

Competence Matrix Approach in ePortfolios - the Way to Improve Own Competencies

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M.sc.edu. Aleksandrs Gorbunovs

Researcher

Distance Education Study Centre

Riga Technical University

E-mail:

aleksandrs.gorbunovs@gmail.com



Dr. phys. Atis Kapenieks

Director

Distance Education Study Centre

Riga Technical University

E-mail: desc@rsf.rtu.lv



Outlines

- ePortfolios and Competence Development
- Competence Gap and Matrix Approach
- Conclusions and Further Work

Have you ever asked yourself about necessary measures and steps to be taken:

- to increase and develop your competencies,
- to become more competitiveness in local and world market,
- to promote yourself,
- to get appropriate assistance and advice in mode of feedback?

ePortfolios?

Why not?



ePortfolios in educational institutions:

- Some of educational organisations just suggest the usage of e-portfolios,
- Others stipulate active use of e-portfolios and include them as a part of curriculum.

ePortfolio – who or what you are?

The notion of ePortfolio has Italian note – portfolio or “*portare fogliou*” means: to have/carry/bear pages/documents.
/Rassin et al. 2006/

And the prefix «e» shows digitalization of the society.

Existing ePortfolio systems mostly are intended only as showcases/CV tools.

They are not designed with the idea of supporting learners' competence development.

They do not have an infrastructure that supports learners in this process.

Thus, existing ePortfolio cannot automatically provide tracking of learning actions the learner has followed, nor can the learners define their own learning actions to share with others.

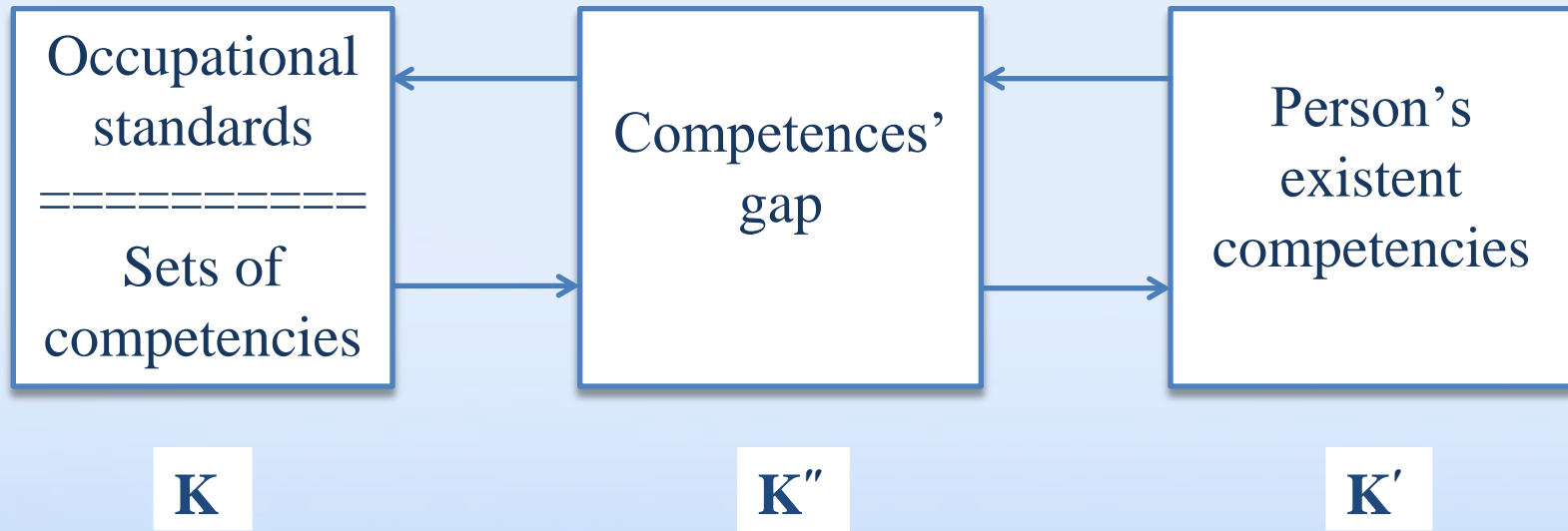


Unsolved **problem**:

How to organize processing of all data related to person's exiting qualifications and give him/her useful suggestions to obtain an appropriate course or small parts of the courses or subjects?



