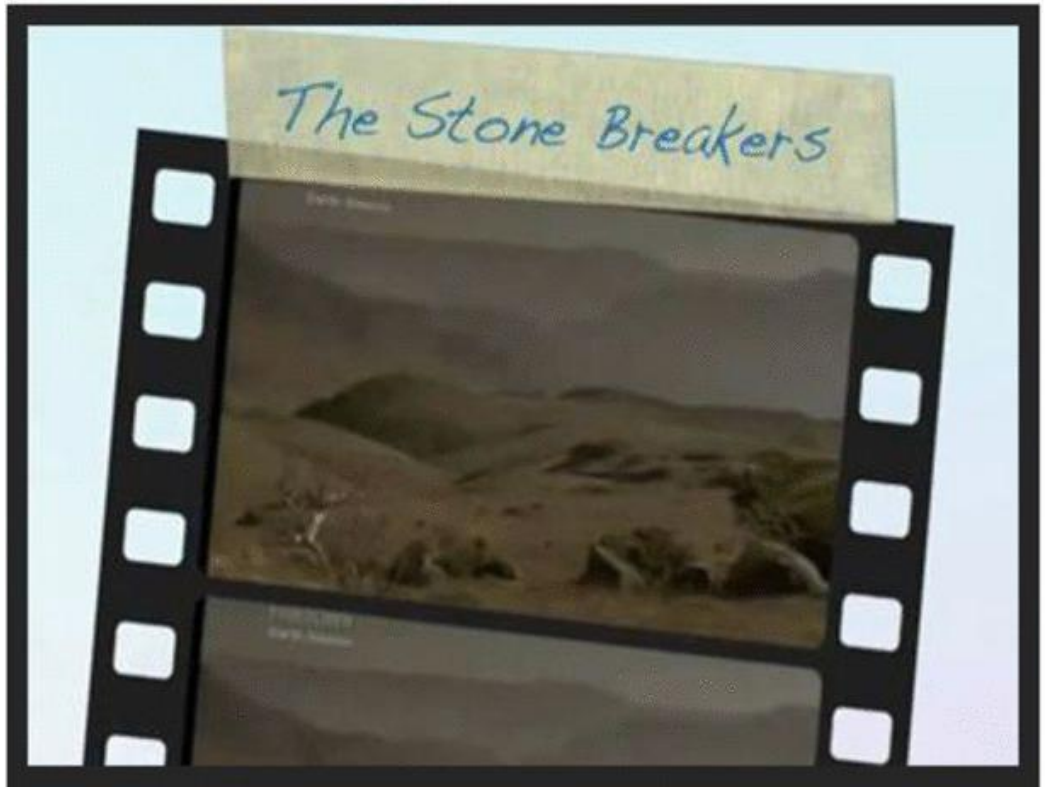
Moving beyond the research paper: capturing the process of science through digital narratives

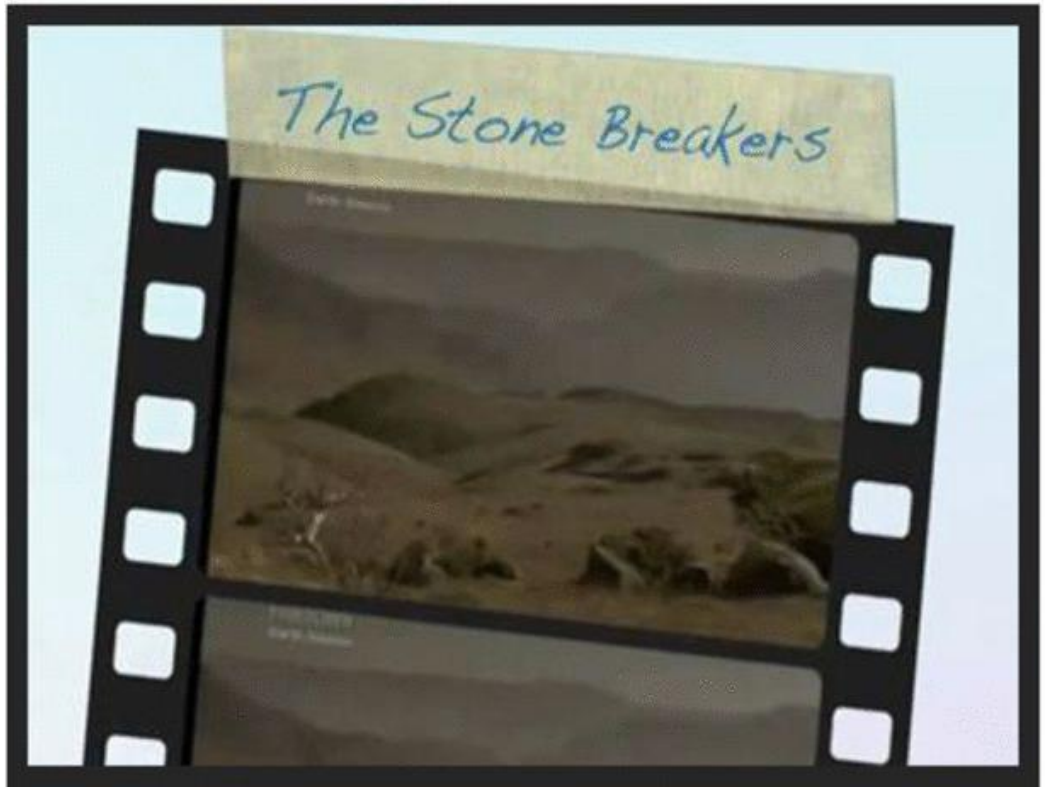


Aziza Ellozy,*
Center for Learning and Teaching
Founding Director,
Associate Dean for Learning Technologies

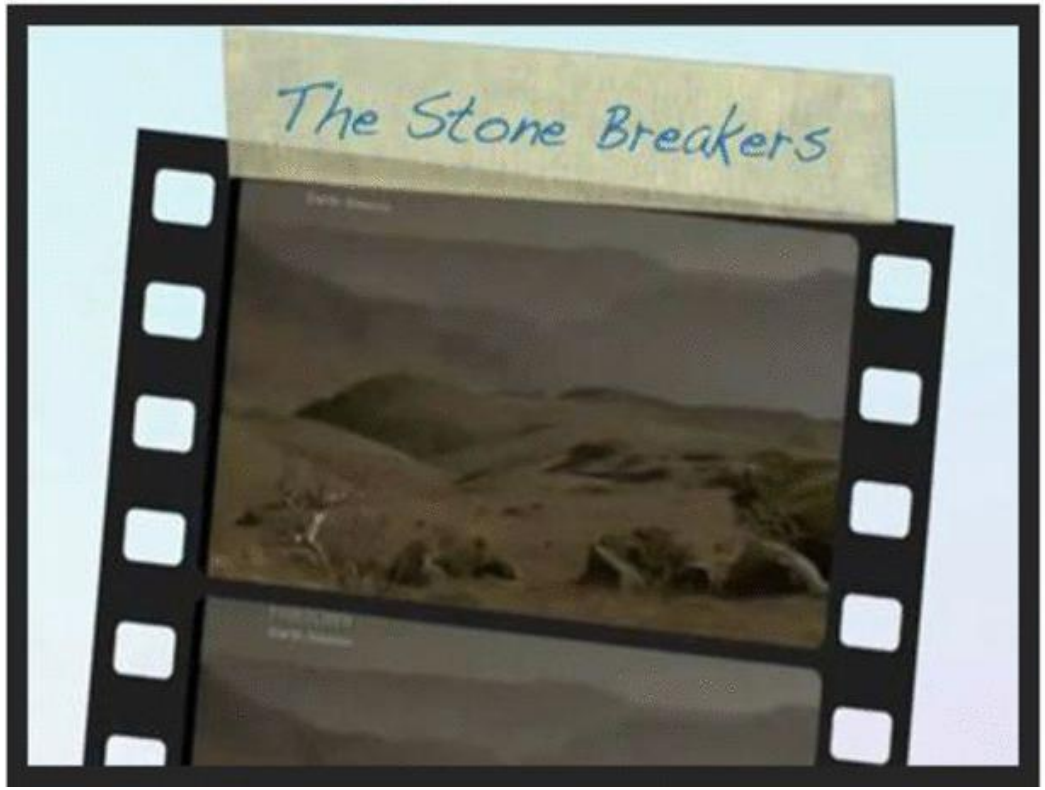
IT support
Maha Shawki,
CLT Officer, Instructional Multimedia

American University in Kosovo/
American University in Cairo Workshop
March 21-22 2014

