



Evaluation of collaborative learning applications



1. Why evaluation?
2. How to evaluate?
3. Common problems
4. Chase the cheese
5. Evaluation using the example of NSCL
6. Conclusion



1. Why evaluation?

„If you don't go forward, you go backwards.“

(Rudolf von Bennigsen-Foerder)

- test and improve technologies, achieve process
- schools, teachers and students need an assessment
- influence on the process of learning
- compare with other learning styles
- feedback for students
- show different views for stakeholders



2. How to evaluate

empirical studies: comparison of different collaborative learning groups, but not objective and repeatable

ethnographic studies: not only concentrate on operating process, but also on influencing aspects, but very subjective



„When the cook tastes the paella, that’s formative. When the guests taste the paella, that’s summative.“

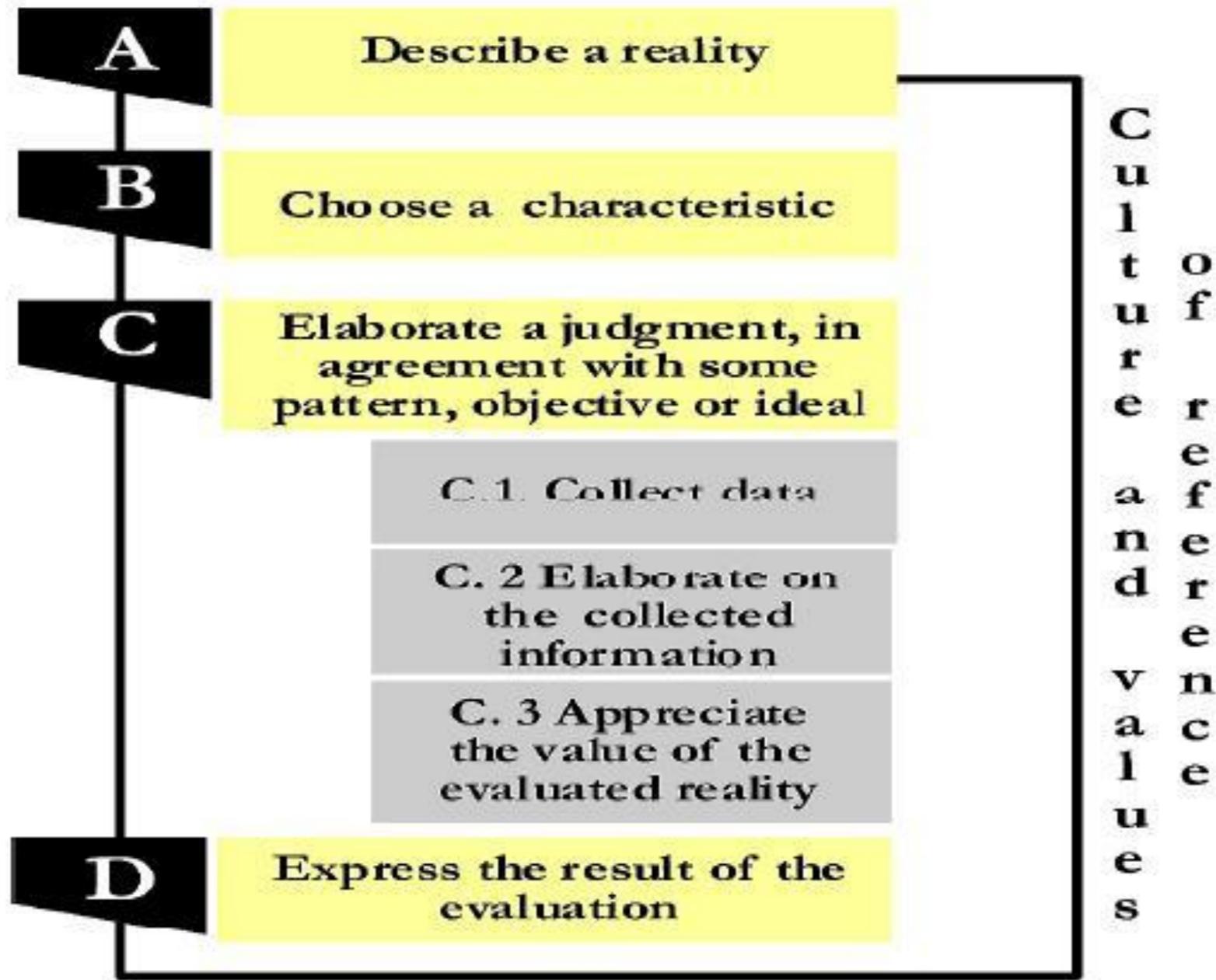
(Bob Stake)

