ReMashed – Recommendation Approaches for Mash-Up Personal Learning Environments in Formal and Informal Learning Settings

Hendrik Drachsler, Dries Pecceu, Tanja Arts, Edwin Hutten, Peter van Rosmalen, Hans Hummel & Rob Koper
Nowadays…

Social Bookmarking
Blog Reader
Various Communities
More Information Providers

Personal Environments

Most-popular Web 2.0 Tools and Applications
Personal Learning Environments
Pedagogical Scenarios
- Formal Learning (e.g. Hermans & Verjans, 2009)
- Informal Learning (e.g. Wild, Kalz & Palmer, 2008)

Use Case Studies
- 4 experiments (e.g. Van Harmelen, 2008)

Technology Development
- Language design for a PLE (e.g. Moederitzcher, Wild, Sigurdarson, 2008)
- Widget Interoperability (e.g. Sire, Vagner, 2008)

Related Work
http://mindmeister.com/15237440/r-d-on-mupples
Selection problem because ...

...of the amount of data that is emerging in MUPPLEs.

...learners can be overwhelmed by the plethora of information.
Can we create a Recommender System for MUPPLEs?

ReMashed
Recommendations for Mash-ups
What is ReMashed?

A Mash-up environment that allows you to personalize emerging information of online communities with a recommender system.

You tell what kind of Web 2.0 services you use and then you are able to define which contributions of other members you like and do not like.
Goals for ReMashed

1. **End-User level**
   Providing a recommender system for Web 2.0 sources of learners in MUPPLEs.

2. **Researcher level**
   1. Offering researchers a system for the evaluation of recommendation algorithms for learners in MUPPLEs.
   2. Creating user-generated-content data sets for recommender systems in MUPPLEs.
The 1st Release

Recommendations for Mash-ups

DELICIOUS

posted by marco-keze@com on Apr 14, 2009 1:46:28 PM

ScienceDirect - European Psychiatry: The relationship between online game addiction and aggression.

posted by hendrik.drachsler@ou.nl on Apr 14, 2009 3:52:45 PM

OS X Help - Insanely simple tutorials for the first time Macintosh user

posted by steven.verlaan@eu.nl on Apr 14, 2009 12:52:00 PM

Thought Experiments for Sakai: Keep It Simple Like Twitter & Draw Good Boundaries Like Drupal | Note

posted by kawakishi@jagapal@ou.nl on Apr 14, 2009 3:52:45 PM

Best Mac Software.org - The Best Software for Mac

posted by huy.herman@ou.nl on Apr 14, 2009 2:57:40 PM

WF2 - FTP Wiki

posted by huy.herman@ou.nl on Apr 14, 2009 2:57:14 PM

Moodle Integration | Drupal.org

BLOG

posted by david.milley@gmail.com on Apr 14, 2009 7:16:05 AM

New CC Personal Finance Resource

Bryan Suokas from Brigham Young University’s Manor School has just released his absolutely incredible collection of personal finance courses and resources under a CC-By-NC-SA license.

posted by sandra.schaffer@salzburgresearch.at on Apr 13, 2009 3:22:04 PM

Mashups for learning: Best paper award & slidecast

I am happy to announce a “best paper award” for the best contribution to the special track “Mashups for Learning” (M@L2009): Perhaps an Apple iPod Touch 16 GB (or another equivalent gadget) motivates to send us...

posted by waralli@gmail.com on Apr 16, 2009 2:43:16 PM

EQF - The European Qualifications Framework

The EQF was adopted by the EU in 29 April 2008 and approaches its first anniversary in a few days time. Time to reflect a bit on what it has brought to us. The intention of the EQF is to make qualifications (as the name says) better comparable...

posted by waralli@gmail.com on Apr 9, 2009 2:44:40 PM

SM2 - Social Media Mining

Everyone using Twitter, Facebook, Ning, elgg, or other similar social networks knows what enormous wealth of information is out there, if you could only find a sensible way of accessing it. Most of us hope Google would do this. But alas, the search...