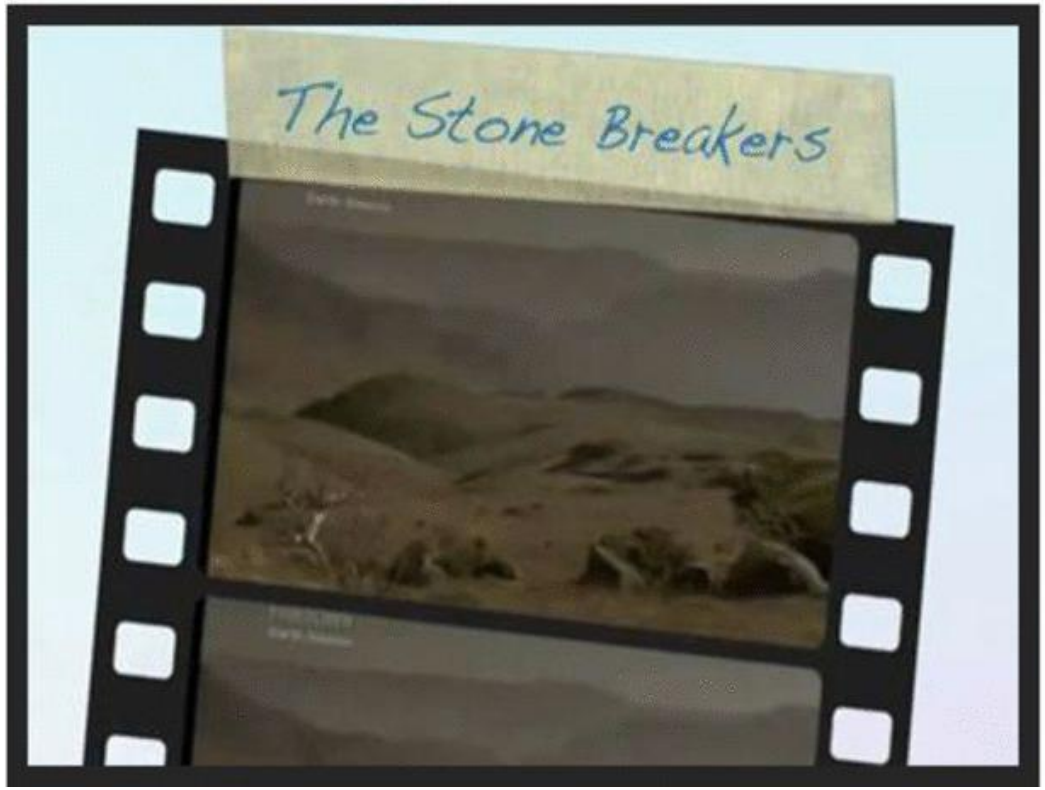
***In collaboration with Hoda Mostafa,**
Associate Professor of Practice,
CLT and SSE, American University on Cairo



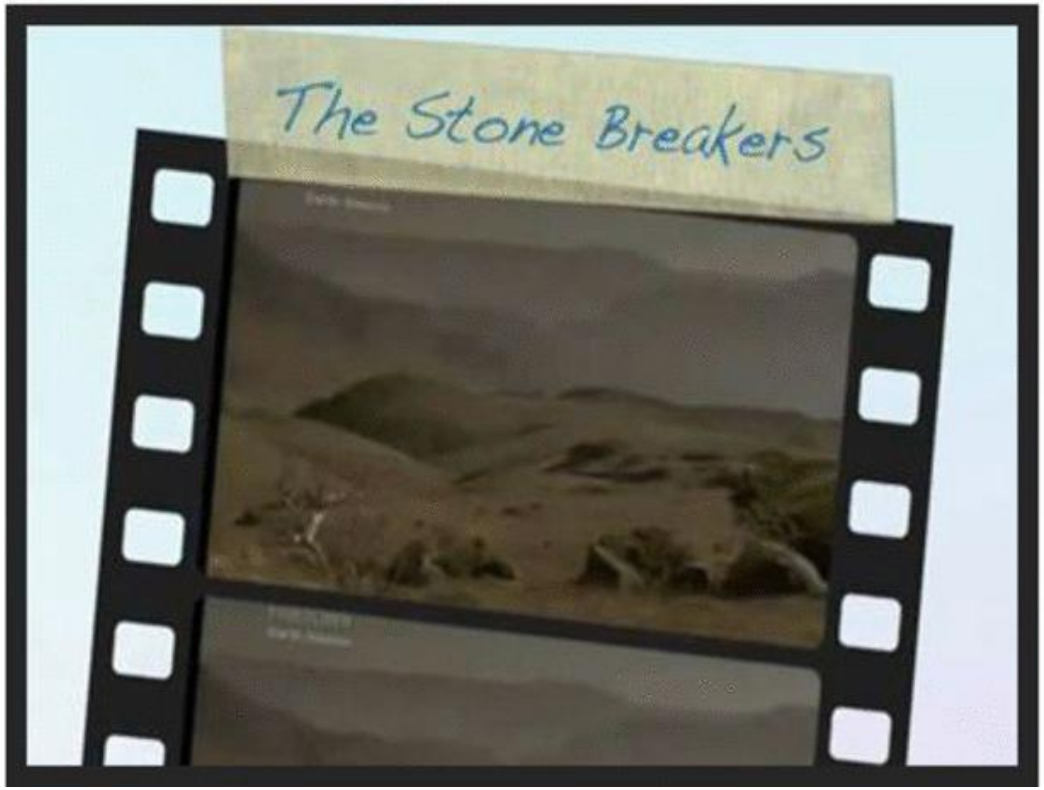
DIGITAL NARRATIVES
what are they?



A digital narrative is an argument, analysis, or exposition related through a combination of sound, text, and visual images

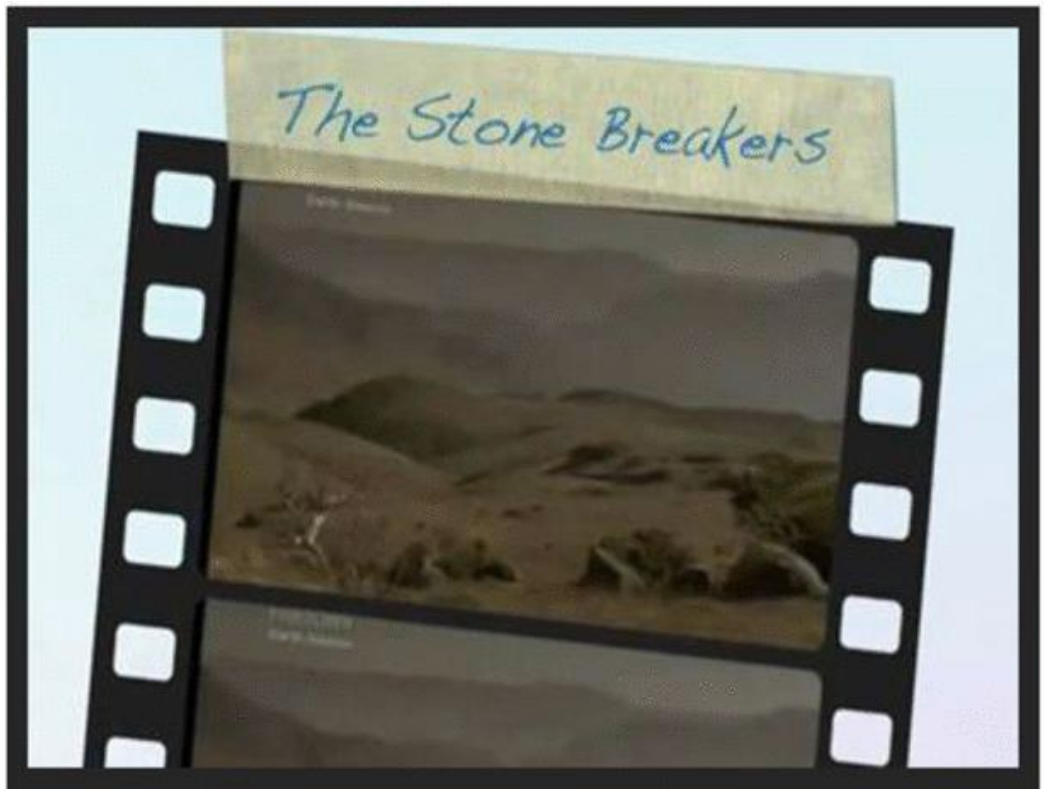


DIGITAL NARRATIVES
why?