formative evaluation: influencing process to improve results

summative evaluation: working process finished, analyzing results and drawing conclusions

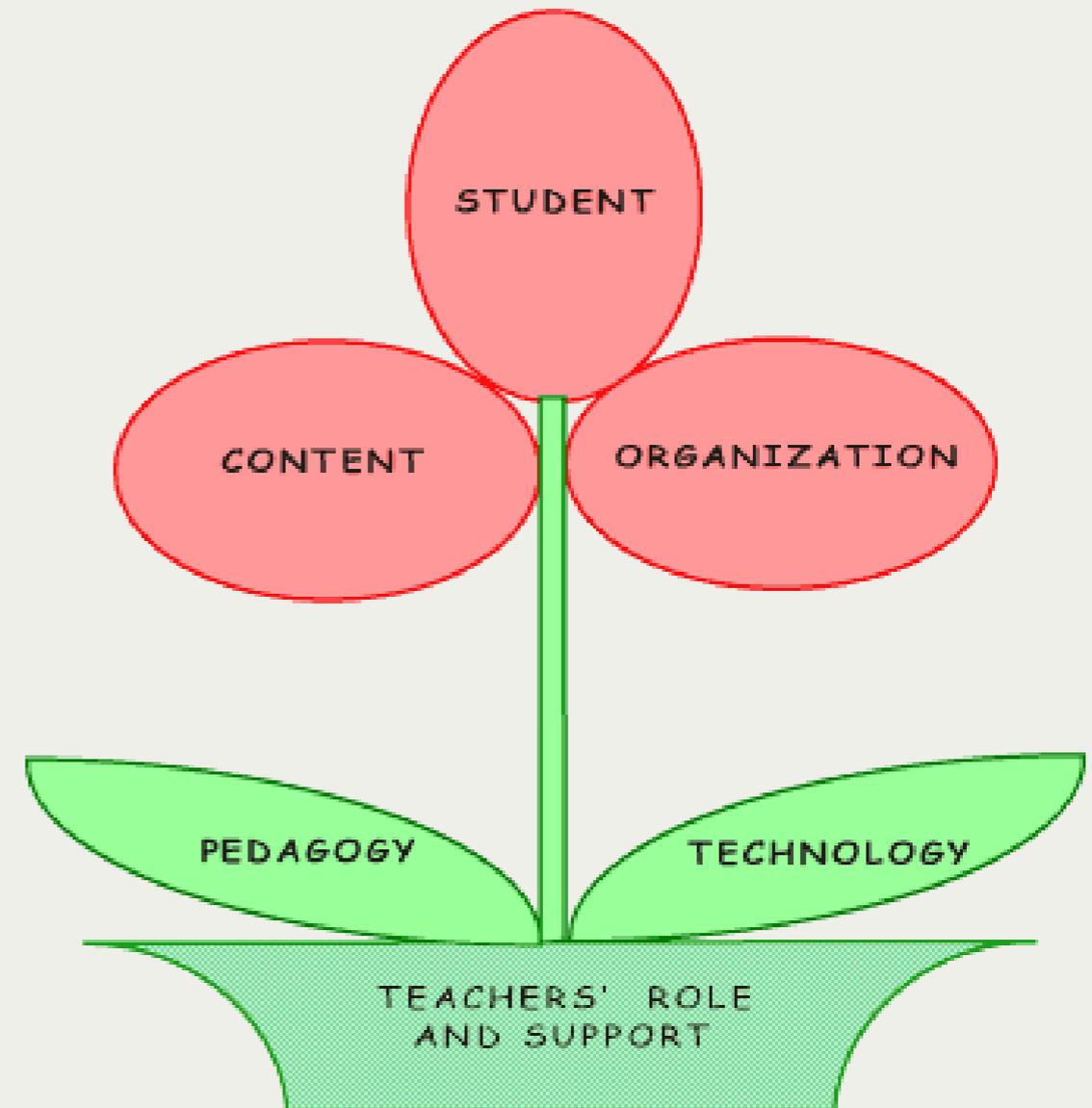
qualitative data: based on personal, subjective opinion

