



The Landscape of Learning 2.0 in Europe Analysing the Learning 2.0 Database

*Thomas Fischer, Thomas Kretschmer &
Walter Kugemann*

Institute for Innovation in Learning (FIM-NewLearning)
Friedrich-Alexander-University Erlangen-Nuremberg,
Erlangen – Germany

<http://www.fim.uni-erlangen.de>

Joe Cullen

Arcola Research LLP,
London – United Kingdom

<http://www.arcola-research.co.uk/>

Analysing the Learning 2.0 Database – Context & Aims

Context

- Part of the 'Exploratory Research on the Socio-Economic Impacts of Social Computing' (EROSC) of IPTS;
- Element of the broader study 'The Impact of Web 2.0 Innovations on Education & Training' of IPTS;
- Broader study combines the elements of i) literature review; ii) *case database and analysis*; iii) in-depth case study analyses (i.e. on innovation and inclusion); iv) validation seminar; and the v) development of policy options.

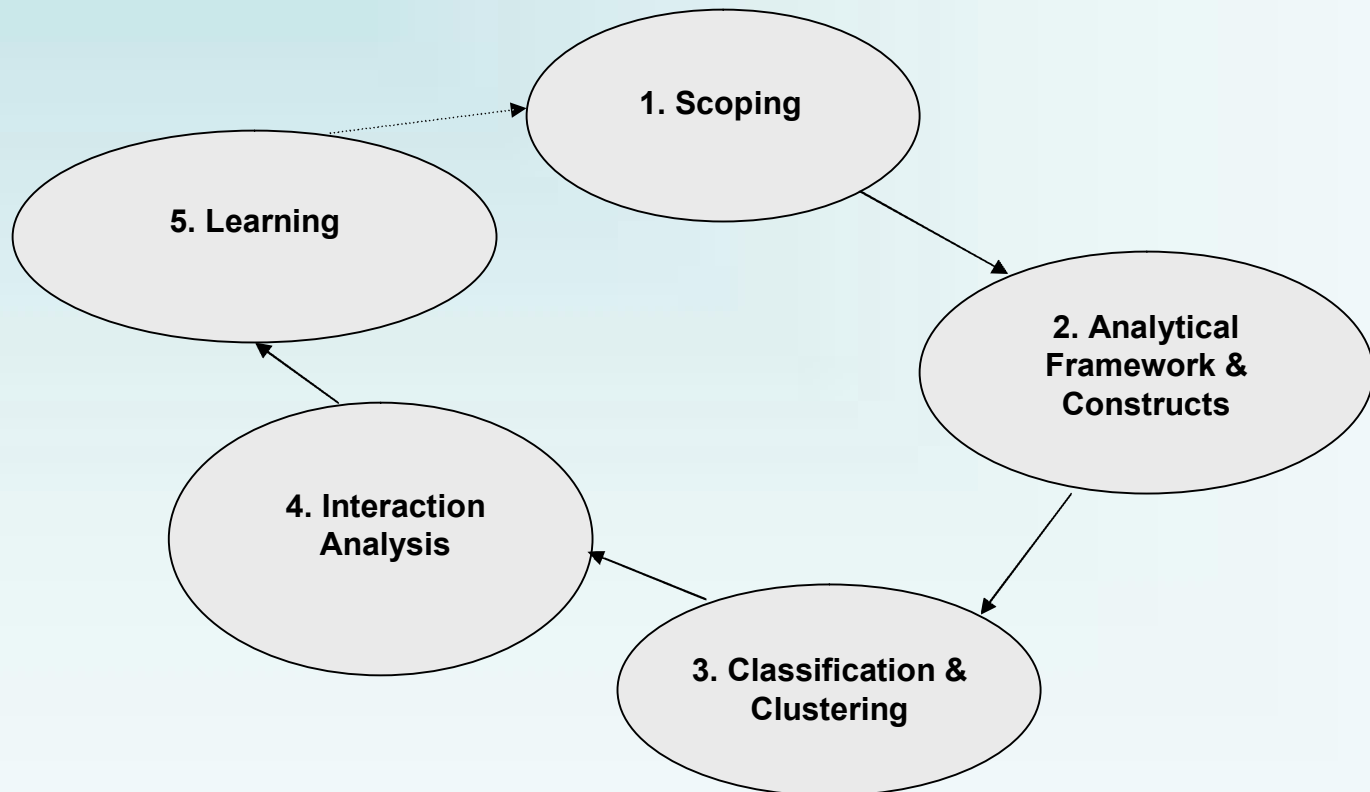
Aims

- To provide inputs to the broader study 'The Impact of Web 2.0 Innovations on Education & Training' of IPTS;
- To explore the emerging properties of the developing Learning 2.0 'landscape' in Europe.

Analysing the Learning 2.0 Database – Objectives

- To develop a framework and methodology to qualitatively (i.e. content/item analysis) and quantitatively (i.e. frequencies, factor-/cluster-/discriminant analysis) analyse the data comprised in the Learning 2.0 Database;
- To analyse the relation (i.e. contingencies/correlations) between variables e.g. between objectives, activities and Web 2.0 applications specifying in particular which social computing tools were suitable to support which objectives;
- To apply the framework and methodology to structure the cases into case clusters, according to common properties, outlining clearly the characteristic defining properties for each cluster and emphasizing emergent common features.

Analysing the Learning 2.0 Database – Staged Methodological Approach



Analysing the Learning 2.0 Database – Research Questions I

- Which *objectives* are most commonly supported by the use of social computing tools?
- Which *activities* are most commonly employed to use social computing tools to enhance learning processes and to reach the objectives?
- How are web2.0 tools most commonly employed in different *learning settings*? How are social computing tools embedded in the *learning settings* and as part of the learning approach?

Analysing the Learning 2.0 Database – Research Questions II

- Which are the *subjects* or *subject areas* in which social computing tools are most commonly employed? How do the tools provide added value for learning in the subjects in question?
- What are the *pedagogical scenarios of organizing and supporting interaction* between learners and teachers and among peers?
- Which are the ways in which social computing tools support the *(expected) outcomes* of Learning 2.0 projects?

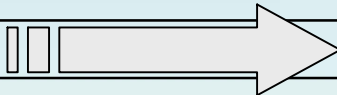
Analysing the Learning 2.0 Database – Introduction & Caveats I

- Not representative sample of Learning 2.0 in Europe (and worldwide), but largest known sample up to date;
- Database entries lean towards 'formal/organised learning' due to the nature of the study;
- Data entry through IPTS (150 cases) as result of desk research; ILI & Arcola (20 cases) as result of selection of case studies; and external submissions (67 cases);
- External respondents and internal contributors show clear interest in area and are knowledgeable about the sector; additional random quality checks on external entries through ILI & Arcola;

Analysing the Learning 2.0 Database – Introduction & Caveats II

- Aim is to gain 'insight' into the current state of Learning 2.0 to support wider thematic work;
- Analysis and interpretation based on a combination of qualitative (i.e. item/content analysis) and quantitative (i.e. frequencies, contingencies/correlations, factor-/cluster-/discriminant analyses) methods and approaches;
- Results are illustrative/heuristic rather than definitive.