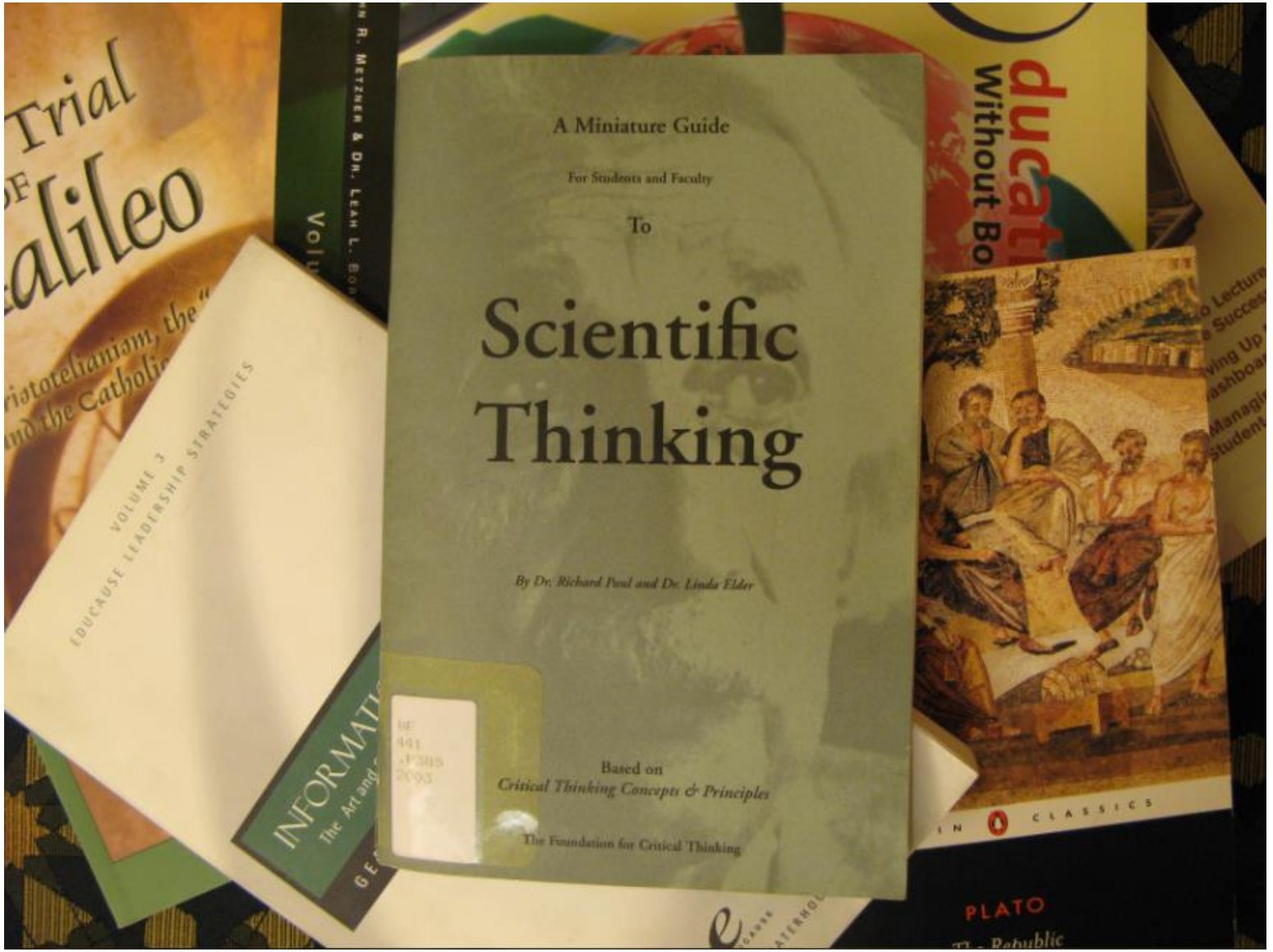
"Through the process of researching their topic, outlining the narrative, selecting appropriate images, and weaving these elements together, students develop skills crucial to the 21st century workplace" (Czarnecki, 2009).*

* Czarnecki, Kelly. How Digital Storytelling Builds 21st Century Skills, in *Digital Storytelling in Practice*. Library Technology Reports, Oct 2009. 15-19



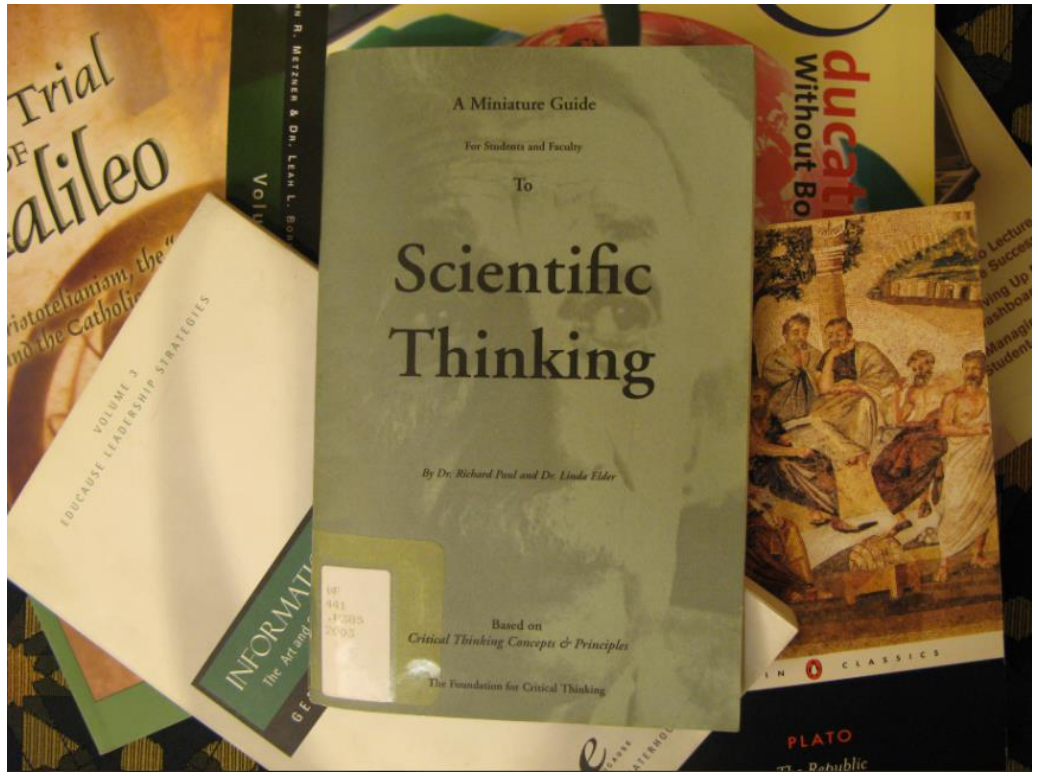
THE CONTEXT

THE COURSE

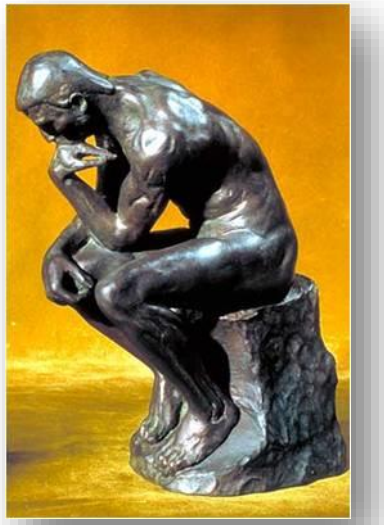

A Miniature Guide
For Students and Faculty
To
Scientific Thinking
By Dr. Richard Paul and Dr. Linda Elder
Based on
Critical Thinking Concepts & Principles
The Foundation for Critical Thinking
PLATO

Scientific Thinking: Concept and Mission

- University-wide graduation requirement
- Introduces the “tools” of scientific thinking to students of all majors and educational backgrounds
- Provides multi-disciplinary framework in which to *apply* the tools of scientific thinking



THE THEMES



A. Science, Scientific Thinking and the Process of Science

- Introduction to Scientific thinking, evaluation of Information;
- Science as a process; the scientific method
- Science and pseudoscience
- Analysis of case studies
- Science and society - bioethics

B. The Magnificent Universe and our Place in it

- Big Bang and origin of galaxies
- Birth, evolution and death of stars
- Origin of the elements
- Origin of Earth and the Solar system

C. Our Descent from the Stars

- Origins of life
- DNA and more
- Evolution of life

2005

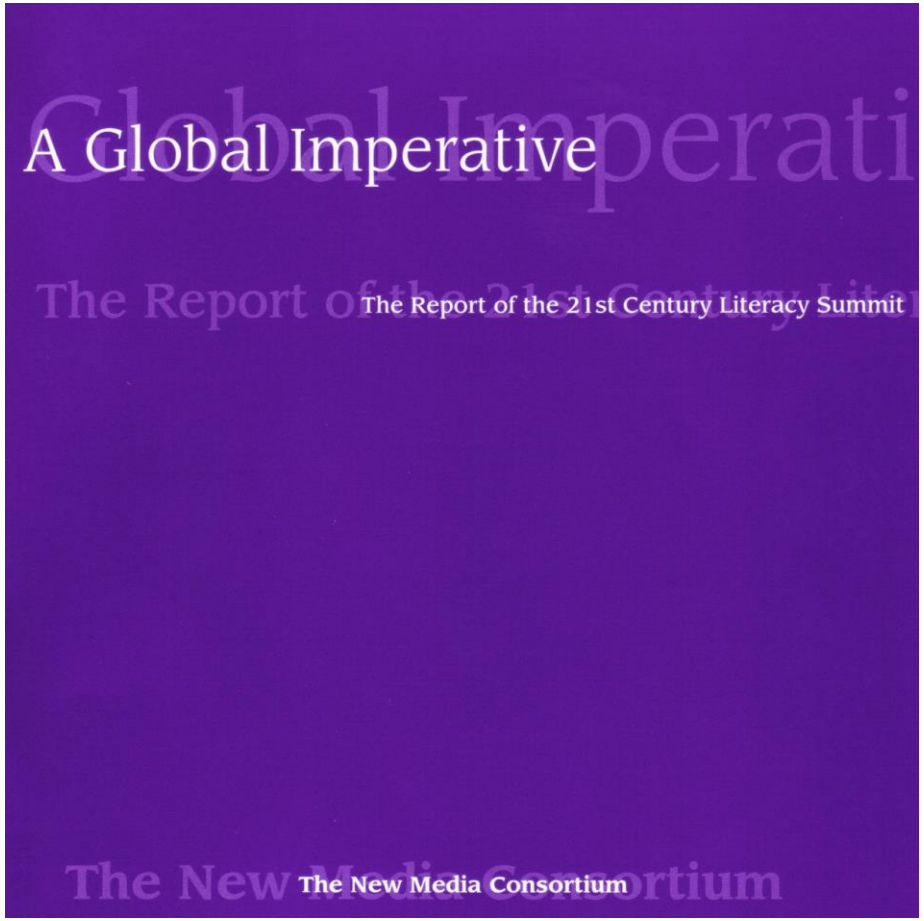
"Learning, Technology, and Net Generation Students"
AUC Center for Learning and Teaching Symposium

2007 "**Student Content Creators**: **Convergence of Literacies**." EDUCAUSE Review, 42(6), 2007, pp. 16-17.