Competence Gap and Matrix Approach



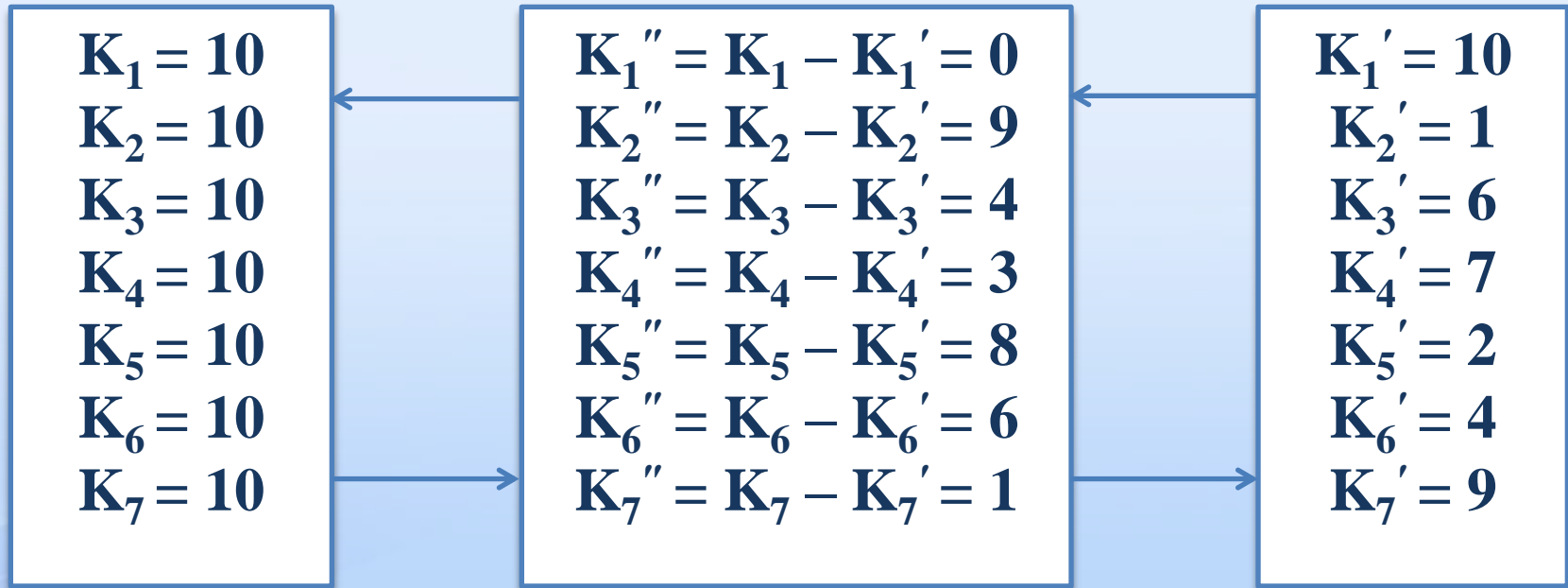
$$K'' = K - K'$$



Competence Gap and Matrix Approach

Example:

(BPOM Course)