quantitative data: based on numbers (error rate, time,...)

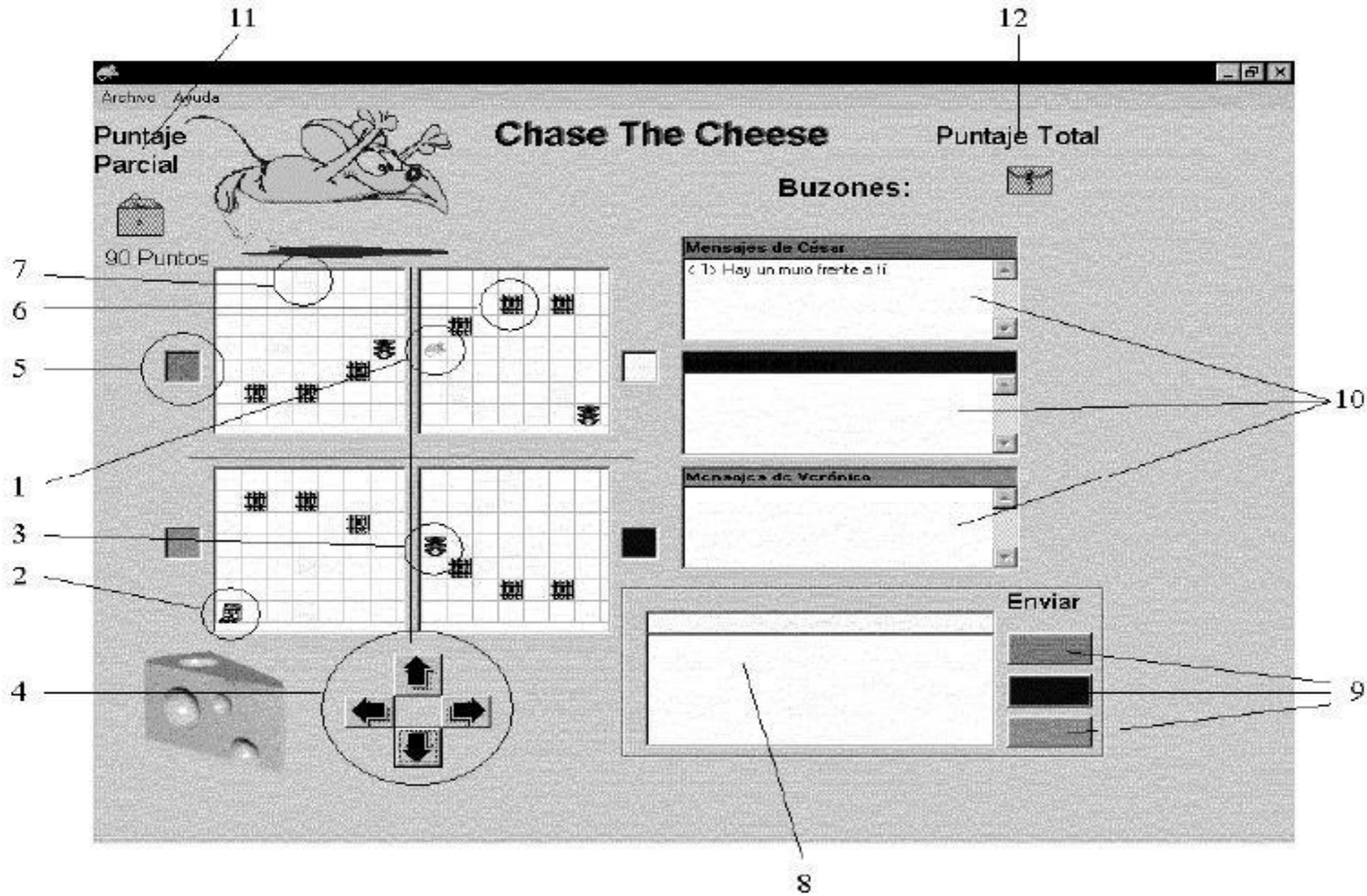


3. Common Problems

- not much experience with evaluation of collaborative learning applications so far
- most studies only look at one group or institution
- different conditions, influencing factors
- stakeholders place value on several aspects
- psychological and social factors



<http://people.dsv.su.se/~evafaahr/lic/lic00.gif>





X	Y	Quadrant	From	To	Message	Time
1	1	1				
			Andres	Gaston	I need your coordinates	12:00:41
			Andres	Miguel	I need your coordinates	12:00:52
			Andres	Sergio	I need your coordinates	12:01:13
			Miguel	Andres	A2 and F4	12:01:25
			Gaston	Andres	A5 and G5	12:02:08
			Andres	Gaston	D3 and g3	12:03:13
			Sergio	Andres	ok	12:03:21
1	2	1				
			Miguel	Andres	Letters are arrows	12:04:32
1	3	1				
2	3	1				
2	4	1				
2	5	1				
3	5	1				