2011 CLT Symposium "STUDENTS AS CONTENT CREATORS"

Digital age literacy

- Basic, Scientific and Technological literacies
- Visual and information literacy
- Cultural and global awareness

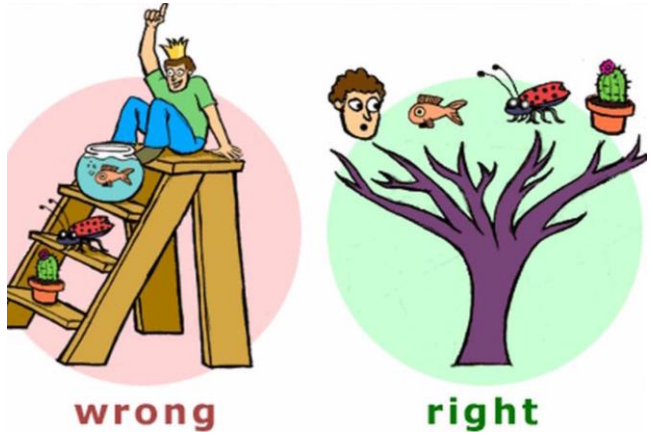


PROJECTS (Multimodal)

- Blogs/Wikis ←
- Web page ←
- Create a video documentary ←
- Digital fiction ←
- Pecha Kucha (20x20) ←
- Multimedia critical essays ←
- Digital narratives ←
- E-portfolio + visual media
- Music
- Videos

*** Could include text, maps, images, films, video, and spatial data**

(2007) Early experimentation



“THEORY OF EVOLUTION” (video)

Creativity is “the action of combining previously uncombined elements”

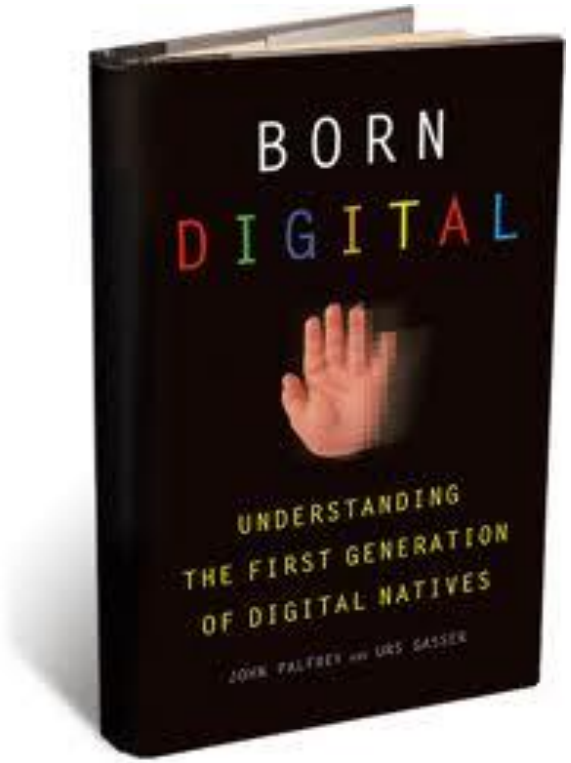
Directed and Edited by: Ohoud Saad

Darwin: Khaled Tammam

Interviewees: Sara Shaarawi

Music:
Babel, Only love can conquer hate
The lion sleeps tonight

John Palfrey. Born Digital. 2010.



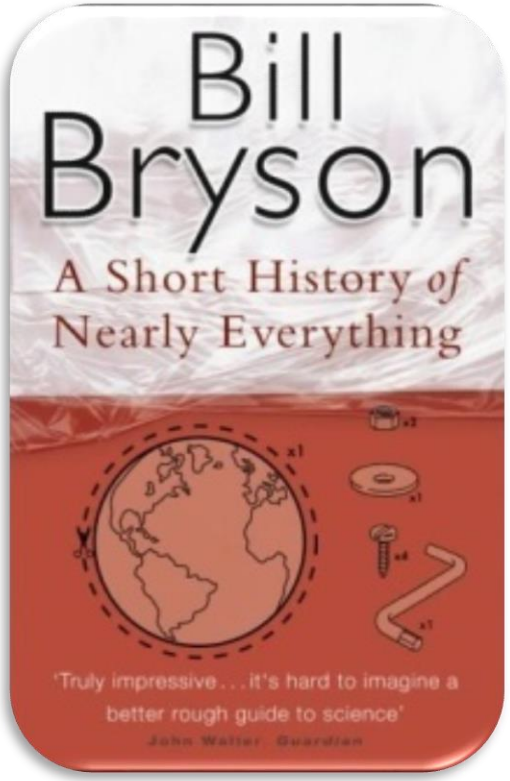
“Learning Environments for a Web 2.0 World”

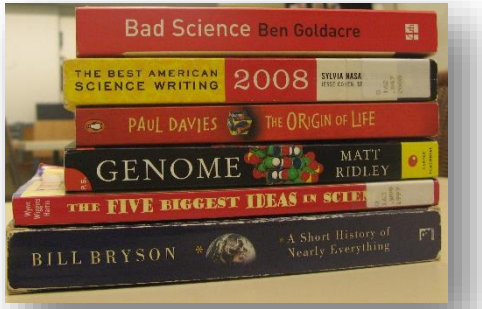
Educause Learning Initiative Conference **Jan. 2010**

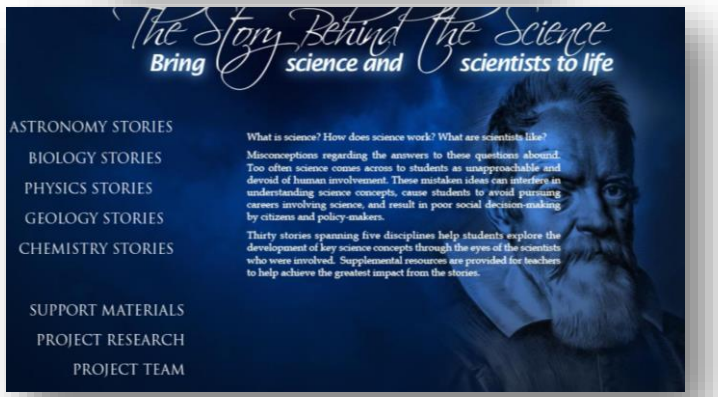
Digital Dossier

MISSING THE PROCESS OF SCIENCE:

encountering historical figures, following the growth and demise of certain scientific theories and most importantly **seeing how science develops**







Digital narratives

Digital narratives: Scaffolding

- **Phase 1**
  - Concept Map/timeline or outline
- **Phase 2 pre-production" phase:**
  - Storyboard : script of the movie + visual/digital content: images, recordings, music
- **Phase 3 : Production phase/Peer review**
  - Create movie, upload to YouTube, link to class wiki, publish online
  - peer review
- **Phase 4**
  - Reflection paper

First Phase of Project:
Read one of the chapters

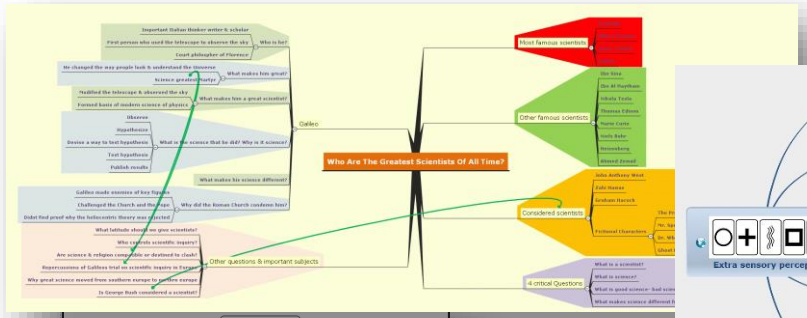
Chapter 5	The Stone Breakers	GROUP 8
Chapter 6	Science Red in Tooth and Claw	GROUP 7
Chapter 8	Einstein's Universe	
Chapter 9	The mighty atom	
Chapter 10	Getting the Lead Out	GROUP 2
Chapter12	The Earth Moves	GROUP 4
Chapter 19	The Rise of Life	GROUP 3
Chapter 26	The stuff of Life	GROUP 6
Chapter 28	The Mysterious Biped	GROUP 5
Chapter 29	The Restless Ape	GROUP 1