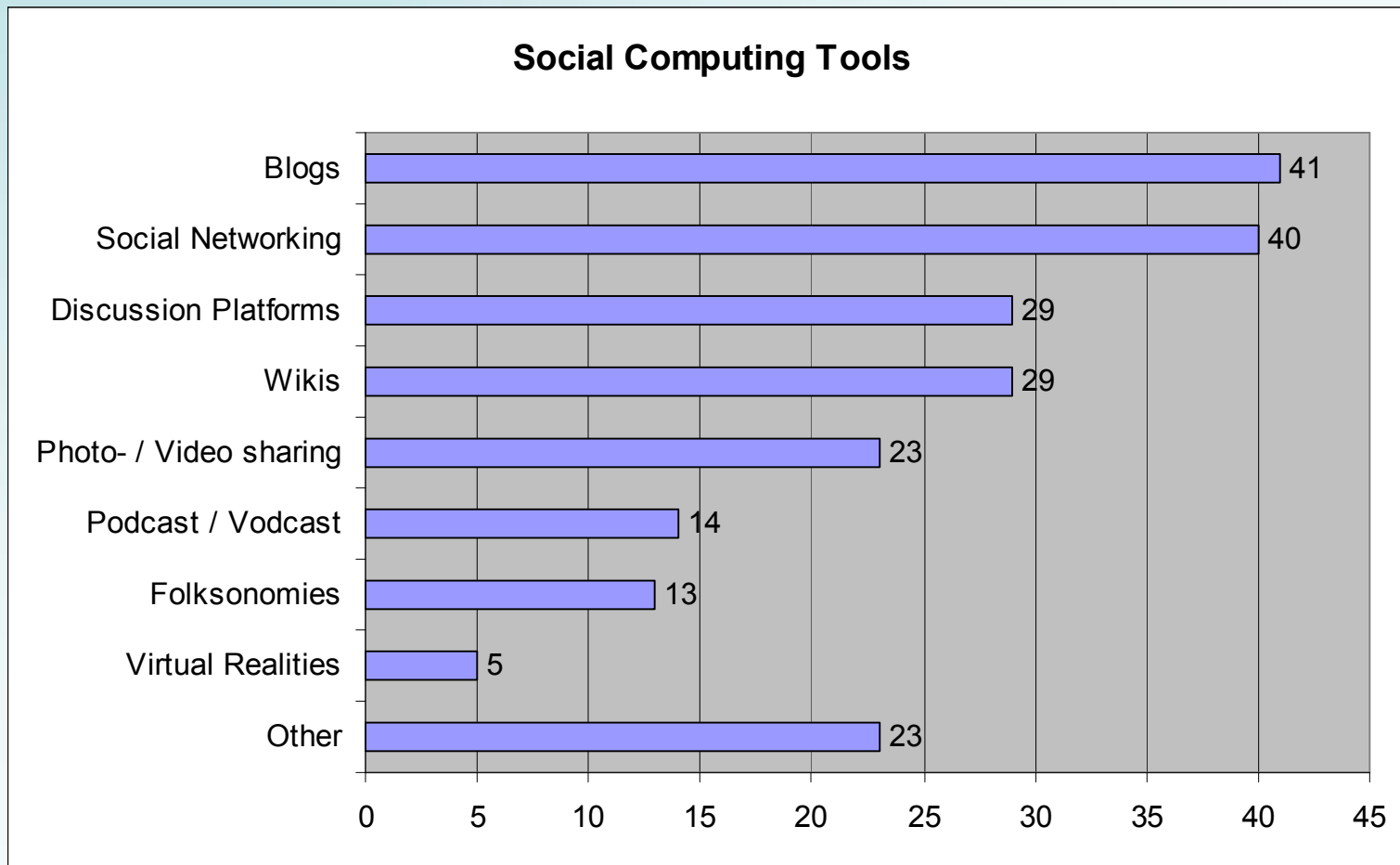
Analysing the Learning 2.0 Database – Original & Revised Descriptors

	Original IPTS Descriptors		Additional Attributes/Descriptors (i.e. after Re-Coding and Content/Item Analysis)
1	Project Name		
2	Contact Information	4a	<i>Subject</i>
3	Project Website	4b	<i>Learning Scenarios</i>
4	<i>Project Description</i> 	4c	<i>Outcomes</i>
6	Type of Learning	4d	<i>Communities & Networks</i>
7	Institutional Framework	4e	<i>Technology</i>
8	Age Group	4f	<i>Inclusion</i>
9	User Group	4g	<i>Assessment</i>
10	Objectives		
11	Social Computing Tools		
12	Social Computing Activities		
13	<i>Size</i>	13	<i>Size Grouping</i>
14	<i>Country</i>	14	<i>Geographical Grouping</i>
15	<i>Length</i>	15	<i>Project Status</i>

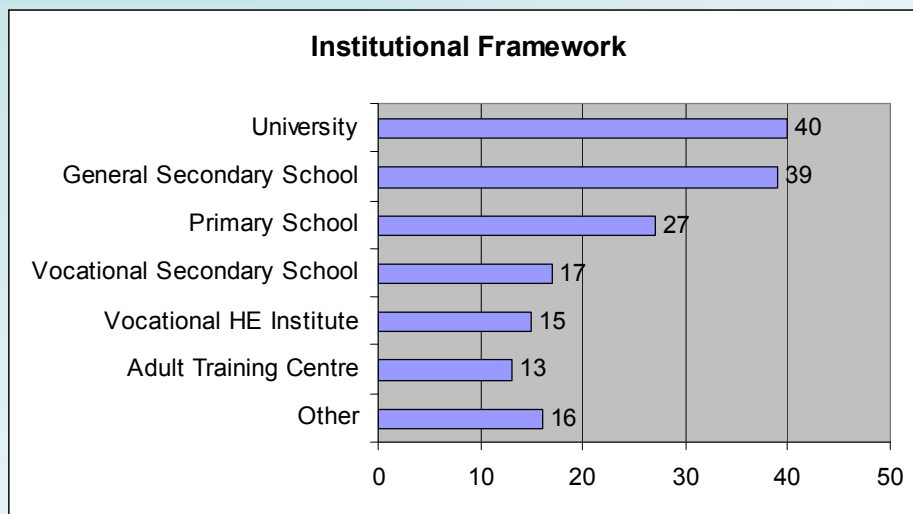
Learning 2.0 Database – Descriptive Statistics – Social Computing Tools I

	N	% Cases	% Entries
Blogs	97	41	19
Social Networking	95	40	18
Discussion Platforms	69	29	13
Wikis	68	29	13
Photo- / Video sharing	5	23	11
Podcast / Vodcast	34	14	7
Folksonomies / Tagging	30	13	6
Virtual Realities (e.g. Second Life, 3-D-Simulations)	11	5	2
Others (e.g. e-Portfolios, Twitter, Ning, Moodle, Skype, LMS, VLEs, Facebook, Elgg, games tec)	55	23	11
53% combine different social computing tools.			

