DEPARTMENT OF INFORMATICS

UNIVERSITY OF RIJEKA

Implementing collaborative e-learning activities to Process modeling course

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Presentation outline

- Introduction
- Motivation
- Collaboration in learning
- Process modeling course
- Web 2.0 tool selection
- Collaborative course activities
- Conclusion
- Future work

Introduction

- Results of the process of redesigning traditional to e-course
- Effort of designing different ICT supported collaborative students' activities
- Process Modeling course, Department of Informatics, UNIRI
- Mandatory course, winter semester
- In 2015/2016:

3rd y UG study	Single major program of informatics	50
2nd y UG study	Double major program of informatics	10
2nd y G study	Double major program of informatics and polytechnics	5
	SUM	65

Motivation

- Collaboration in large software development –> teams
- To simulate real-world situation in educational environment
- By implementing collaborative assignments

- To help student learn more / achieve better results by applying collaborative learning methods
- To ensure learning process independent of (in balance with) traditional classroom

Collaboration in learning

- Communication and social skills, teamwork, creativity and critical thinking
- Students as active participants

- Which learning activities to use as a support for the learning process in the field of Process modeling?
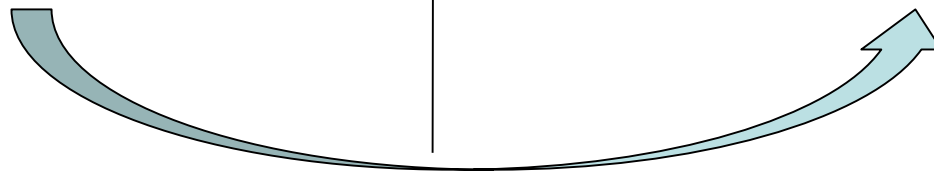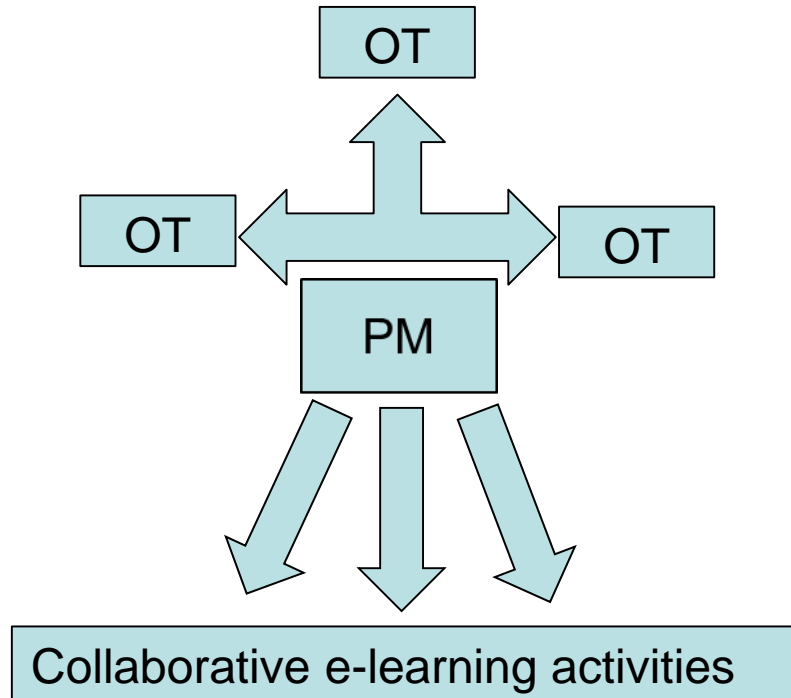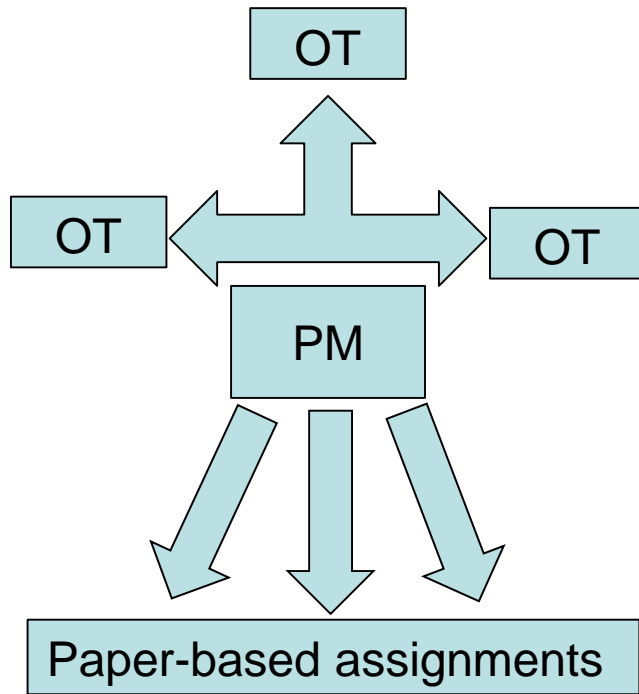
Process modeling course