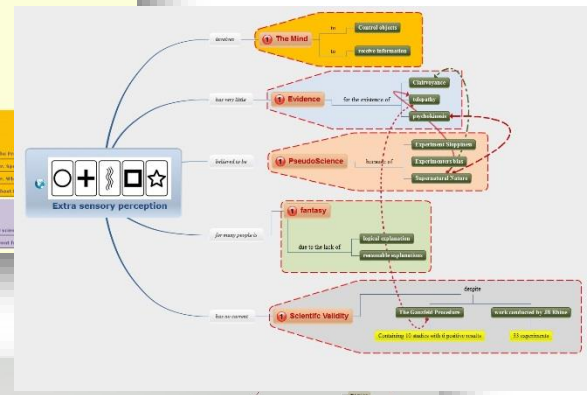
1

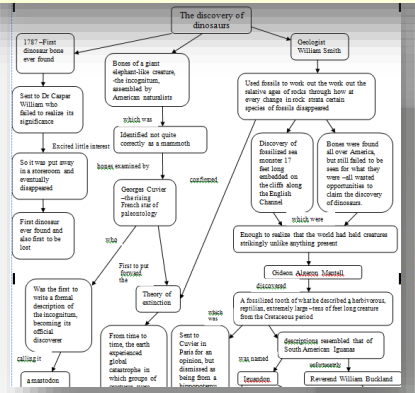
READ AND ANALYZE CHAPTER

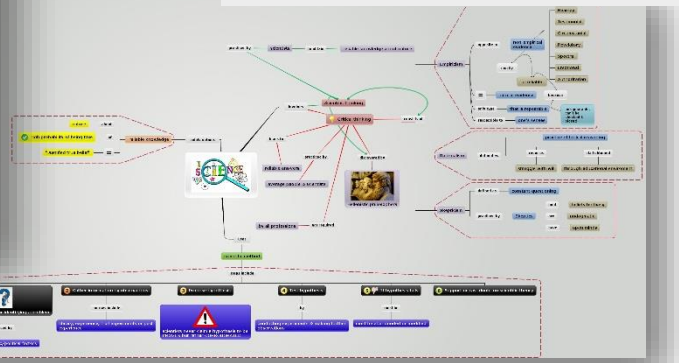
2

DRAW CONCEPT MAP





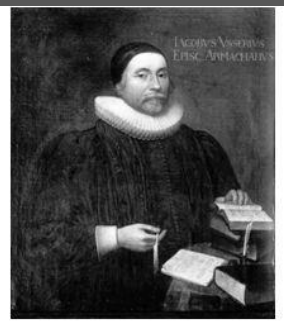




3 CREATE THE STORY BOARD

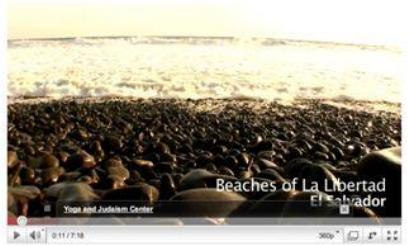
1. For centuries the earth's age has remained a mystery. The creation of the earth has perplexed thinkers. People have been looking for clues to help solve the puzzle. (Video : Earth Story Video 1- 0.00-0.30)

http://www.youtube.com/watch?v=YpbevfWrYg0



2. In 1650, Arcbishop James Ussher made a careful study of the bible and other historical sources. He concluded that earth had been created at mid day on 23rd October 4004 BC.

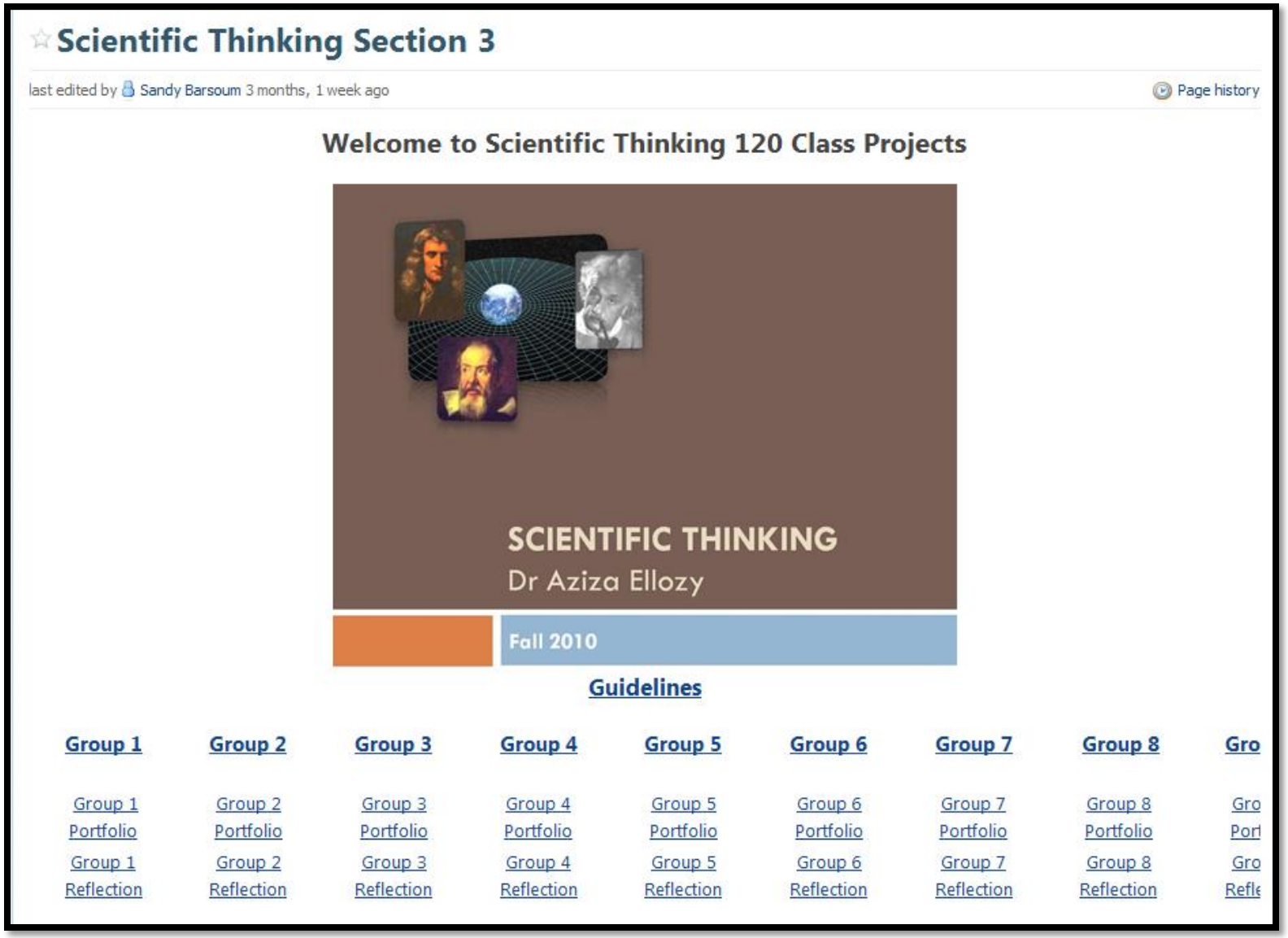
(Picture: http://www.preteristarchive.com/Books/1650_ussher_annals.html)



3. Other scientists such as Edmond Halley tried to solve the mystery in non-religious approach. He believed that we can calculate the age of the earth by dividing the amount of salt added to each year. This theory was dismissed because it was impossible to measure the amount of salt in the oceans. (Video : http://www.youtube.com/watch?v=4Iw554vfwe0)

4

a. PRODUCE FIRST DRAFT OF VIDEO
b. POST ON CLASS WIKI



Scientific Thinking Section 3

last edited by Sandy Barsoum 3 months, 1 week ago

Page history

Welcome to Scientific Thinking 120 Class Projects

SCIENTIFIC THINKING

Dr Aziza Ellozy

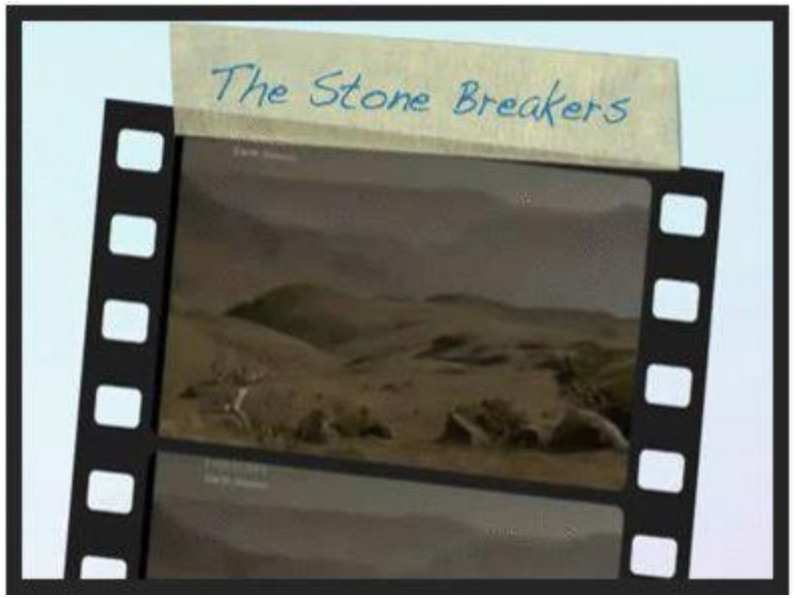
Fall 2010

Guidelines

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Gro
Group 1 Portfolio	Group 2 Portfolio	Group 3 Portfolio	Group 4 Portfolio	Group 5 Portfolio	Group 6 Portfolio	Group 7 Portfolio	Group 8 Portfolio	Gro Port
Group 1 Reflection	Group 2 Reflection	Group 3 Reflection	Group 4 Reflection	Group 5 Reflection	Group 6 Reflection	Group 7 Reflection	Group 8 Reflection	Gro Refl

