Narrative learning

Giuliana DETTORI
ITD (Institute for Educational Technology)
CNR (National Research Council)
Genoa, Italy
dettori@itd.cnr.it

Narrative and learning

- Investigated by many authors
  - - e.g. Bruner (1990, 2003, 2004, …), Wertsch (1998), …
- Narrative = stories and narrations
  not any kind of discourse (in line with many authors in the literature)
- Narrative may improve learning in many ways
  - ✓ ***cognitive***
    - *cause-effect* and *temporal connections* are perceived among story elements
    - it provides *concrete examples* → stories allow to deal with abstraction effectively
  - ✓ ***affective / motivational***
    - *narrative intelligence* (telling/listening stories is instinctive)
    - stories are *perceived as personally relevant*

Narrative for Meaning making

data → information → knowledge → meaning

- Meaning is knowledge contextualized by experience
- Narrative can be used in many ways with good results
  - ❖ Narrating a story
  - ❖ Taking part in a story
  - ❖ Jointly reconstructing a story
  - ❖ Sharing individual stories

✓ different kind activity
✓ different kinds of technology
✓ all collaborative
  - ○ collaboration favours reflective learning
  - ○ many points of view help contextualize

Case 1: Narrating a story in collaboration [1/3]

- Many ways to split the task (by character, by scene, by task, …)
- Different kinds of collaboration
  - ✓ with other "learners" / synthetic characters / both
- Different types of technology → different kinds of experience
  - ✓ specialized multimedia editors
    - ➢ only provide tools to build and narrate stories
  - ✓ "intelligent" storytelling environments
    e.g. *Teatrix* http://gaips.inesc-id.pt/teatrix/
    - ➢ provide functions to control story consistency
  - ✓ interactive narrative systems
  - ✓ other kinds of technology and organization

Case 1: Narrating a story in collaboration [2/3]

Example 1: ***Interactive Narrative***

- Automatically generate consistent and believable narrative
  - formalisms for story generation are derived from narrative theories (narratology studies)
- Realizing interactivity between human and computer in narrative construction
  - balance user's freedom and system's intended aims
- The system provides a "story world"
  - possible plots are shaped by users'action
- Many prototypes realized within research projects

  e.g. *SceneMaker* iris.interactive-storytelling.de/ModelStates

Case 1: Narrating a story in collaboration [3/3]

Example 2: ***Mobile Digital Narrative*** (Arnedillo-Sanchez 2008)

Stories are

- collaboratively constructed
- by means of pictures and recorded sounds/voices gather with cell phones

Steps of the procedure:

- group members meet to agree on plot's main lines
- 3 groups (task division to support collaboration)
  - ✧ pictures
  - ✧ sounds
  - ✧ editing
- all meet again to evaluate and improve product
  - ○ some more pictures and sound may need to be collected

Case 2: Taking part in a story: role playing [1/4]

- ***Role playing*** is considered *useful for learning*
  - it leads participants to widen their perspective
- Meaning is made by *immersion in a scenario*, which leads to
  - highlight differences and similarities
  - merge different contributions
- Stories arise from participants' actions
  --- they are performed rather than narrated
- Many different ways to role play
  - different tools
  - different activity structure

Case 2: Taking part in a story/role playing [2/4]

Example 1

Quest Atlantis environment

http://atlantis.crlt.indiana.edu/; Barab et al., 2007a; Barab et al., 2007b

- students use avatars with well defined characteristics to move in virtual spaces related to several school subjects,
- they carry out problem solving activities (information or data elaboration)
- students meet each others' avatars and work with them
- students interact with virtual characters that provide information to solve tasks
  - ✓ information is distributed among group members

Case 2: Taking part in a story/role playing [3/4]

Example 2

Role-playing discussion of an educational task in teacher training

- online course, the only (but essential!) technology used is a communication platform (CMC, LMS)
- learners take the point of view of strongly characterized teachers (technology enthusiast, technology detractor, bureaucrat, etc.)
- the task assigned was a web quest (task may be different)
- similar to many others, aims to favour reflection
- complying with role's characterization led participants to acknowledge that some attitudes are biased by pre-conceptions

Case 2: Taking part in a story/role playing [4/4]