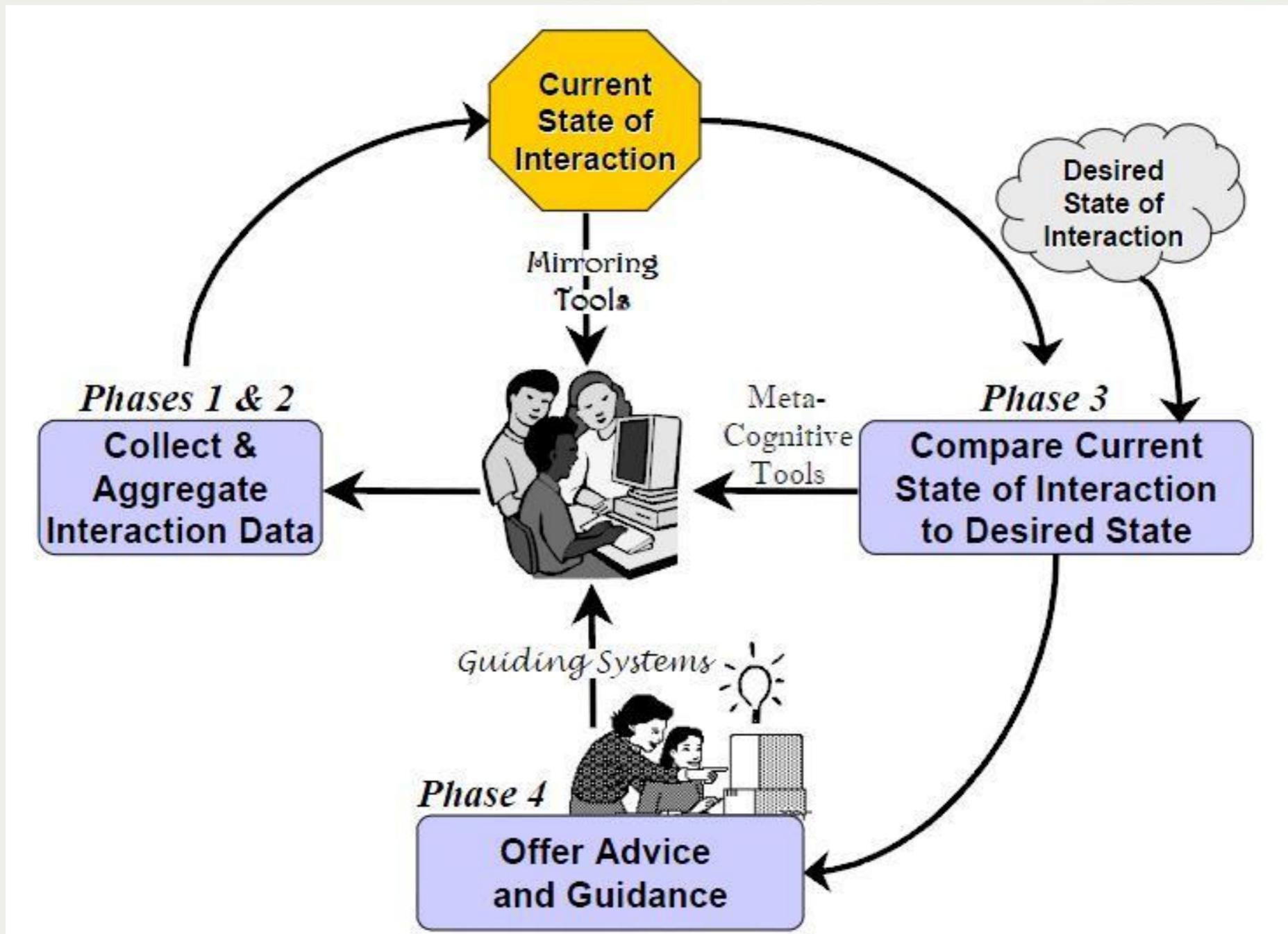
5. Evaluation using the example of NSCL

- NSCL: Network supported collaborative learning
- laboratory experiments: testing functionality
- field studies: real context, testing system structure, software and design
- usability tests -> heuristic evaluation: experts judge functionality
- user testing methods: observing test subject
- hybrid approaches: heuristic evaluation -> prototype -> user testing



Analysis techniques

- previous analysis technique: cooperation of participants and evaluator, plan project and methods
- data collection: data analysis during project
- triangulation technique: combined techniques of data collection and data analysis





Study results:

- participants evaluate face-to-face groups more effective - than groups using NSCL (Olaniran)
- more discussions -> more knowledge (Shea)
- highly intelligent students can use face-to-face and NSCL learning, they interact more (Wilson)
- extroverts prefer NSCL (Daughenbaugh, Ensminger, Frederick, Surry)



- NSCL groups concentrate more on planning and tasks than social and emotional aspects (Curtis and Lawson)
- involvement in discussions via internet as large as in face-to-face groups



6. Conclusion

Advantages

- + information for students, teachers, schools, universities...
- + usability tests
- + notice errors
- + improvement
- + system shows who collaborates-> feedback
- + can improve teamwork, communication and effective team play

Disadvantages