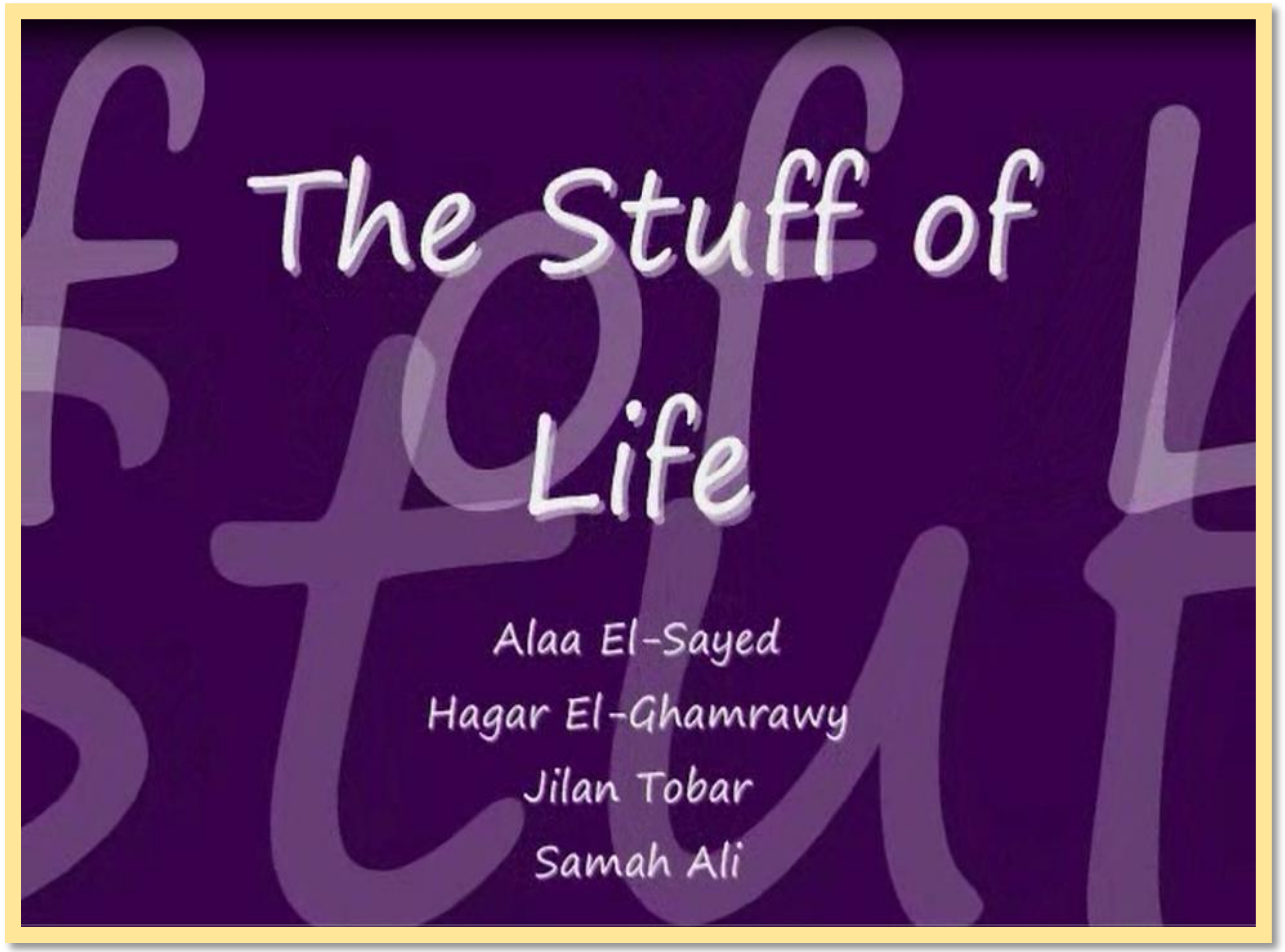
5 PEER REVIEW of DRAFT (FEEDBACK on WIKI)