Learning 2.0 Database – Descriptive Statistics – Social Computing Tools II



Learning 2.0 Database – Descriptive Statistics – Institutional Framework

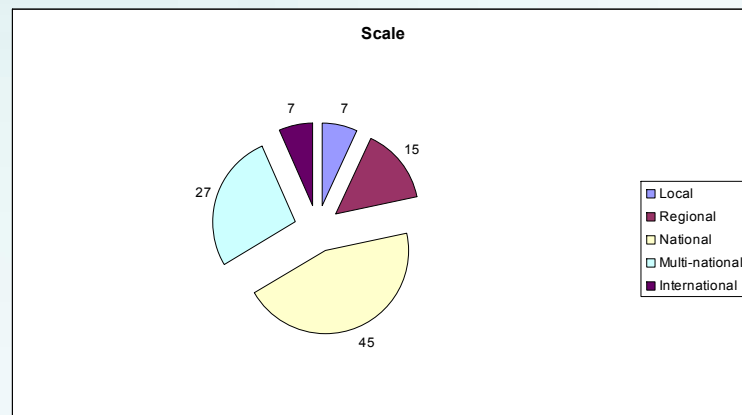
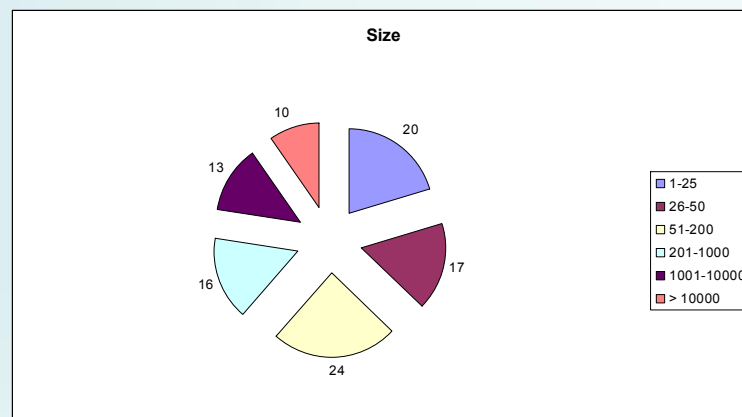


	N	% Cases	% Entries
University	95	40	24
General Secondary School	93	39	24
Primary School	63	27	16
Vocational Secondary School	41	17	10
Vocational HE Institution	35	15	09
Adult Training Centre	31	13	08
Other	37	16	09

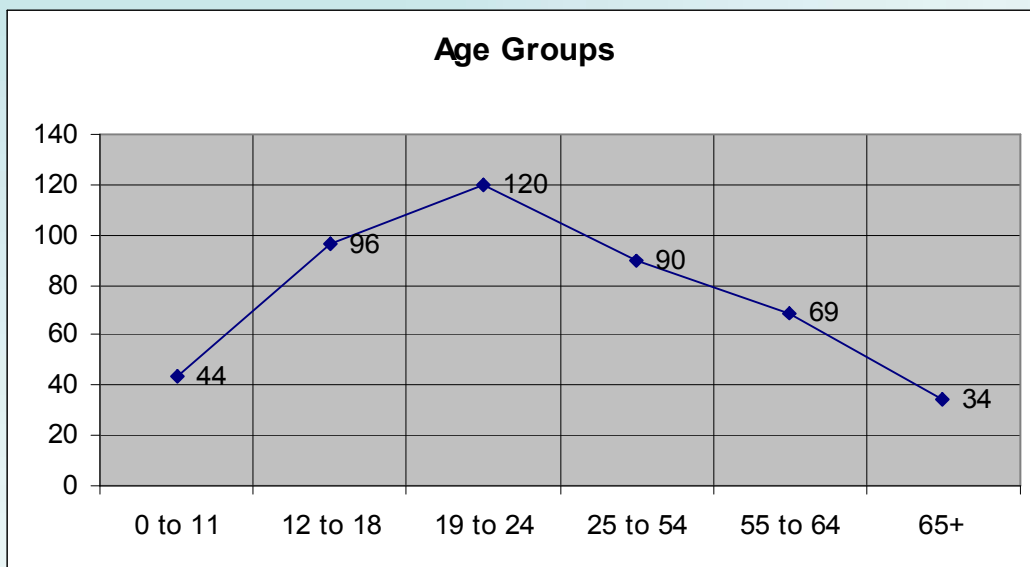
35% are based in more than one institution.

Learning 2.0 Database – Descriptive Statistics – Size, Scale, Status

Size (N = 124)	%
1 - 25	20
26 - 50	17
51 - 200	24
210 – 1,000	16
1,001 – 10,000	13
> 10,000	10
Scale (N = 227)	%
Local	7
Regional	14
National	45
Multi-national	27
International	7
Status (N = 135)	%
Running	67
Finished	33



Learning 2.0 Database – Descriptive Statistics – Age Groups



	N	% Cases	% Entries
0 to 11	44	19	10
12 to 18	96	41	21
19 to 24	120	51	26
25 to 54	90	38	20
55 to 64	69	29	15
65+	34	14	08

