive-nature might draw in certain audiences (i.e. boys), knowing the game from the get-go might be beneficial, pushes students to do things they wouldn't have thought they were capable of doing,
- Similar to Gravity's Rainbow

Where would C be best? - could be difficult with groups that aren't used to such freedom, leads to curiosity and communication with others, teacher mediation is especially important,

-Similar to Turntable

KEY TAKE-AWAY-

Teachers need a variety of strategies and goals. Almost any teachers doing hands-on work are doing A, a few B, very few doing C.

-Kids need the opportunity to take chances

What can be put in exhibit/teacher guides to encourage C?-

How do you help give kids the skills they need to handle an open situation?

Key Take-Away handout given

Goéry Welcomes TexNET

LUNCH

Barry and Chip with the Grayscale Color Gradation

After exploring with tools (i.e. magnifying glasses, colored lenses, colored paper), participants were asked to think about what questions arose, what made them frustrated, etc.

- After playing with the lighting, gradually covering the line led to finding a certain point (i.e. 80% of line covered) where the two sides looked the same.

Was not all or nothing as far as covering the line.

- The dots are the same amount; they're just larger on one side.

- They are not really round dots; they are more like "blobs".

- Perception of density can change

- The rotation of the sheet produces a match-up or mismatch of colors

- Can't figure out why putting the black strip there makes the difference

washout

- Against a black background it was very difficult to see the difference

- The dark colored lens made it almost impossible to see the difference

- The color of the lens had an effect on how easily the difference could be

seen

The Inquiry Process-

Experimenting led to frustration and that frustration leads to changing the way we think about the world – Disequilibrium. When one perseveres through the frustration, it usually leads to a breakthrough.

People like inquiry because it parallels the process of science- it may not be making new discoveries but it leads to making personal discoveries, which are just as great.

-There is something going on in the eye- There are not an equivalent number of nerves as there are rods and cones in the eye. The eye does its own processing because if the nerve was big enough to cover all the rods and cones, the blind spot would be that large also and nothing would be seen.

-The contrast is enhanced so that the eye sees it as uniform lighter/uniform darker

- When there is a line, they are no longer on the same photoreceptors. The light and dark are no longer enhanced by the eye.

-Hopefully this leads to saying, “I need a different way of seeing things/they way I think about seeing things.”

Chip- When we think about the way visitors act with these components, we think about this happening when there is a small group gathered around an exhibit

- This also happens naturally on exhibition floors when you are around people you trust (so you can be ignorant and figure it out). When you are comfortable and realize you don't know something you will be more likely to try to get it.

- It also leaves room for the very important role of the explainer to provide the answers that the learners aren't getting for themselves.

- A major difference is the timing of the instruction. It is crucial that the “lecture” comes when the learners are ready and eager for it.

Barry-

Seven Principles of Learning

1. Learning with Understanding (learning that can apply to new situations and to solving problems)- structured around the major concepts and principles of the discipline.

2. Learners use what they already know to construct new understandings

3. Learning is facilitated through the use of metacognitive strategies that identify, monitor, and regulate cognitive processes.

4. Learners have different strategies, approaches, patterns of abilities and learning styles that are a function of the interaction between their heredity and their prior experiences.

5. Learners' motivation to learn and sense of self affects what is learned, how much is learned, and how much effort will be put into the learning process.

6. The practices and activities in which people engage while learning shape what is learned.

7. Learning is enhanced through socially supported interactions.

Closing QUESTIONS-

- Doing Inquiry Prof. Development locally (*don't try this at home?*)

- There are places to start (i.e. the spinning top activity) to get people to think about the way they teach - Suggestion by Becky Carroll- Maybe teachers could take part in the Ft. Worth Inquiry sessions (issue is lack of travel money)

- Continue our Journey into Inquiry (further reading, TII workshops, coaching)

- Distinguishing our P.D. offerings (esp. in Lubbock where there are universities nearby)

- Offering a diverse menu of opportunities (who? How long? Systems, other approaches...)