posted by sandra.schaffer@salzburgresearch.at on Apr 7, 2009 12:17:02 AM

Erfahrungen: XML-Talk: Erfolgreicher Aufbau von

BEST RATED ITEMS OF THE WEEK

posted by henry.herman@ou.nl on Apr 14, 2009 2:57:14 PM

Moodle Integration | Drupal.org

posted by hendrik.drachsler@ou.nl on Feb 12, 2009 10:07:49 AM

IMG_1335

posted by dirk.boerner@aw.de on Feb 25, 2009 5:24:42 PM

Endeley research web2.0 papers

posted by kim.dejong@ou.nl on Feb 19, 2009 11:59:04 AM

Geo Distance Search with MySQL search tutorials tutorial howto gis maps gis gis distance geocoding mysql longitude latitude distance onearth

posted by hendrik.drachsler@ou.nl on Jan 31, 2009 12:39:47 PM

TENCompetence Winterschool 2009, Feb 1-6, Innsbruck, Austria | TENCompetence tencompetence winterschool 2009

posted by dirk.boerner@aw.de on Feb 2, 2009 6:15:56 PM

hendrik.drachsler@ou.nl

EC-TEL 2009, 2nd MUPPLE workshop, Nice, FR

Page 9 | September 28, 2009
The 2nd Release

Recommendations for Mash-ups

DELICIOUS

posted by nogmsara@text.be on May 26, 2009 2:13:26 PM
Get More Twitter Followers! - Featuredusers.com
Costs, but might be worth considering in the future if things really take off with Twitter

posted by test@text.be on May 26, 2009 2:10:20 PM
Fire Safety Training at Work & at Home
Fire Safety

posted by teletubbie@bn.nl on May 26, 2009 11:45:15 AM
Ask SM: CSS Quick-Question Edition | CSS | Smashing Magazine
CSS Tips | web development tutorials

posted by nogmsara@text.be on May 26, 2009 11:13:30 AM
The Science Creative Quarterly >> ON KINGDOMS AND THE GALAPAGOS ISLANDS: A TREATISE ON DARWIN’S CONTRIBUTIONS TO MODERN GENETIC THEORY
previous item

BLOG

posted by test@text.be on May 22, 2009 1:48:46 AM
Digital Campus #42 - The Real World
This week's podcast looks at the fake, the real, the copies, and the bizarre fake journals from Micr...er, the MPAA telling teachers to film their TVs, the University of Michigan asking for real uses for its copies of Google's book...

posted by test@text.be on May 15, 2009 4:21:51 AM
Zcero 2.0 Is Here!
After an extensive development and testing period and the addition of even more features to make academic research easier, more collaborative, and ready for the future, Zcero 2.0 went public tonight. I'll be blogging extensively about...

posted by test@text.be on May 10, 2009 2:01:37 AM
Idealism and Pragmatism in the Free Culture Movement
[A review of Cary Hale’s Digital This Book: The Politics of New Media, or Why We Need Open Access Now (University of Minnesota Press, 2009). Appeared in the May/June 2009 issue of Museums.] Beginning in

BEST RATED ITEMS OF THE WEEK

posted by test@text.be on May 3, 2009 10:12:29 AM
ReMashed app: week #3
This time we decided to offer a qualitative evaluation of the ReMashed system. Therefore, we ask the contributor of the week: Dr. Wolfgang Graller (best rated item in cat.: bookmark, picture and blog posting) for a short interview regarding his... ReMashed interview with graller recommender experiment enterprise

SLIDESHARE

posted by teletubbie@bn.nl on May 15, 2009 1:19:06 PM
Innovation
Innovation ideas | property | science | technology | commercialize

posted by hendrik@drachsler@ou.nl on May 13, 2009
YOUTUBE

posted by tanja@tanja.de on May 16, 2009 7:00:13 AM
Social Freelance Jobs & Open Outsource
Freelance job sites with social industry infrastructure called "open outsourcing" a brief presentation I gave at ltcamp. Enjoy!

FLICKR

england kent cover temoawell jellobox jettboxes

posted by test@text.de on May 26, 2009 9:29:05 AM
Keenwars Station, Dover

SLIDESHARE

posted by test@text.de on May 22, 2009 6:19:09 AM
Naming A Business, Product Or Service
Keeping a business name, name of a product and service is as important as the business, product or service itself. Have a look at the different types of names and
The 2nd Release

DUINE Prediction Engine

Database of Items

User Interface

hendrik.drachsler@ou.nl
EC-TEL 2009, 2nd MUPPLE workshop, Nice, FR
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How does it work?