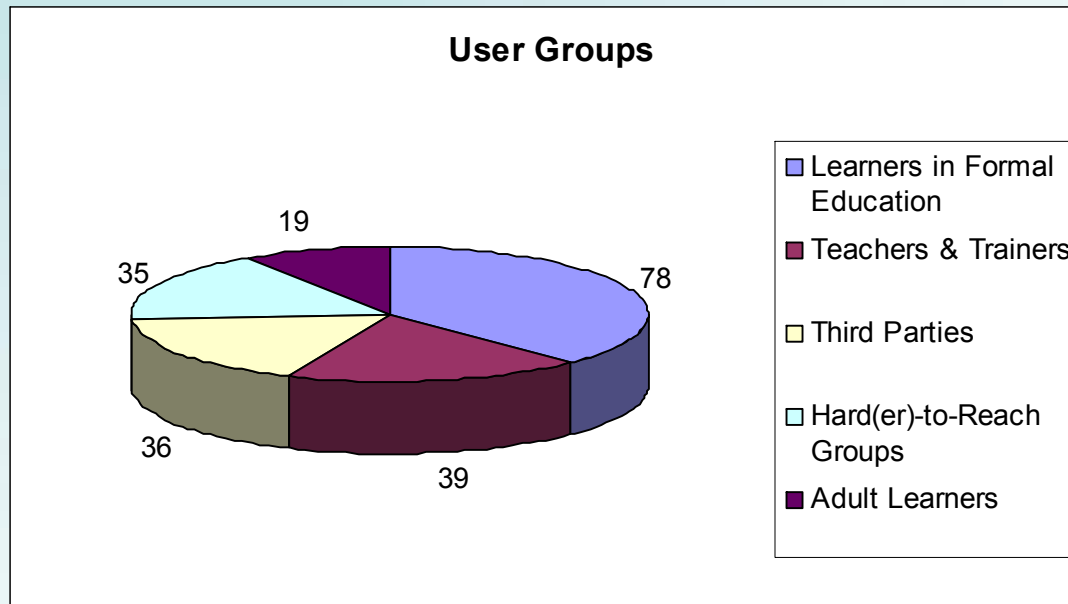
0 to 11	44	19	10
12 to 18	96	41	21
19 to 24	120	51	26
25 to 54	90	38	20
55 to 64	69	29	15
65+	34	14	08

47% address different age groups at the same time.

Learning 2.0 Database – Descriptive Statistics – User Groups – Overall

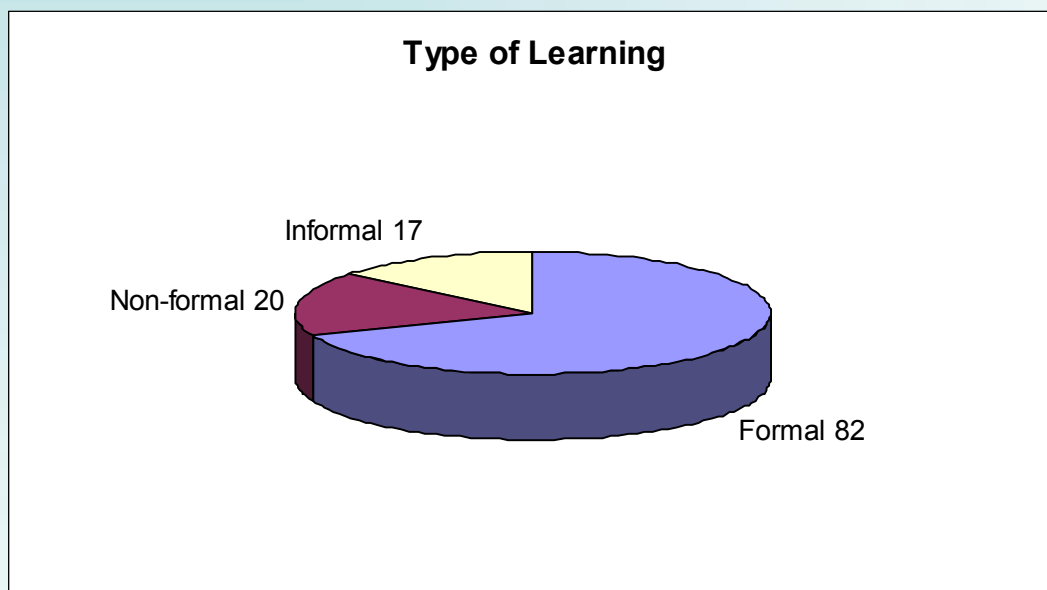
	N	% Cases	% Entries
Learners in Formal Education	184	78	36
Teachers & Trainers	92	39	18
External Experts	34	14	7
General Public	29	12	6
Adult Learners	26	11	5
Parents & Other Third Parties	22	9	4
Workers	20	8	4
Disadvantaged People	20	8	4
Ethnic Minorities	18	8	4
People with Disabilities	15	6	3
Unemployed	11	5	2
People with Learning Difficulties	11	5	2
Early School Leavers	8	3	2
Others	20	8	4
40% work with more than one user group simultaneously.			

Learning 2.0 Database – Descriptive Statistics – User Groups – Grouped



	N	% Cases	% Entries
Learners in Formal Education	184	78	36
Teachers & Trainers	92	39	18
Third Parties	85	36	17
Hard(er)-to-Reach Groups	83	35	16
Adult Learners	46	19	09