- Facilitating the Framework grant (they decided for the third part to just have floor-walks and not build more exhibits) - They practiced looking at exhibits as systems with many possible interactions. Shawn Lani was instrumental in that project

- Becoming certified TEA continuing ed. creditors

- Thinking like a single organism (organizations all as one)

- Finding Significance project (narration approach to exhibit-based learning and teaching)

- Arts integration as a way into the schools

- Exhibit Layout- Art on the walls

- Artists in transience (Pete's NEA money)

- MindFests - Oct 21, 22, 23 - TexNET volunteers! - workshop as trial by fire

- Educational Materials, timeline, etc.

- Exhibit and Grant Logistics

Friday July 29, 2005

Happy talk about last night's dinner – Joe asks if there were any TexNET thoughts...

Chip – Mentions that FWMSH has been making money doing professional development inquiry workshops TCI has three offerings: three offerings – 3 kind kits nurturing

Question - Can TexNET partners use the grant funds to go to TCI workshops?
Answer - Yes, email Chip and Charlie.

Question – how do I go home and do this? I think you all should call colleen when you get back and ask them how they did it.

Answer - Brandi – you can call me and I will put you in touch with Anne or Colleen

Could we get the IFI people to come out to our museums – Well the toughest part is their schedule... Well, could we get TCI people on the road? Well we would have to pack up a big van with all the stuff... what we are doing now is some coaching down in Brownsville we could do something like that

Post the TCI dates on the TEXNET WEBSITE

Chip – after you have been through an experience like yesterday one gets to thinking...

Are there any thoughts that came to mind about the work you did yesterday and the exhibits back home – what might you want to try when you get back home? For example is there anything from the gray step activity that might inform any teaching you might do on the floor

Sandy – we may not be in a position to do teacher professional development – what is our place??? Perhaps workshops for kids... Our goal with teachers could be the application of the philosophy that they are learning in professional development sessions outside of our museum. The categories we have exhibits in are like the A & B type of yesterday's top activities and not so much the C type.

Ken – Thinking of the three exhibits you looked at yesterday before moving the inquiry session into the classroom – these exhibits could be approached as either an A, B or C inquiry exhibit. It has a lot to do with the exhibit's label. At FWMSH

when the exhibits first arrived Chip covers the label and this way you can control the inquiry point of view presented.

Sandy - If it is about the folks on the floor then that means it is really about whom you hire... I had a long talk with Megan about how she does it.

- more talk about the folks on the floor -

Lucinda - how do we prepare the visiting students for kids the exhibits?

Intellectual Vulnerability – a term from Colleen at FWMSH that really needs to be considered when you approach any phenomena with another person.

Joe tells how evaluators have helped us to look at what we do... that Spinning Blackboard now exists in two forms on the floor at the Exploratorium – the original and a new one with three stations that allows for a more personalized experience.

The Michelle Phillips Show with Special Guest - Tom Rockwell

MP – introduces herself and explains a little about the Exploratorium's three centers: Museum Partnerships, Learning and Teaching, and Public Exhibition

TR – I arrived Jan 1 2005 – but commuted from the east coast for a few months and then settled here with my family on March 1 (wife and two kids... 3 & 5)

MP - Where were you born?

TR – I was born and raised in Rome Italy and lived there in an American community until coming here for college.

TR - I began my museum career as an explainer at the Franklin Institute.

Upon learning about the two explanations of quantum mechanics... Heisenberg and Schrodinger I became very interested in approaches to understanding science.

I was also teacher/naturalist at the academy of sciences across the street.

I then designed a mathematically oriented climbing structure for a science museum in Ithaca. This led to my involvement with Leathers and Assoc. and community built play structures.

So for ten years I ran the science component for Leathers. I thought was going to stay on at the science center but...the community built spirit was something that I was really taken by.

What can I bring to museums? – It can not be exported wholesale the match needs to be figured out... use the community built processes to increase the community we need to build with a museum.

In time I grew tired of the limitations of pressure treated lumber and the short time frame of the projects so I started my own company called painted universe – our perception our painting is just that.

Because of the merging of art and science that happens here I wanted to come here very much.

MP – What education opportunities exist at the playground?

TR - Well there is not much study on this. What does exist is from the seventies and much of that is looking at adventure play. There is a connection – gross motor skills, health and the obesity problem as well as the cut backs around PE programs. We have submitted a proposal to NSF called Geometry Playground.... spaceal learning. In Gloucester Mass. we built a science playground and worked with a curriculum specialist. We need to develop good interactives that merge gross motor with content discovery.