6 EDIT AND UPLOAD FINAL PRODUCT



7 INDIVIDUAL REFLECTION PAPER

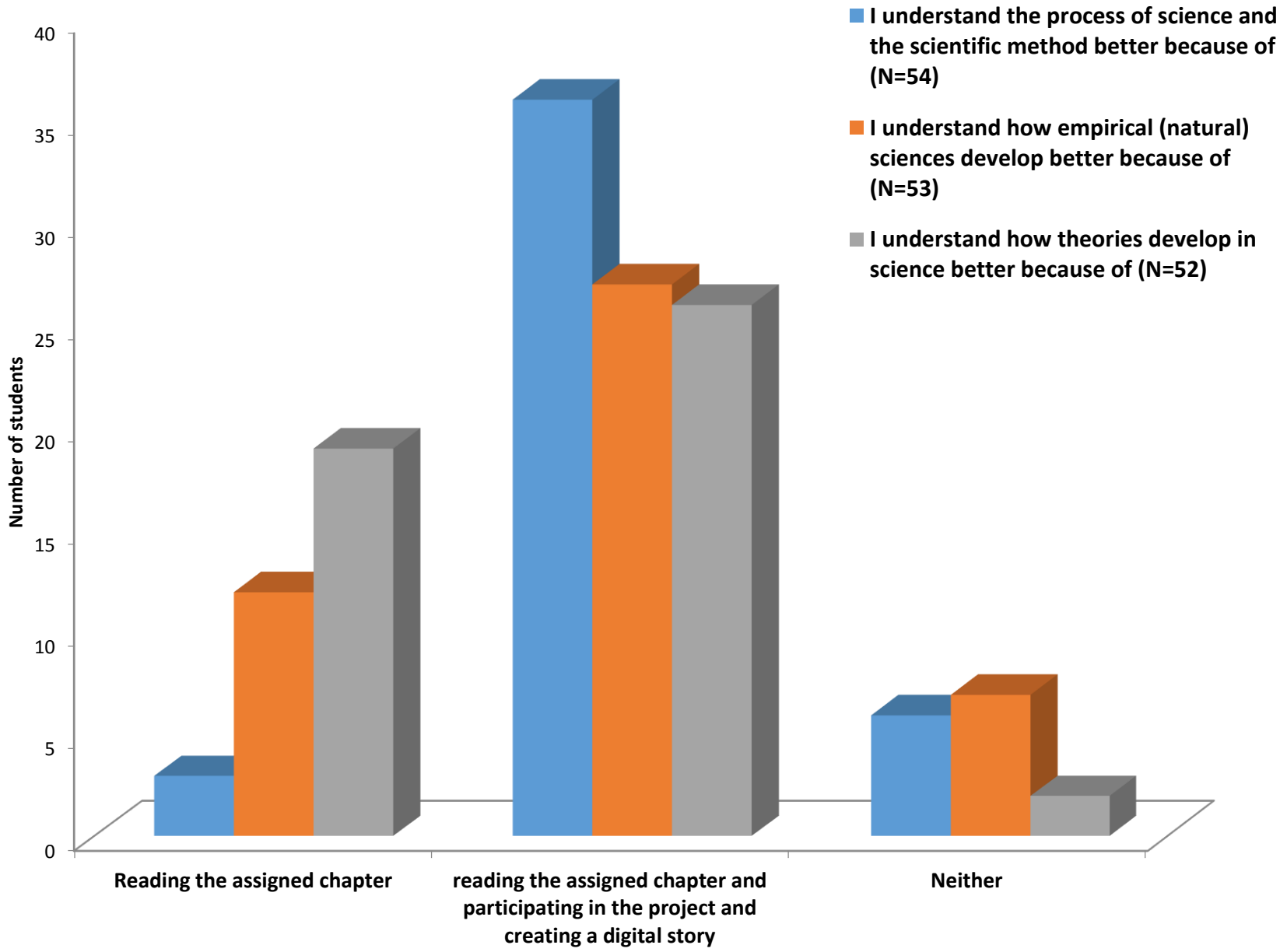
Copyright issues



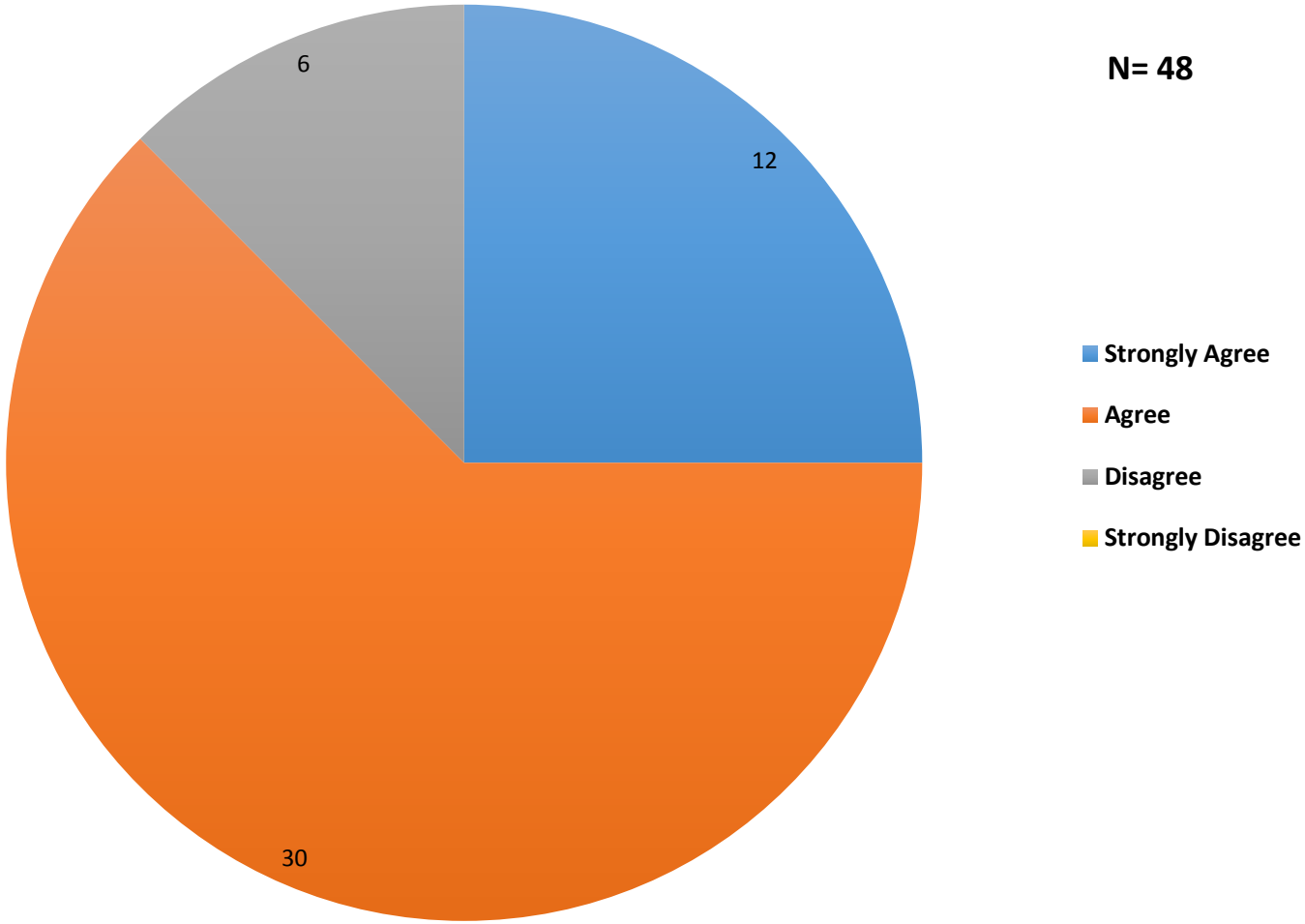
Example of a Digital Narrative

ARE students ENGAGED?

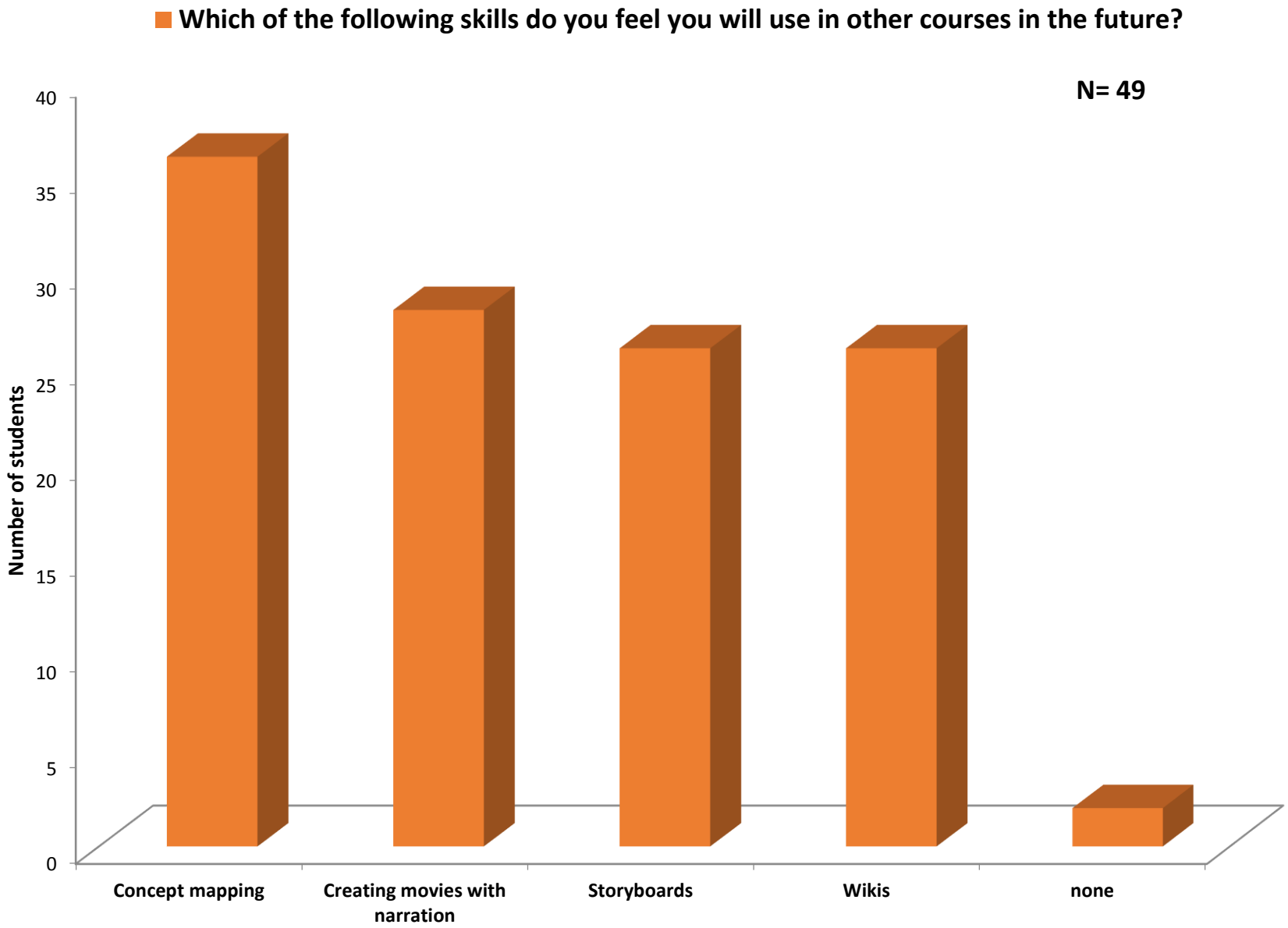
In-class clicker survey


I understand the process of science and the scientific method better because of (N=54)
I understand how empirical (natural) sciences develop better because of (N=53)
I understand how theories develop in science better because of (N=52)
Number of students
40
35
30
25
20
15
10
5
0
Reading the assigned chapter
reading the assigned chapter and participating in the project and creating a digital story
Neither