Learning 2.0 Database – Descriptive Statistics – Type of Learning

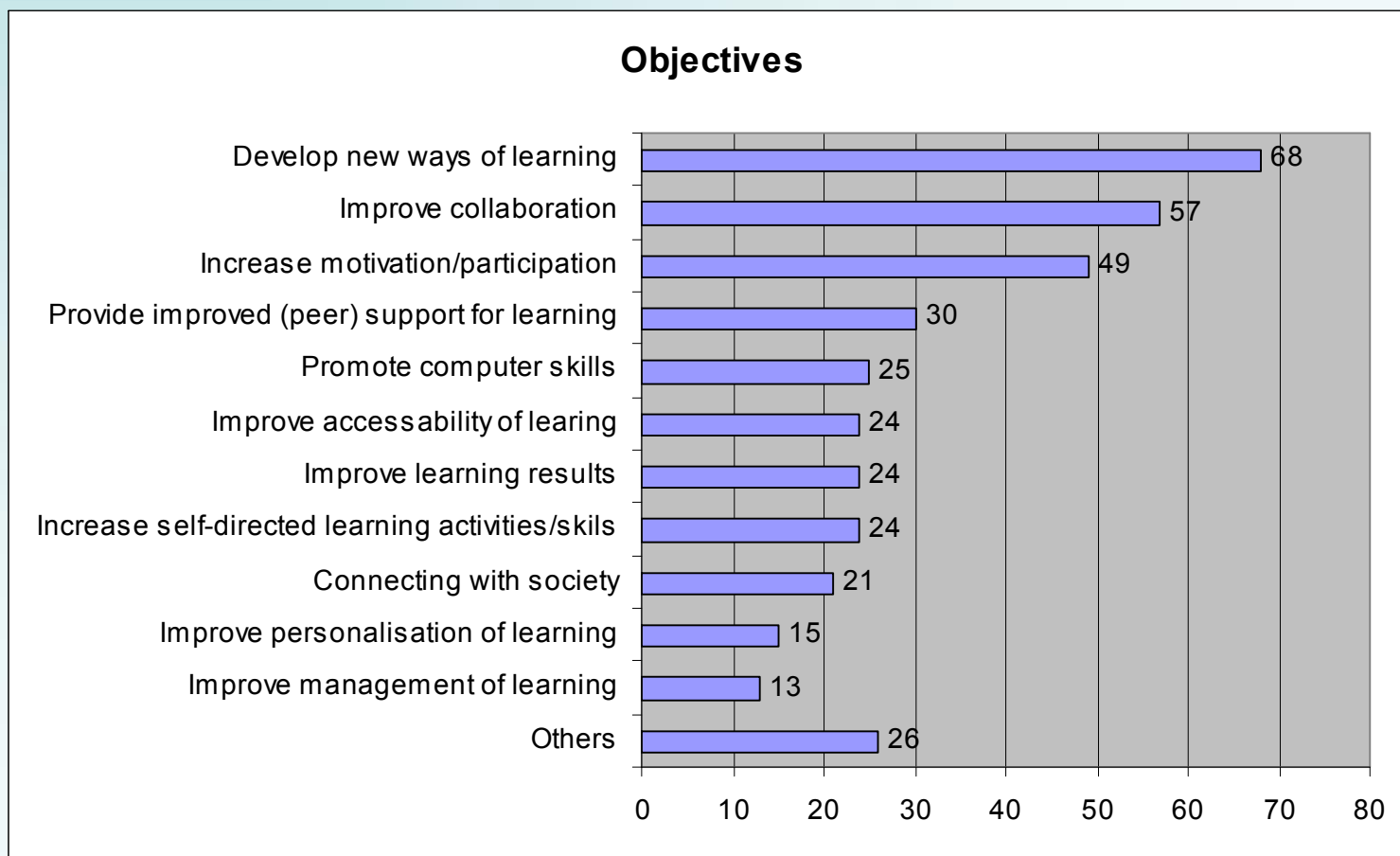


	N	% Cases	% Entries
Formal	194	82	68
Informal	47	20	17
Non-formal	41	17	15
15% report multiple types of learning.			

Learning 2.0 Database – Descriptive Statistics – Objectives I

Variable	Attribute	N	% Cases	% Entries
Develop new ways of learning	Learning Scenario/ (Innovation)	160	68	18
Improve collaboration	Learning Scenario/ Outcome	135	57	15
Increase motivation/participation	Outcome	117	49	13
Provide improved (peer) support for learning	Learning Scenario	70	30	8
Promote computer skills	Outcome	60	25	7
Improve accessibility of learning	Outcome	58	24	7
Improve learning results	Outcome	58	24	7
Increase self-directed learning activities/skills	Learning Scenario	57	24	6
Connecting with society	Outcome/Inclusion	50	21	6
Improve personalisation of learning	Learning Scenario	35	15	4
Improve management of learning	Learning Scenario/ Outcome	30	13	3
Others (e.g. language learning, cultural exchange)	NA	61	26	8
86% address multiple objectives.				

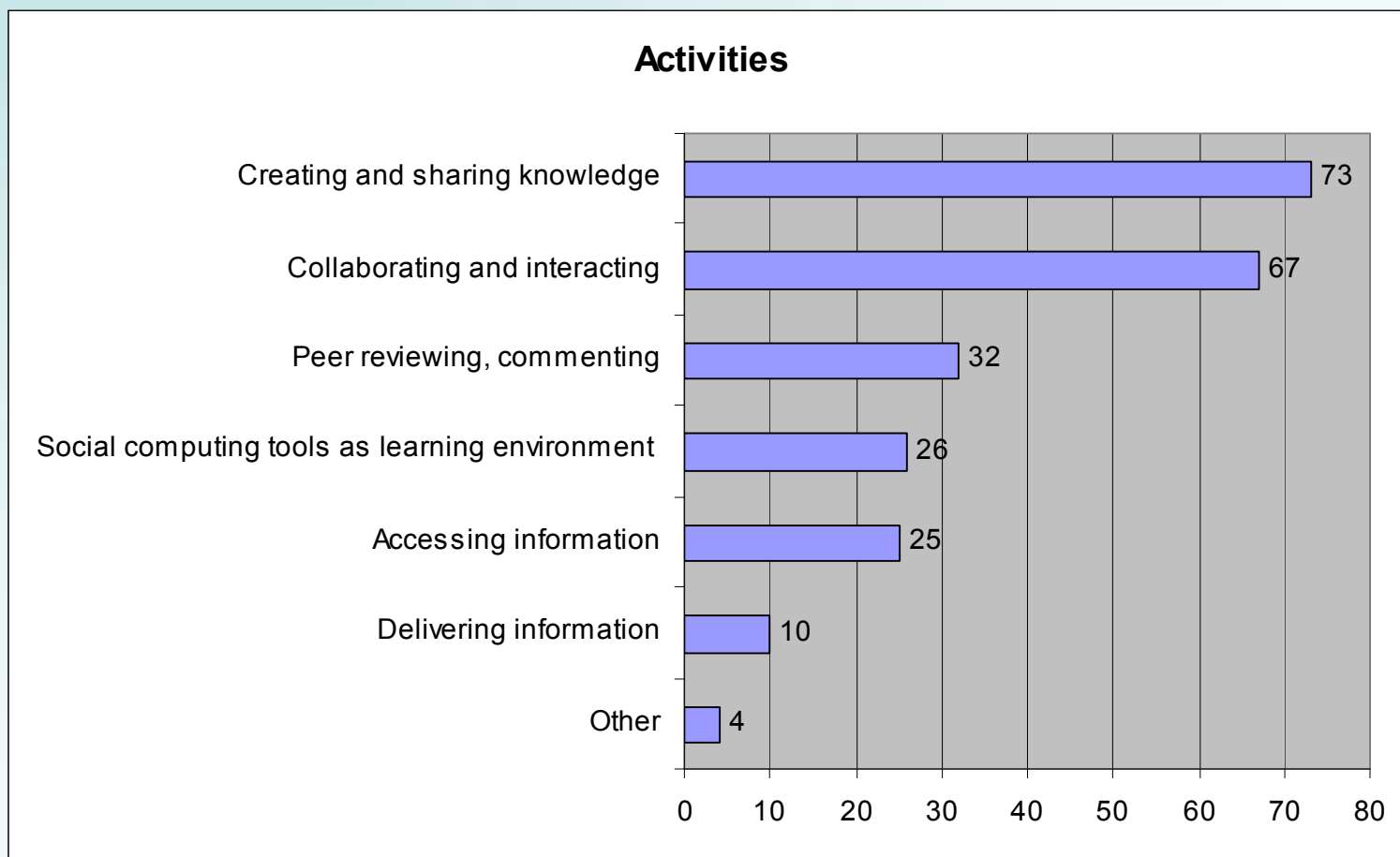
Learning 2.0 Database – Descriptive Statistics – Objectives II