- Important knowledge in the field of IS analysis
- How to perform an interview?
- How to perform process analysis?
- How to elicit user requests?
- Important for future practice in IS development
- Precedes Data modeling course
- Managed by 2 teachers

- Mudri – customized Moodle solution, adapted to the needs of UniRi

Process modeling course

The phases of teaching process

- Theoretical knowledge
  - Basic terms from the field
- Practical knowledge
  - Connected to interview and analysis process
- Critical thinking
  - Application of previously adopted knowledge

Collaborative assignments

<u>Concept maps</u>

- Suitable method to learn theoretical knowledge – students put terms in adequate relations to each other
- Good basis for further skills development
- Easy to measure team members' contribution
- 4 team members

<u>Iterative process of diagramming using Web 2.0 tool</u>

- Role playing, 2 team members, 1 analyst and 1 user
  - Results: context diagram, decomposition diagram
- Collaborative diagramming, 4-5 team members
  - Textual description of the system -> complete process model

What does it mean for the teacher?

- To choose the proper tool for the purpose
- To test different aspects of a number of tools to create an environment for learning without issues
- To design adequate number of different assignments for every group of students
- To provide instructions for the students so they can solve the assignment outside the classroom without direct teacher's help
- To ensure enough feedback necessary for future assignments
- To motivate students who did not participate to engage in the next assignment

Methodology for choosing the tool

- Which is the most suitable Web 2.0 tool for collaborative process modelling?
- Selected a group of tools
- Defined the list of criteria for its selection
- Weights for each criterion according to its importance
- Exclusive criteria not to be missed
- The decision was made according to the sum of points

Criteria important for the tool

Domain related criteria

- Predefined graphical concepts (library) for process modeling
- Database symbol: two parallel lines
- Adding connectors to shapes
- Adding text to shapes
- Image import
- Export to other formats

General criteria

- Number of files
- Comments and notes
- Number of collaborators
- Real-time collaboration
- Communication between collaborators via chat
- History
- Individual contribution
- User help and support
- Desktop version

Results

- Gliffy
- Creately
- Cacoo
- Draw.io
- Lovely charts
- Flowchart.com
- GenMyModel
- ProcessOn
- Diagramo