Example 3 - ***Alternate reality games***

- players' involvement with a story that takes place in real-time
- players play themselves within the background story's constraints
- creating an imagined space where players deal with a relevant issue (they use the real world as a platform)
- multimedia for communication and action, Internet as support
- background and starting point are pre-scripted, then story evolves according to participants' response
- guided by (real) characters controlled by the game's designers (not by artificial intelligence characters as in virtual games)

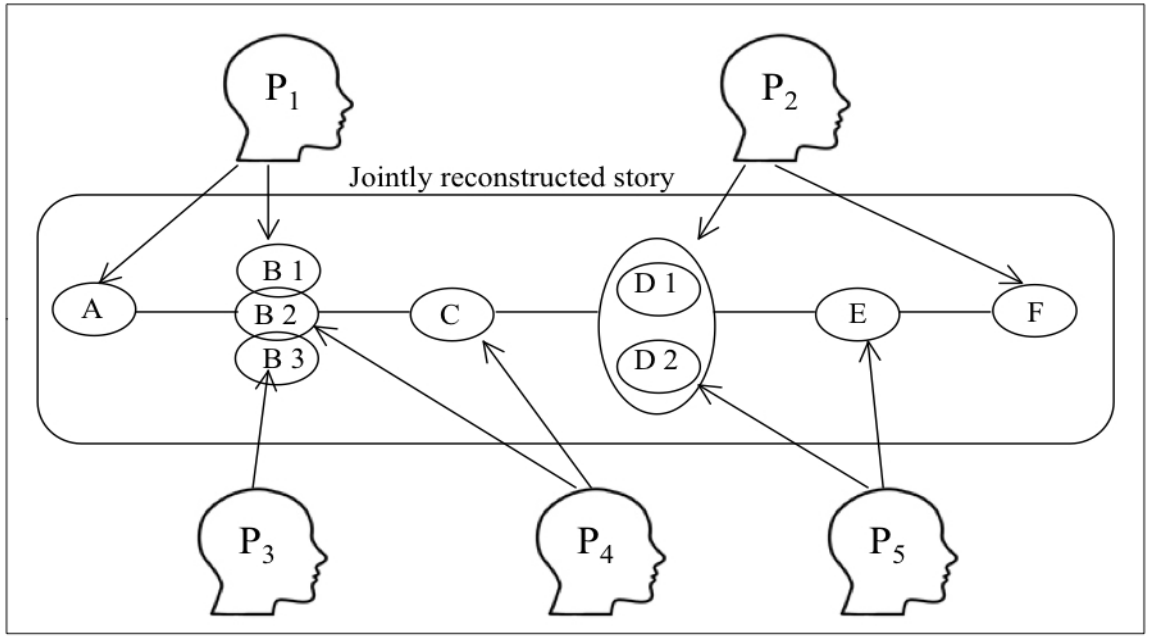
- Akkerman *et al*. (2009), Play on Medieval Amsterdam aiming to overcome fragmentation of the knowledge of historical events

Case 3: Jointly reconstructing a story [1/2]

Example 1 (Borges & Vivacqua, 2010)

Recollection of past events in work environments

- people involved experienced it in different ways
- relying on some online tool to merge different point of view and experiences