MP- The after school programs...

MP – What is different about Exploratorium exhibits as compared to others?

TR – Well it is kind of the high temple of inquiry exhibits.

TR – Right now, I am on my third nano project. The latest NSF initiative is in nano tech, engineering, etc.

Let me backup, when I say nano I mean bigger than atoms and smaller than cells.

We have become really good at getting really small, top down photo lithography the rub is the wavelength of light is big on the nano scale... that we run into problems. What we need to do is look at bottom up technology – we are bottom up technology... biology is a self-assembly technology.

Could we build a molecular transistor?

When you are dealing with the invisible and hard to touch... the Exploratorium exhibit gives freedom, it is democratic, it says, "You can get there".

The physicality and the accessibility to the phenomena is what people want and need. Hands on and bodies on is so different in this age of media (mediated) experiences. Authentic experiences is what is missing.

TR – What are we really doing? I think this is a great question to continue to look at. We, like artists, are giving people an experience they cannot shake... it is not knowledge acquisition, it is experience acquisition.

I think we will be challenged as we move away from the 19th century physics that we do so well and try to provide authentic experiences in these new areas of study.

MP – Could you tell us about the exhibit design process?

TR – We used to say, Design, Bid, Build. But here I think it is more Write, Develop, Design, Bid, and Build.

I believe you will get a better product if you have a builder that takes the project the whole way.

Most other places have one person design and research but someone else is doing the building... I think you need to build it quick and get it out there. I think you all need to get some kind of shop together at your museums to build a “shop culture” this is the best way to understand how to do this.

If you can encourage a stream for exhibit development you will be better users, consumers, and put back into the field.

MP – What kind of folks are exhibit developers.

TH – We have a lot of fine arts people right now, but also biologists, technicians, engineers, and mechanics.

MP – What do you hope we and the field will learn from TexNET and ExNET partnerships?

TH – I have learned so much from traveling around the country and working with different communities.

I am deeply committed to community building in and around museums. You all are grass roots (you have to be...). What are you learning about science education? What you are learning and asking is of great interest to us.

Sandy – It is not just the stuff, but also the space around it what are you going to do?

TR – I wish I knew... I think the question of environment and inquiry learning is wide open for the field. GIVE is an actual research project I think we are quite naive about what we do... I remember when science centers built big things you could climb through – climb through heart, climb through engine, etc.

Question - Do you have studio at home?

TR - Not yet

Question - Can you talk about science and the esthetic experience?

TR - I have a weird schizophrenic childhood. I grew up in Rome but in an American colony, Dad was sculptor. One grandpa was a famous illustrator and the other grandpa was a head of engineering at NSF.

There is a certain power of art. We allow it to transcend... art museums are like temples... but science has truth.

A short cut to what the Exploratorium has done is the fact that we have so many people here from the art background.

Tom then leaves to take a telephone call he had scheduled.

Enter Modesto Tamez--

I can't sit down. I want to show you A way of doing this... not THE way but A way. I am talking about - Pinholes

Lunch

Liz Keim shares some films with us that she feels relate to TexNET. The list of films and her program notes are posted separately on this meeting's website

House Keeping

Chip Talks a little about Liz and her connection to FWMSH and then about scratch animation activities.

The Education Materials contact person for each site is:
Lubbock -Rachel

Tyler – Lucinda
Laredo – Melissa
FWMSH – Megan

Concerning the upcoming Mindfest in Fort Worth – Chip will serve as your point person.

Speaking of large events, Laredo has A Dia de los Niños on April 30th each year that has a turnout of 21,000!

Our next meeting will be in Lubbock on September 19th & 20th.

Lubbock topics will be:

Care and Feeding of Exhibits
Teacher Training
Three hours – devoted to recruiting/training staff (much discussion)
Playtime – exhibit based training
Monitored Mentoring
Evening Big Reception
Business meeting

Also to consider -
Fair
Press
Teacher Open House

Then Charlie set the schedule for the meeting in Lubbock and everyone else went to the Tactile Dome.

The out come being -

Wednesday September 21st play, all staff share all tips,
Thursday September 22nd how to manage floor staff, business meeting,
reception, county fair
Friday September 23rd tear down for Monday pick up

David Barker will make an invitation!