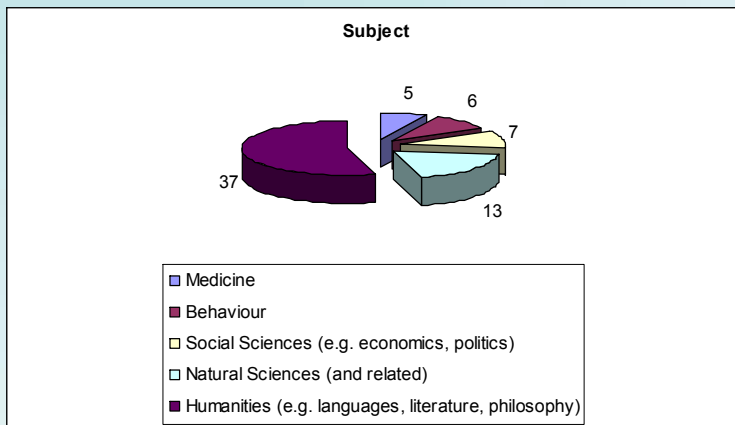
Learning 2.0 Database – Descriptive Statistics – Social Computing Activities I

Variable	Attribute	N	% Cases	% Entries
Creating and sharing knowledge	Creating and sharing knowledge	174	73	31
Collaborating and interacting	Creating and sharing knowledge	158	67	28
Peer reviewing, commenting	Creating and sharing knowledge	76	32	13
Using social computing tools as environment for learning	Collaborating and interacting	62	26	11
Accessing information	Collaborative Learning	60	25	11
Delivering information (e.g. podcasts, RSS)	Technology Enhanced Learning (TEL)	23	10	4
Others (e.g. gaming, reflective thinking)	NA	10	4	2
70% apply sets of different activities to reach the set objectives.				

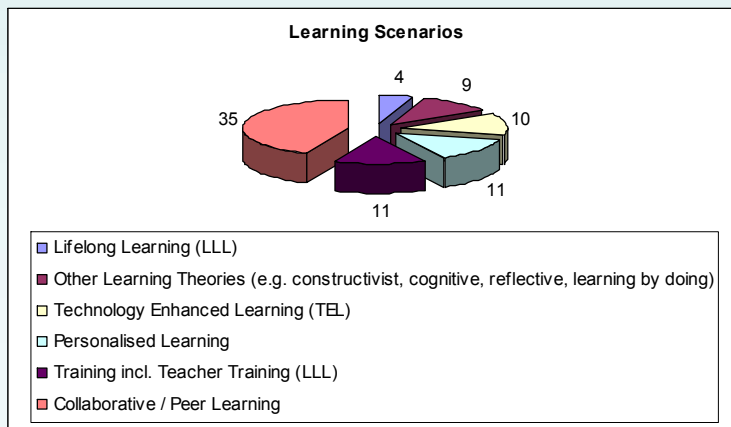
Learning 2.0 Database – Descriptive Statistics – Social Computing Activities II



Learning 2.0 Database – Descriptive Statistics – Subjects & Learning Scenarios



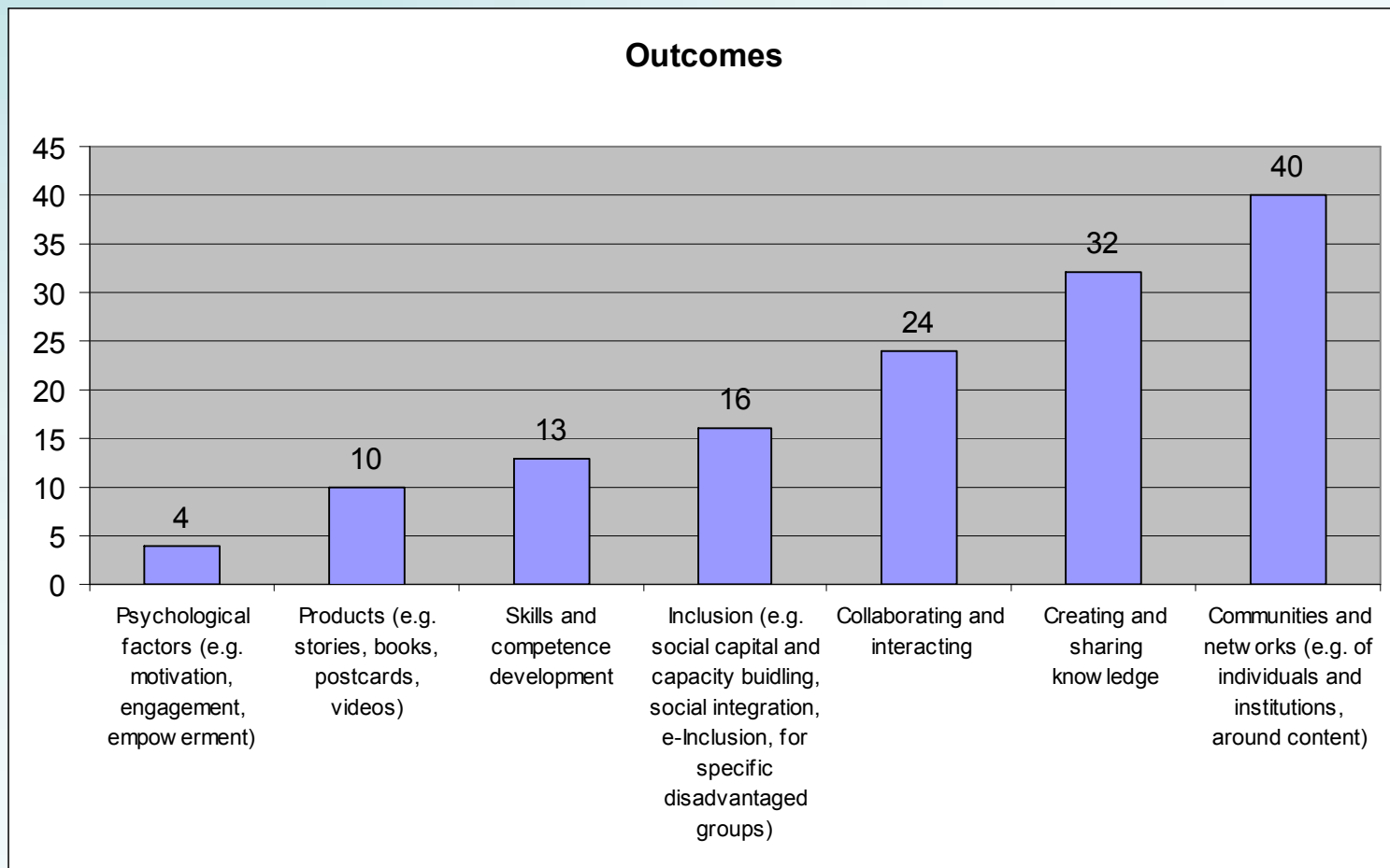
Subjects	N
Humanities (e.g. languages, literature, philosophy)	37
Natural Sciences (and related)	13
Social Sciences (e.g. economics, politics)	7
Behaviour (e.g. mediation, mentoring, volunteering)	6
Medicine	5
Learning Scenarios	N
Collaborative / Peer Learning	35
Training incl. Teacher Training (LLL)	11
Personalised Learning	11
Technology Enhanced Learning (TEL)	10
Lifelong Learning (LLL)	4
Other Learning Theories (e.g. constructivist, cognitive, reflective, learning by doing)	9