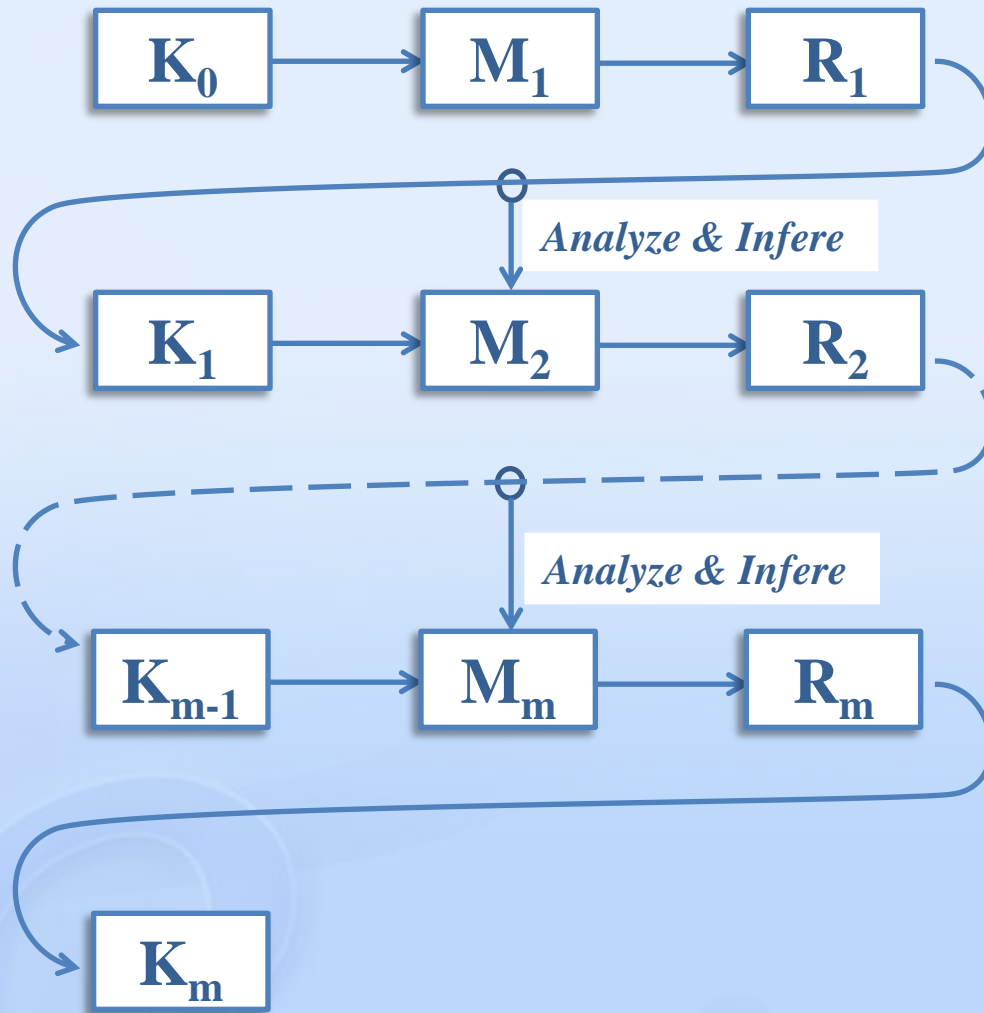
Competence Gap and Matrix Approach

Set or list of competencies necessary for certain occupation or profession:

$K_1, K_2, K_3, \dots, K_m$



Competence Gap and Matrix Approach



Competence acquisition:

K – one of competencies from a competence list

M – one set of materials to acquire appropriate competence from the competence list

R – results of passed tests, essays, group- and homework, assessments and self-assessments



Competence Gap and Matrix Approach

Matrix approach (as one of proposals):

$$\begin{array}{|l} a_1 \\ a_2 \\ a_3 \\ a_4 \\ a_5 \\ a_6 \\ a_7 \end{array} \quad \mathbf{X} \quad \begin{array}{|l} m_{11} & m_{12} & m_{13} & m_{14} & m_{15} & m_{16} & m_{17} \\ m_{21} & m_{22} & m_{23} & m_{24} & m_{25} & m_{26} & m_{27} \\ m_{31} & m_{32} & m_{33} & m_{34} & m_{35} & m_{36} & m_{37} \\ m_{41} & m_{42} & m_{43} & m_{44} & m_{45} & m_{46} & m_{47} \\ m_{51} & m_{52} & m_{53} & m_{54} & m_{55} & m_{56} & m_{57} \\ m_{61} & m_{62} & m_{63} & m_{64} & m_{65} & m_{66} & m_{67} \\ m_{71} & m_{72} & m_{73} & m_{74} & m_{75} & m_{76} & m_{77} \end{array} \quad = \quad \begin{array}{|l} b_1 \\ b_2 \\ b_3 \\ b_4 \\ b_5 \\ b_6 \\ b_7 \end{array}$$

a_1 – initial level of competence No.1

a_2 – initial level of competence No.2

...

b_1 – second level of competence No.1 (after learning of study materials «m...»)

b_2 – second level of competence No.2 (after learning of study materials «m...»)

...



Artificial Intelligence ...

Student's personal data and study results (gained qualification), placed in his/her e-portfolio, should be set against related competence data in the database.

Based on a new competence request, the database matches available educational or training courses and gives immediate response via e-portfolio to the student about necessary educational courses.



Conclusions and Future Work

Challenges / problems:

- The necessity to set a common credit system, clear rules, definitions and list of educational and professional standards.
- The problem of the interoperability and levelling of national standards.
- Programming, developing, further maintenance, costs.
- New system ought to be based on an idea that knowledge is accessible for everybody (*our wish*). It does not mean that universities should offer classes free of charge. Simply, students must have an opportunity to choose the most suitable option offered from the data base through their e-portfolios: if it might be for free or else for a valuable consideration.



Conclusions and Future Work

- The subjects and themes of different curricula in educational organisations, even within one university, may be similar or same in some cases.
- It is possible to take for these subjects and themes inside the subjects as different competencies.
- We can try to set a list of competencies for almost all subjects and themes (starting within «eBig3» and «ETM» projects*).
- New ePortfolio will suggest learners to take appropriate steps – choose “missing” subjects/themes.

** («ETM» Latvian and «eBig3» Latvian-Lithuanian projects are just started in Dec 2010 and Spring 2011 and cover e-, t-, m- learning and e-portfolio issues)*



Conclusions and Future Work

- Further development of ePortfolio algorithmic model.
- Further development of competence assessment model and tools to be implemented into ePortfolio system (initially within BPOM course at the Riga Technical University).
- Define set of study materials corresponding to stated competence (each set of materials for each competence).



Thank you!

Questions?