ReMashed uses *collaborative filtering* to generate recommendations.

It works by matching together users with *similar tastes* (neighbours) on different Web 2.0 resources (delicious, Flickr, blog feeds, Slideshare, Twitter, and YouTube).
How does it work?

Cold-Start = Tag-based recommendation

Collaborative Filtering with ratings
# User Profile

**Delicious username:**

**Flickr username:**

**Blog Rss feed of blog:**

**Slideshare username:**

**Youtube username:**

**Twitter username:**

It is mandatory to specify at least one Web 2.0 service.

If you specify more than one Web 2.0 service we can predict better recommendations for you.

#### Interest A:

<table>
<thead>
<tr>
<th>technology enhanced learnir</th>
</tr>
</thead>
</table>

**Knowledge Level A:**

0 1 2 3 4 5

Please specify three main interests and your knowledge level in the particular interest.

0 = Beginner 5 = Expert

#### Interest B:

<table>
<thead>
<tr>
<th>language learning</th>
</tr>
</thead>
</table>

**Knowledge Level B:**

<table>
<thead>
<tr>
<th>language learning</th>
</tr>
</thead>
</table>

| language technology |

#### Interest C:

**Knowledge Level C:**

0 1 2 3 4 5

How to match context of learners?
Context Variables

Formal Learning (Top-down environments)
- Curriculum (Closed-Corpus)
- Teacher directed
- Predefined learning resources, learning goals
- Maintenance

Informal Learning (Bottom-up environments)
- More self-directed learning goals
- Responsible for own learning pace / path
- Learning resources from different providers (Open-Corpus)
- Lack of maintenance
Recommendation Approaches

Learning settings, environmental conditions and the task greatly affect the design of recommender systems in TEL.
Formal Recommendation Approach

Adaptive Sequencing (top-down)

Learning Goal Layer
Conceptual Layer
Content Layer
Informal Recommendation Approach

Hierarchical clustering (bottom-up)

Clustering Layer 1..n

Clustering Layer n

Content Layer
## Conclusions

It is mandatory to specify at least one Web 2.0 service. If you specify more than one Web 2.0 service we can predict better recommendations for you.

<table>
<thead>
<tr>
<th>Delicious username:</th>
<th>It is mandatory to specify at least one Web 2.0 service.</th>
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</thead>
<tbody>
<tr>
<td>Flickr username:</td>
<td>If you specify more than one Web 2.0 service we can</td>
</tr>
<tr>
<td>Blog Rss feed of blog:</td>
<td>predict better recommendations for you.</td>
</tr>
<tr>
<td>Slideshare username:</td>
<td></td>
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<tr>
<td>Youtube username:</td>
<td></td>
</tr>
<tr>
<td>Twitter username:</td>
<td></td>
</tr>
</tbody>
</table>

Fed by bottom-up approach

Please specify three main interests and your knowledge level in the particular interest.

<table>
<thead>
<tr>
<th>Interest A:</th>
<th>knowledge enhanced learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Level A:</td>
<td>0 1 2 3 4 5</td>
</tr>
</tbody>
</table>

0 = Beginner 5 = Expert

Fed by top-down approach

<table>
<thead>
<tr>
<th>Interest B:</th>
<th>language learning</th>
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<tbody>
<tr>
<td>Knowledge Level B:</td>
<td>language learning language technology</td>
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</table>

<table>
<thead>
<tr>
<th>Interest C:</th>
<th>knowledge enhanced learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Level C:</td>
<td>0 1 2 3 4 5</td>
</tr>
</tbody>
</table>
Future R&D

End-user Level
- More Web 2.0 services
- Widget / Portlet interface
- Administration interface

Researcher Level
- Data sets for TEL
- New recommendation approaches
- Web services for other MUPPLEs
- Combine top-down and bottom-up approaches
Please sign up at:

http://remashed.ou.nl
Many thanks for your interest!

This slide is available here:
http://www.slideshare.com/Drachsler

Email: hendrik.drachsler@ou.nl

Skype: celstec-hendrik.drachsler

Blogging at: http://elgg.ou.nl/hdr/weblog

Twittering at: http://twitter.com/HDrachsler