Learning 2.0 Database – Descriptive Statistics – Outcomes I

	N	% Cases	% Entries
Communities and networks (e.g. of individuals and institutions, around content)	94	40	29
Creating and sharing knowledge	76	32	23
Collaborating and interacting	56	24	17
Inclusion (e.g. social capital and capacity building, social integration, e-Inclusion, for specific disadvantaged groups)	39	16	12
Products (e.g. stories, books, postcards, videos)	23	10	07
Skills and competence development	30	13	9
Psychological factors (e.g. motivation, engagement, empowerment)	10	4	3
34% report multiple outcomes.			

Learning 2.0 Database – Descriptive Statistics – Outcomes II



Learning 2.0 Database – Descriptive Statistics – Technology & Assessment

- *Technology* comprises Learning- as well as Content Management Systems (LMS & CMS; 11%), learning support tools (e.g. assistive technologies, mobile phones, e-Portfolios; 6%) and to a lesser extent games, multimedia applications and other specific social computing tools (e.g. Twitter, Mashups);
- Approx. 10% of all cases include activities such as *assessment, evaluation* and *accreditation*.

Learning 2.0 Database – Relations of Social Computing Tools – General Remarks

- Low to moderate positive significant relations (i.e. contingencies between .134** and .350**) due to:
 - i) *Statistics*: not representative sample; low scales of measurement i.e. nominal (or categorical) scale; high number of multiple choice questions; many variables and underlying concepts are not exclusive, but dependent; less cases for attributes identified through item/content analysis;
 - ii) *Field of Observation*: mix of small(er) scale grass root initiatives with national piloting programmes; often experimental in nature; developing 'landscape', constituting properties are only emerging; no stable patterns visible yet;

- Findings should be perceived as heuristic and as possible directions/pathways to further explore the emerging Learning 2.0 'landscape'.

Learning 2.0 Database – Relations of Social Computing Tools – Institution & Age

Institutional Framework:

- In general no systematic relationship between social computing tools and the Education & Training (E&T) institutions;
- Adult Training Centres are utilising social computing tools i.e. discussion platforms and blogs.

Age group:

- In general no systematic relationship between social computing tools and age/age groups;
- Adults aged 25 to 54 are using discussion platforms, social networking and wikis (see above e.g. in Adult Training Centres).

Learning 2.0 Database – Relations of Social Computing Tools – User Groups

- Heterogeneous picture when relating social computing tools and user groups;
- Learners in formal education use blogs and share photos and videos, but less frequently use social networking and discussion platforms;
- Adult learners (incl. workers) apply a wide range of Web 2.0 tools e.g. discussion platforms, blogs, virtual realities, pod- and vodcasts, 'folksonomies' and tagging, photo-/video sharing;
- Hard(er) to reach groups (e.g. unemployed, early school leavers, people with learning difficulties and disabilities, disadvantaged people, ethnic minorities) are predominantly addressed by discussion platforms.

Learning 2.0 Database – Relations of Social Computing Tools – Objectives I

- In general positive relations between social computing tools and objectives of the case;
- Majority of tools are supporting the set objectives, but to a different extent and for different activities (see Table);
- 60% of SC tools contribute to developing new ways of learning;
- 50% of SC tools help the learner i) to structure their *individual learning process* (i.e. increase self-directed learning activities/skills, improve personalisation of learning); ii) to acquire *digital skills and competences* (i.e. promote computer skills) and; iii) to *collaborate with others* (i.e. improve collaboration, connecting with society);
- Discussion platforms; 'folksonomies' and tagging; blogs; and social networking are mostly contributing to achieve the objectives.

Learning 2.0 Database – Relations of Social Computing Tools – Objectives II

	Blogs	Social Networking	Discussion Platforms	Wikis	Photo- / Video Sharing	Podcast/ Vodcast	Folksonomies/ Tagging	Virtual Realities
New ways of learning	++			++	++	++	++	
Collaboration		++	++	++			++	
Motivation/ participation	++				++		+	
Support for learning		++	++					
Computer skills	++	++			++		+	
Accessibility of learning		++	++					
Learning results		+	++	++				++
Self-directed learning	++		++				++	++
Connecting with society	+	++	++				++	
Personalisation of learning	++		++				++	++
Management of Learning		++	++				+	

Learning 2.0 Database – Relations of Social Computing Tools – Learning Type & Activities I

Type of Learning:

- Contradictious findings i.e. between blogs and learners in formal education (user groups) *vs.* formal learning (type of learning);
- Strongest relation between social computing tools and non-formal learning.

Activities:

- All SC tools except pod-/vodcasts are already used as an environment for learning;
- The majority of SC tools are used within Learning 2.0 activities, but to a different extent and for different activities (see Table);
- Blogs, wikis and discussion platforms are mostly used within the Learning 2.0 activities.

Learning 2.0 Database – Relations of Social Computing Tools – Activities II

	Blogs	Social Networking	Discussion Platforms	Wikis	Photo- / Video Sharing	Podcast/ Vodcast	Folksonomies/ Tagging	Virtual Realities
Accessing information	++		++	++				
Delivering information	++		++	++	++	++		
Creating & sharing knowledge	++	++		++	++		++	
Collaborating & interacting	++	++	++	++	++		++	
Peer reviewing & commenting	++	++	++				++	
SC tools as environment for learning	++	++	++	++	++		++	++

Learning 2.0 Database – Relations of Social Computing Tools – Other Findings

Learning Scenarios:

- In general no systematic relationship between social computing tools and learning scenarios;
- Discussion platforms, blogs and wikis support collaborative and peer learning approaches.

Outcomes:

- Blogs are contributing to i) collaborating and interacting, ii) creating and sharing knowledge, iii) community and network building and, iv) to psychological factors (e.g. motivation, engagement, empowerment);
- Blogs, social networking, discussion platforms, 'folksonomies'/tagging and virtual realities facilitate community and network building and interaction within them.