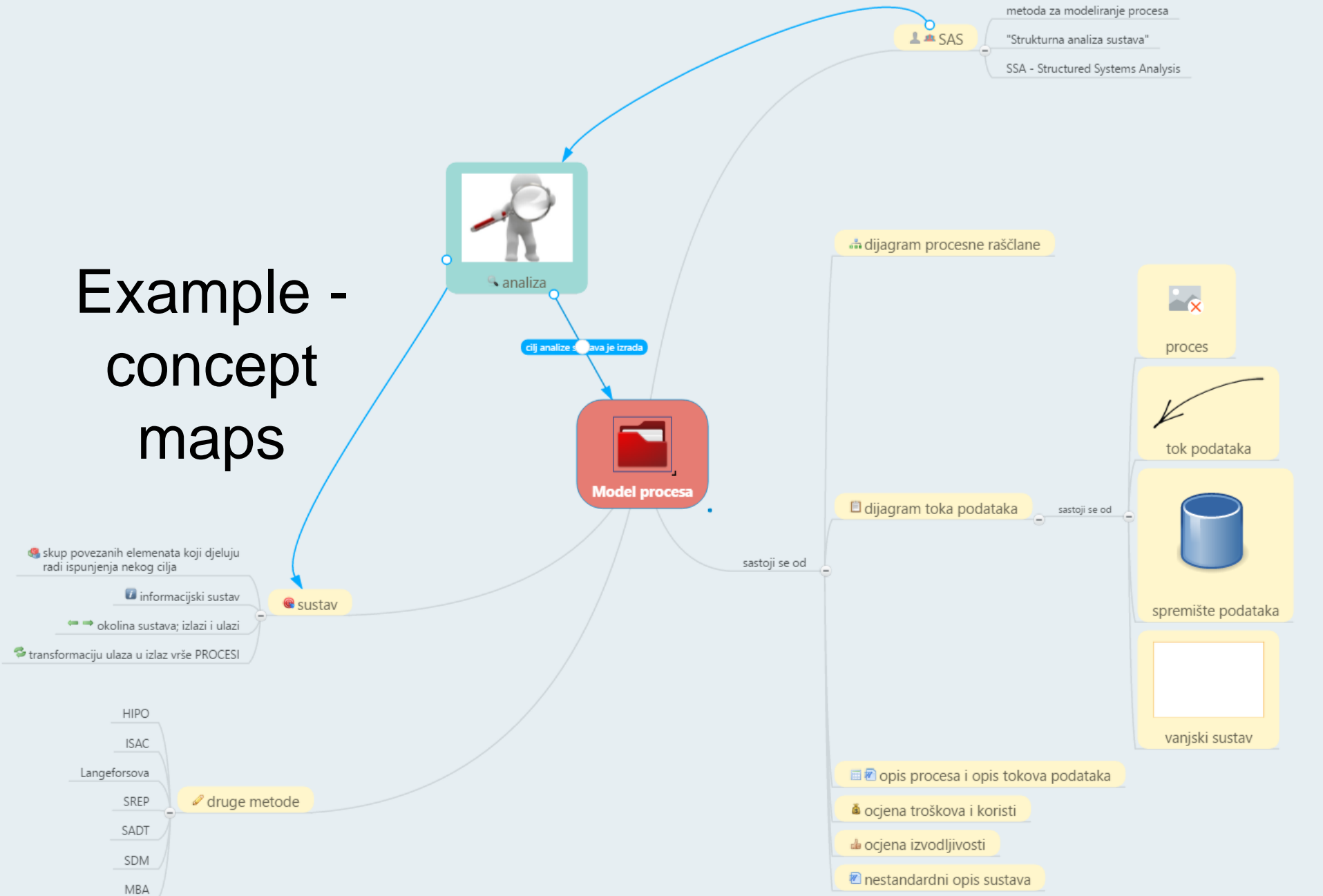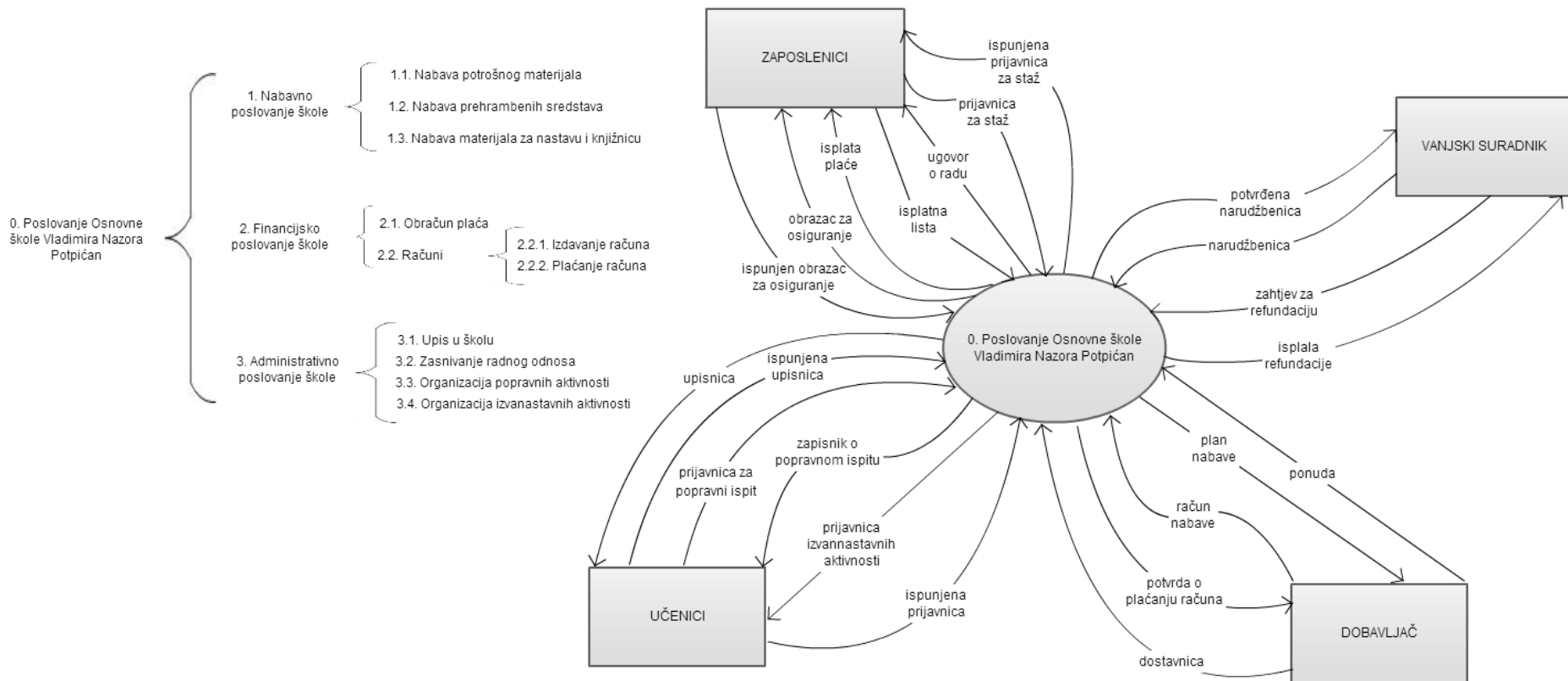| Criteria (weight)									
Domain related criteria									
Predefined graphical concepts for process modeling (3)	0	2	1	0	0	2	0	2	0
Database symbol: two parallel lines (1)	0	2	1	0	0	2	0	2	0
Adding connectors to shapes (2)	2	2	2	2	2	2	2	2	2
Adding text to shapes (3)	2	2	2	2	2	1	2	2	2
Image import (1)	2	2	2	2	2	2	0	2	2
Export to other formats (1)	2	2	2	2	2	2	2	2	2
General criteria									
Number of files (3)	2	2	2	2	0	2	0	2	2
Comments and notes (1)	1	2	0	0	0	0	2	2	0
Number of collaborators (3)	0	1	2	2	0	2	1	2	2
Real-time collaboration (3)	0	2	2	0	0	2	2	2	0
Communication between collaborators via chat (1)	0	0	2	0	0	0	2	2	0
History access (3)	0	2	0	2	0	2	0	1	0
Individual contribution (3)	0	0	0	0	0	0	0	0	0
Help & support (2)	2	2	2	2	0	2	2	1	0
Desktop version (1)	0	2	0	0	2	0	0	0	0
SUM	**25**	**51**	**42**	**36**	**16**	**47**	**29**	**49**	**26**