- facts could be interpreted wrong
- system doesn't evaluate quality of contributions
- programmers don't know pedagogical aspects well
- system takes no notice of personalities
- applications can fail in real life despite studies



Thank you for your attention!



Sources

Quote page 3: <http://www.zitate.de/autor/BennigsenFoerder,+Rudolf+von/>, loosely translated

Quote page 5: http://cosy.ted.unipi.gr/tell/media/WP1_deliverable.pdf, page 20

Picture page 6: European Commission, Directorate-General for Education and Culture, eLearning Initiative:TELL: Towards Effective network supported collaborative learning activities, Introducing a Framework for the Evaluation of Network Supported Collaborative Learning, WP1 Deliverable: Survey and Analysis of evaluation methods and tools in network supported collaborative learning, page 30

Pictures page 8 and 9: Collazos, Cesar A., Guerrero, Luis A., Pino, Jose A., Ochoa, Sergio F.: Evaluating Collaborative Learning Process, Department of Computer Science, Universidad de Chile, Blanco Encalada 2120, Santiago, Chile, page 6 and 7



Picture page 13: European Commission, Directorate-General for Education and Culture, eLearning Initiative:TELL: Towards Effective network supported collaborative learning activities, Introducing a Framework for the Evaluation of Network Supported Collaborative Learning, WP1 Deliverable: Survey and Analysis of evaluation methods and tools in network supported collaborative learning, page 64

additional sources: see handout