Learning 2.0 Database – Factor Analysis – The Emerging Learning 2.0 ‘Landscape’ I

General Remarks:

- Principal Component Analysis;
- Varimax Rotation and Kaiser-Normalisation;
- 5 factor solution explains 30% of the observed variability;
- Emergent factors of the Learning 2.0 ‘landscape’.

Learning 2.0 Database – Factor Analysis – The Emerging Learning 2.0 ‘Landscape’ II

<u>Factor 1:</u>	<u>Factor 2:</u>	<u>Factor 3:</u>	<u>Factor 4:</u>	<u>Factor 5:</u>
Adult Education (not necessarily for certification)	Personalised Learning with Web 2.0 Applications	Pupils, their Problems & their Parents	Young People at Risk	School Education for Inclusion
Non-formal & informal learning	Self-directed learning & personalisation of learning	Students and learners in formal education	Young people aged 19 to 24 after formal education	Pupils up to 18 in formal education, predominantly in secondary school
Adult Training Centres	Develop new ways of learning	Early school leavers & people with learning difficulties	Disadvantaged and unemployed young people	Social Inclusion & Integration
Adult learners, worker, unemployed and general public aged 25 to 65+	Using tools as an environment for learning	Parents (& third parties)	Connecting with Society	
Improve accessibility of learning & accessing information	Collaborating and interacting & creating and sharing knowledge	Personalisation of learning		

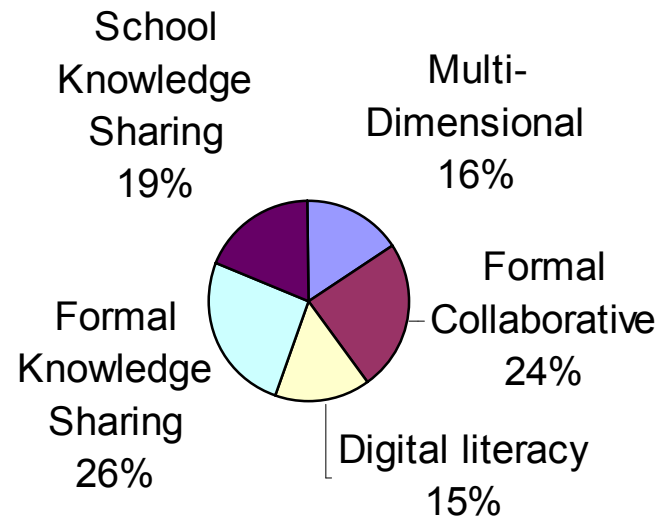
Learning 2.0 Database – Cluster Analysis – The Emerging Learning 2.0 ‘Landscape’ I

General Remarks:

- 2-Step Categorical Cluster Analysis;
- Low variability in distinguishing factors;
- 70% cases in ‘formal learning’ category;
- High degree of ‘multi-group’ cases:
 - 47% Age groups;
 - 40% User groups;
 - 86% Objectives;
 - 53% Social computing tools;
 - 70% Activities;
 - 34% Outcomes,
- Emergent clusters of the Learning 2.0 ‘landscape’.

Learning 2.0 Database – Cluster Analysis – The Emerging Learning 2.0 ‘Landscape’ II

Clusters



Learning 2.0 Database – Cluster Analysis – The Emerging Learning 2.0 ‘Landscape’ III

	<u>Cluster 1:</u> Multi-dimensional	<u>Cluster 2:</u> Formal Collaborative	<u>Cluster 3:</u> Digital Literacy	<u>Cluster 4:</u> Formal Knowledge Sharing	<u>Cluster 5:</u> School Knowledge Sharing
Type of Learning	Multiple	Formal	Formal/informal	Formal	Formal
Institution	Mixed	Mixed	Mixed	University	Secondary school
Age groups	Mixed	Mixed	Mixed	19-24	12-18
User groups	Mixed	Mixed	Excluded groups	Students/ teachers	Students/ teachers
Objectives	Multiple	Multiple	Digital literacy	Multiple	New ways of learning
Tools	Mixed	Social networking	Mixed/wikis	Mixed/blogs/ podcasts	Mixed
Activities	Mixed	Collaborative interaction	Knowledge sharing	Collaborative interaction	Knowledge sharing
Subjects	Social science	Natural science	Humanities	Mixed	Mixed
Outputs	Mixed	Mixed	Community & Networks	Knowledge creation & sharing	Knowledge creation & sharing

Learning 2.0 Database – Discriminant Analysis – The Emerging Learning 2.0 ‘Landscape’ I

General Remarks:

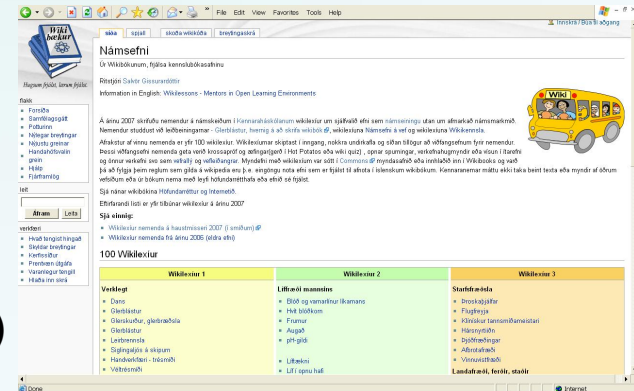
- 4 discriminating functions (62%; 17%; 14%; 7%);
- Key discriminating variables:
 - Age group;
 - Learning type;
 - Institution;
 - User group;
 - Outcomes;
 - Tools;
- Discriminating accuracy: 72% overall.

Learning 2.0 Database – Discriminant Analysis – The Emerging Learning 2.0 ‘Landscape’ II

1. Multi-dimensional: Douspuncero (<http://douspuncero.blogspot.com>)



2. Formal Collaborative: Lifelong E-Learning (<http://www.itcilo.org/lifelonglearning>)



3. Digital Literacy: Wikilessons (<http://is.wikibooks.org/wiki/N%C3%A1msefni>)

Learning 2.0 Database – Discriminant Analysis – The Emerging Learning 2.0 ‘Landscape’ III

4. Formal Knowledge Sharing: IDENTITY (<http://iesc.unitbv.ro/identity>)



5. School Knowledge Sharing: ESO 1 Joanot (<http://cat.bloctum.com/isajoanot>)

Thank you very much for your attention! Questions, Suggestions, Feedback?

- Joe Cullen:
jcullen@arcola-research.co.uk
- Thomas Fischer:
thomas.fischer@fim.uni-erlangen.de
- Thomas Kretschmer:
thomas.kretschmer@fim.uni-erlangen.de
- Walter F. Kugemann:
walter.kugemann@fim.uni-erlangen.de