Activities of the course

- Online self-assessment tests (2)
- Concept maps (5)
- Interviewing and analysis through collaborative diagramming (4)
- Collaborative diagramming based on textual description (5)
- Critical analysis of the given process model (4)
- Online tests (20 + 20 + 15)
- Seminar-paper – Process model of a chosen business system (20)

Example - concept maps

SAS
- metoda za modeliranje procesa
- "Strukturna analiza sustava"
- SSA - Structured Systems Analysis

analiza

cilj analize sustava je izrada

Model procesa

dijagram procesne raščlane

proces

tok podataka

dijagram toka podataka — sastoji se od
- spremište podataka
- vanjski sustav

sastoji se od

skup povezanih elemenata koji djeluju radi ispunjenja nekog cilja

informacijski sustav

okolina sustava; izlazi i ulazi

transformaciju ulaza u izlaz vrše PROCESI

sustav

HIPO
ISAC
Langeforsova
SREP
SADT
SDM
MBA

druge metode

opis procesa i opis tokova podataka

ocjena troškova i koristi

ocjena izvodljivosti

nestandardni opis sustava

Example – role playing

Example – collaborative diagramming (an excerpt)

Održavanje transformacijskih stanica

Odsjek za održavanje transformacijskih stanica (kasnije u tekstu: Odsjek) brine o provedbi potrebnih poslova na transformacijskim stanicama, a sve potrebne poslove izvodi druga služba: Služba za izvođenje poslova na energetskim postrojenjima (EP).

1.1 Klasifikacija prijavljenih problema

Na temelju obavijesti o kvaru kojom dispečerski centar ili nadležni pogon obavještavaju Odsjek za održavanje transformacijskih stanica o kvaru postrojenja, referent navedenog Odsjeka provodi klasifikaciju potrebnog posla. Uvjeti za provedbu klasifikacije zapisani su u internom dokumentu klasifikacije. Referent nakon klasifikacije piše zaglavlje radnog zadatka. Radni zadatak obavezan je dokument koji se izrađuje za opsežnije i složenije radove u elektroenergetskom postrojenju. Ako je posao klasificiran kao posao većeg proiriteta, umjesto izrade radnog zadatka, izrađuje se interventni radni zadatak i hitno šalje Službi za izvođenje poslova na EP.

Conclusion

- Initial analysis has shown:
  - Students learn with more self-confidence
  - Test results are better then in previous years
  - Students participate more actively
  - Students are more satisfied with course activities
- Benefits:
  - Insight to problems and challenges of team development
  - Feedback from other students
  - Formative role of assignments

- In general, students' opinion regarding collaborative assignments in e-environment is positive
- But, teacher's workload has increased

Future work

- Further development of new collaborative assignments
- Further analysis of students achievements
- New assignments for the teams: online discussions, meetings with experts in the field

- Thank you for your attention!

- Questions?