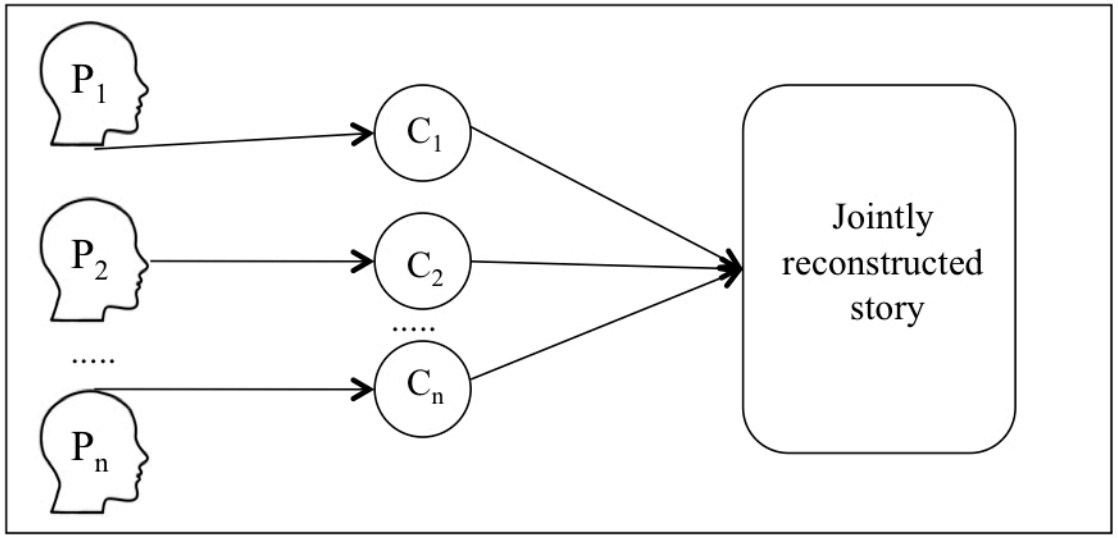


Case 3: Jointly reconstructing a story[2/2]

Example 2 (Dolk & den Hertog, 2008): joint story to boost reflection

A group of teachers jointly reconstructs) a story watched in a video

•a school situation in which students have a learning problem



- In both examples, meanings raise from comparison of points of view and merging of information from different sources

Case 4: Sharing individual stories [1/2]

Examples (Dettori & Lupi, 2009; Dettori & Morselli, 2010):

Beliefs elicitation in teacher training

In both experiences, a group of trainee teachers

➢shared *online* individual narrations

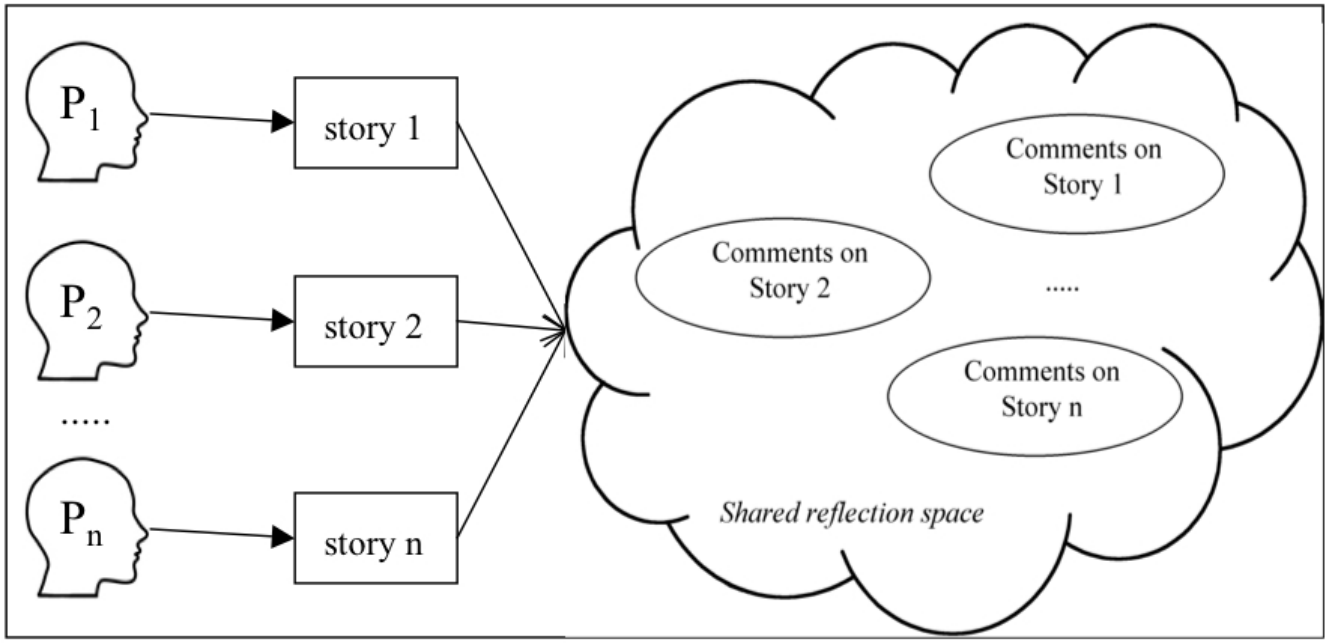
- future Mathematics teachers narrated their relation with math proof
- future French teachers narrated of good and bad teachers they had met, and what raised their interest for this language