Overall I found this to be an enjoyable learning experience

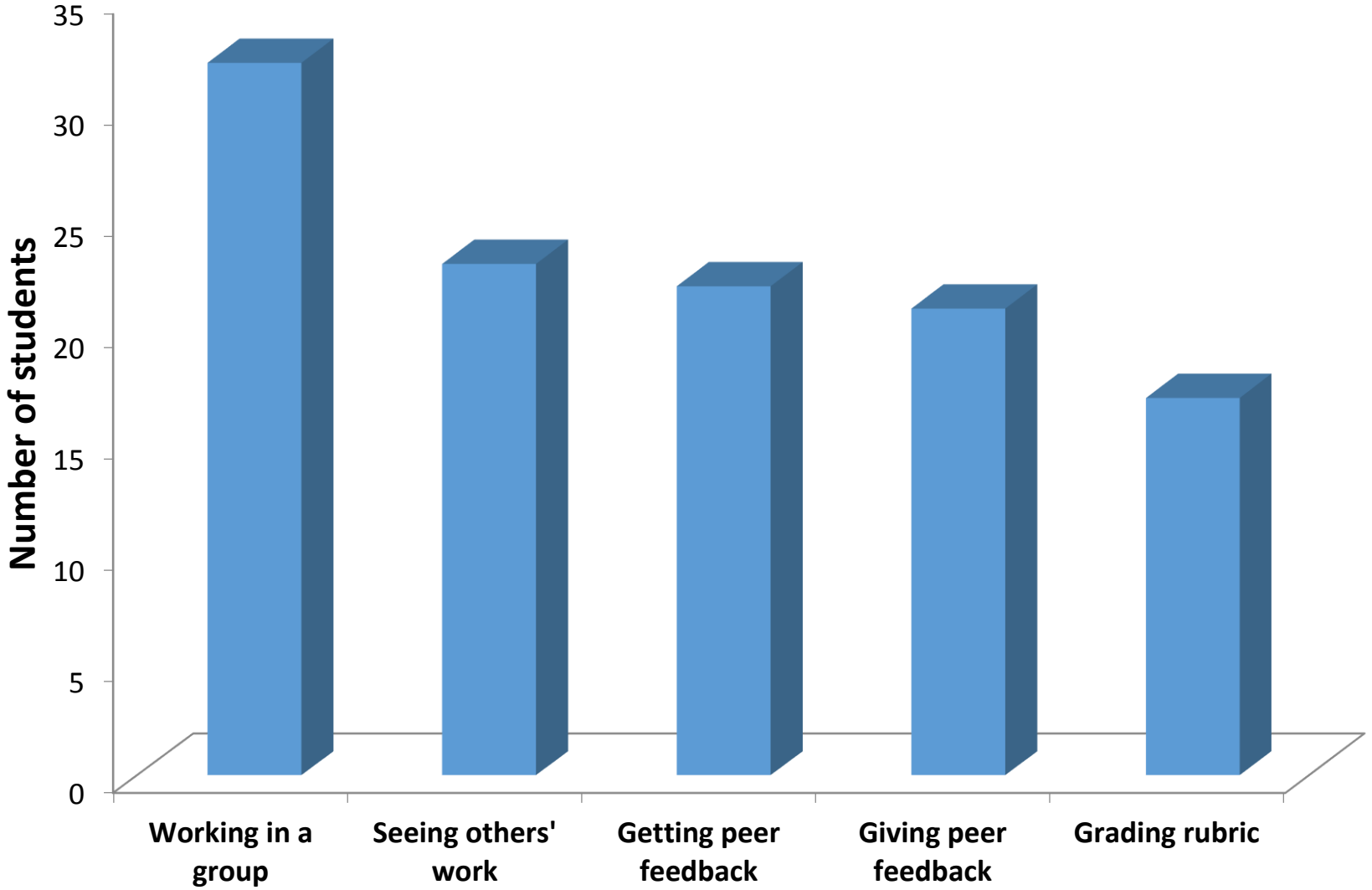


Overall, students had fun with this project: 87.5% either agreed or strongly agreed Only 12.5% disagreed, and no students stated that they strongly disagreed.

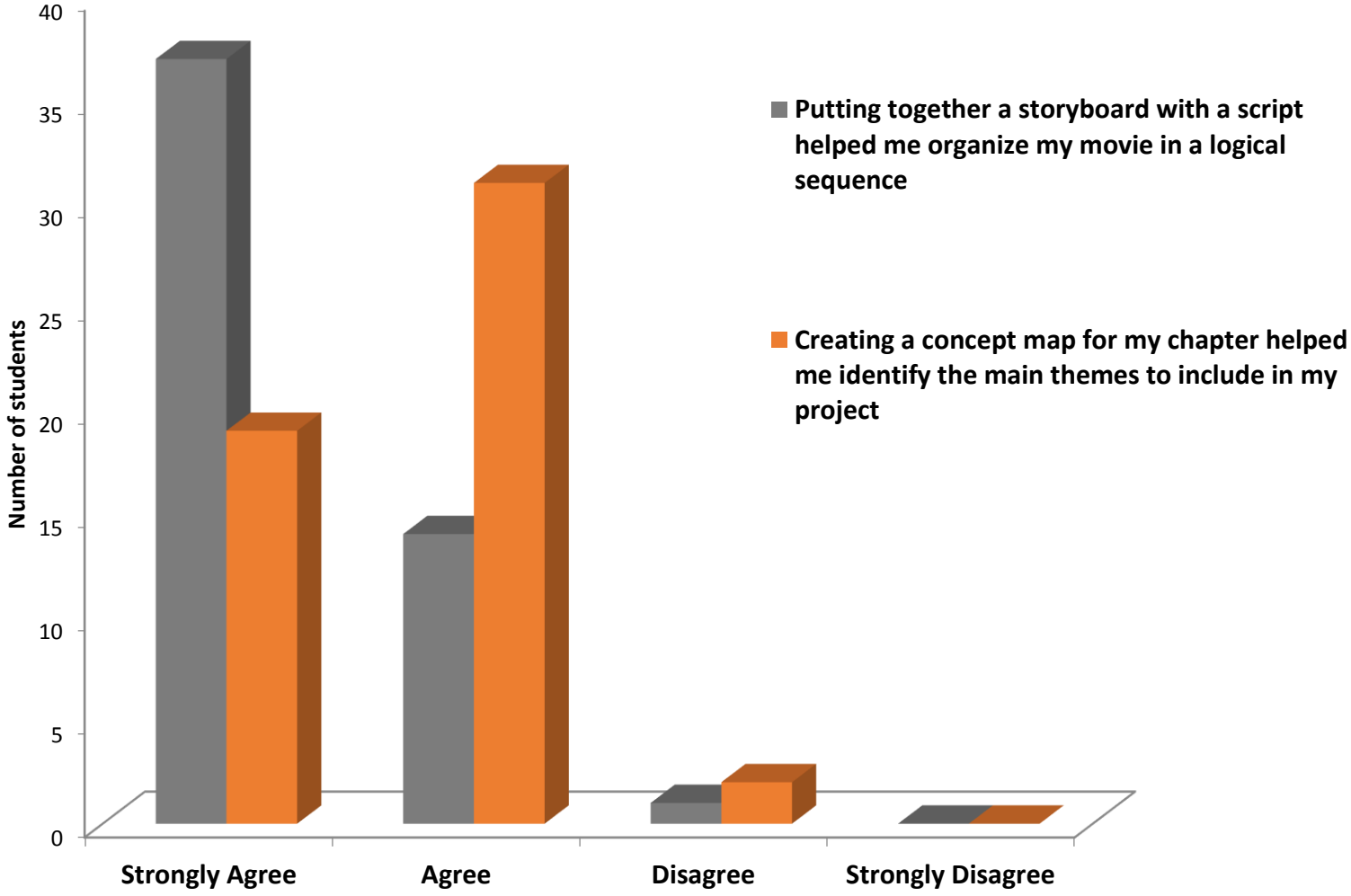

Which of the following skills do you feel you will use in other courses in the future?
N= 49
Number of students
40
35
30
25
20
15
10
5
0
Concept mapping
Creating movies with narration
Storyboards
Wikis
none

Which of the following helped your progress in the project?

N= 49



N= 52


40
35
30
25
20
15
10
5
0
Number of students
Strongly Agree
Agree
Disagree
Strongly Disagree
Putting together a storyboard with a script helped me organize my movie in a logical sequence
Creating a concept map for my chapter helped me identify the main themes to include in my project

Excerpts from students' reflective papers

TEAM WORK

- “I could not have picked better partners and workers if I tried...I am pleased with our work and our group, no one received the full load on their shoulders, no one slacked off or disappeared, and we worked well together. I want to thank the professor for the opportunity she gave us, as well as thanking my group for the remarkable work we produced together. **This is really the first and only group project of my university career that I have ever enjoyed so far. “**[a senior]

- “As a group, we were more creative and had better ideas than as we did as individuals.”

- “…I learned that I need to be part of the team, not the chief, and to respect other ideas shared, even the trivial ideas. “

- “At this point in time **I can really say I am proud of my group’s product**. It was a project that required using a lot of creativity and an opportunity to work in a group. However, I learned from this experience and other previous ones that ***teamwork does not always work well…***
  This…reminded me of something I had learned in my Sociology class: social loafing…”

STUDENT ENGAGEMENT

- What I thought was going to be a long, hard project turned out to be something **that I really enjoyed doing and learning from, and would not mind doing again.** So thank you for a really great experience...
- This was one of my favorite projects that I worked on this semester. What **amazes me is how a chapter in a book that might be described as boring** by some people **can be turned into an interesting short movie**.
- We had harmony in our team, everyone wanted to participate and do something, and people deliberately wanted to hold meetings and to improve the work.

TECHNOLOGY AND RESOURCES

- “This experience was very useful as it expanded our horizon of using technology.”

- [we learned about] “the vast services that are located here at the university, we have met many helpful people who were more than willing to help us throughout the whole process, especially the multimedia lab where we uploaded the video.”

CONCLUSIONS : Benefits

- Addresses various learning styles
  - Allowed students to exhibit their understanding in a variety of ways
- Motivates participation
- Critical and non-linear thinking
- Collaborative skills
- Peer instruction: explain their work and ideas to others
- Create their own interpretation
- Instructors become facilitators: create a real “community of learners”

CONCLUSIONS: Challenges

- Time consuming
- Support needed: librarians, instructional technologists
- Assessment
- Need to align pedagogical benefits and course objectives: technology should not be driving the process
- Copyright issues


THANK
YOU!