➢comparing them to form a concrete ground for joint reflection on their future teaching activity

➢peers' memories helped to remember → self-understanding

Case 4: Sharing individual stories [2/2]

Meanings are created by self-reflection and comparison



Conclusion

Narrative activities in learning

- can fit many kinds of *task and learning purpose*
- can be *mediated* by different *technological tools*

✧ provide opportunities for the learners to *get actively involved* in activities that make sense for them

✧ provide opportunity to structure *learners' interaction* in many ways

➢ support *reflection* by providing a *concrete* starting point by means of examples

➢ support *meaning making* by helping to highlight similarities, differences, temporal and causal ordering

Bibliography [1/2]

Ackerman, S., Admiraal, W., Huizenga, J. (2009). Storification in History education:A mobile game in and about medieval Amsterdam. Computers & education, 52, 449-459.

Arnedillo-Sanchez, I. (2008). The Mobile Digital Narrative Tool. In I. Arnedillo-Sanchez & P. Isaias (Eds.), *Mobile Learning 2008* (pp. 77-83). Lisbon: IADIS Press.

Barab, S, Dodge, T., Tuzun, H., Job-Sluder, K., Jackson, C., Arici, A., Job-Sluder, L., Cartaux, R.J., Gilbertson, J., & Heiselt, C. (2007a). The Quest Atlantis Project: a socially responsive play space fro learning. In B.E. Shelton & D. Wiley (Eds.), The educational design and use of simulation computer games. Rotterdam, NL: Sense Publishers.

Barab, S. Sadler, T.D., Heiselt, C., Hickey, D., & Zuiker, S. (2007b). Relating Narrative, Inquiry, and Inscriptions: Supporting Consequential Play. Journal of Science Education and Technology, 16(1), 59-82.

Borges, M.R.S., & Vivacqua, A.S. (2010). Supporting collective intelligence through group storytelling. *ACM 2010 Conference on Computer-Supported Cooperative Work*, Savannah, Georgia, Workshop on Collective Intelligence. http://www.parc.com/content/events/attachments/Borges-Vivacqua-CI_StoryTelling.pdf

Bruner, J. (1990). Acts of meaning. Harvard University Press, Cambridge, Massachusetts.

Bruner, J. (2003). Making Stories. Cambridge, MA. Harvard University Press.

Bruner, J. (2004). Narratives of Science. In E. Scanlon, P. Murphy. J. Thomas & E. Whitelegg (Eds.), Reconsidering Science Learning (pp.90-98). London, UK: Routledge Falmer.

Crawford, C. (2005). Chris Crawford on Interactive Storytelling. Berkley, CA: New Riders.

Bibliography [2/2]

Dettori, G. and Lupi, V. 2009. Using a narrative blog to support reflection in a blended course. In F.L. Wang et al. (Eds.), Hybrid learning and education, pp. 274-283. Lecture Notes in Computer Science, 5685, Springer, Berlin.

Dettori, G., & Morselli, F. (2010). Eliciting beliefs with a narrative activity in mathematics teacher education. Proc. International Workshop MAVI 2009, pp.89-99, Genoa, Sept 2009. Retrieved March 7, 2011 from http://www.telearn.org/open-archive/browse?resource=6396_v

Dettori, G., & Paiva, A. (2009). Narrative Learning in technology-enhanced environments. In S. Ludvigsen, N. Balacheff, T. de Jong, A. Lazonder and S. Barnes (Eds.), Technology-enhanced learning: Principles and products (pp. 55-69). Berlin, DE: Springer.

Dolk, M., and Den Hertog, J. (2008). Narratives in teacher education. Interactive Learning Environments, 16(3), pp. 215-229.

Mateas, M., & Sengers, P. (2002). Narrative Intelligence. In M. Mateas & P. Sengers (Eds.), Narrative Intelligence (pp. 1-25). Amsterdam/Philadelphia: John Benjamins Publishing Company.

Polkinghorne, D. (1988). Narrative knowing and the human sciences. New York, NY: State University of New York Press.

Ricoeur, P.(2005). Hermeneutics and the Human Sciences. Edited and translated by J.B. Thompson, 17th ed. Cambridge, MA: Cambridge University Press.

Wertsch, J. V. (1998). Mind as action. New York, NY: Oxford University Press.