

Open Data and Contextualization of the Language Learning Process

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Star(t)ing point

- * Pervasive but persuasive:

- * Flipped classrooms
- * Blended learning
- * Digital natives
- * Big Data
- * Deep learning
- * Serious games
- * Artificial Intelligence
- * 21st century skills
- * and ... Virtual Exchanges

what are other
words for
lacking definition?



fuzzy, blurry, blurred,
indistinct, unclear, misty,
out of focus, ill-defined,
vague, hazy



 Thesaurus.plus

Virtual



- * “Virtual =
 - * almost or nearly as described, but not completely or according to strict definition;
 - * not physically existing as such but made by software to appear to do so.”
- * Do we want virtual tasks and exchanges?
 - * SAMR model & Blooms Digital Taxonomy → looking for affordances richer than reality
- * → **Augmented** tasks and exchanges?

How virtual is your research?

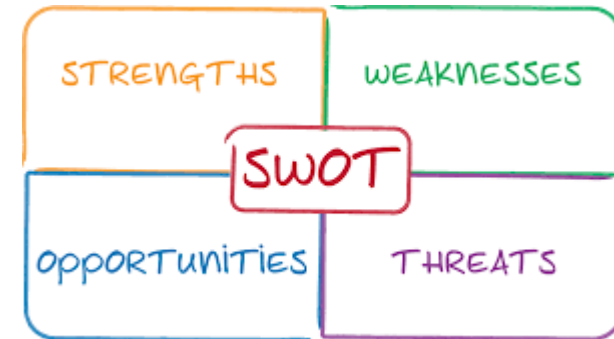
- * Editorial
 - * What is the problem?
 - * Out of publication need or out of genuine passion, interest?
- * Symptoms:
 - * Use of buzz words and persuasive terms
 - * Name dropping: Vygotsky, Warschauer, Levy ...
 - * Exaggerated statistics
 - * Lack of CALL-references
 - * Mono-theory: HCI, constructivism, complexity theory ...



"You are completely free to carry out whatever research you want, so long as you come to these conclusions."

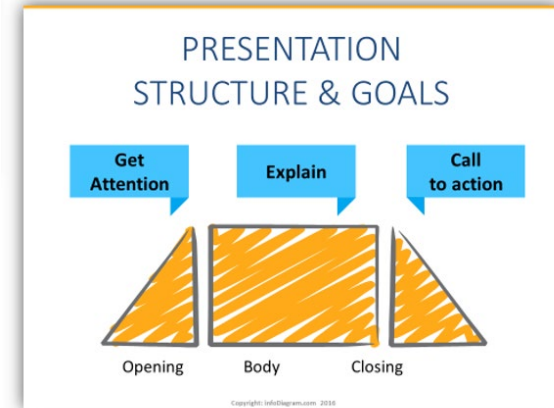
Real CALL

- * Challenge:
 - * CALL should be(come) a respected and respectable discipline
 - Identity
 - own models, frameworks, concepts, terminology
- * Problems:
 - * Multifaceted nature of CALL
 - * Fast evolution of technology and even pedagogy
- * Opportunities:
 - * Personalization, socialization and contextualisation
 - * Open Data



Overview

- * Introduction: star(t)ing point
- * **Transdisciplinarity**
- * Open Data
- * Contextualization
- * Task Design
- * Conclusion

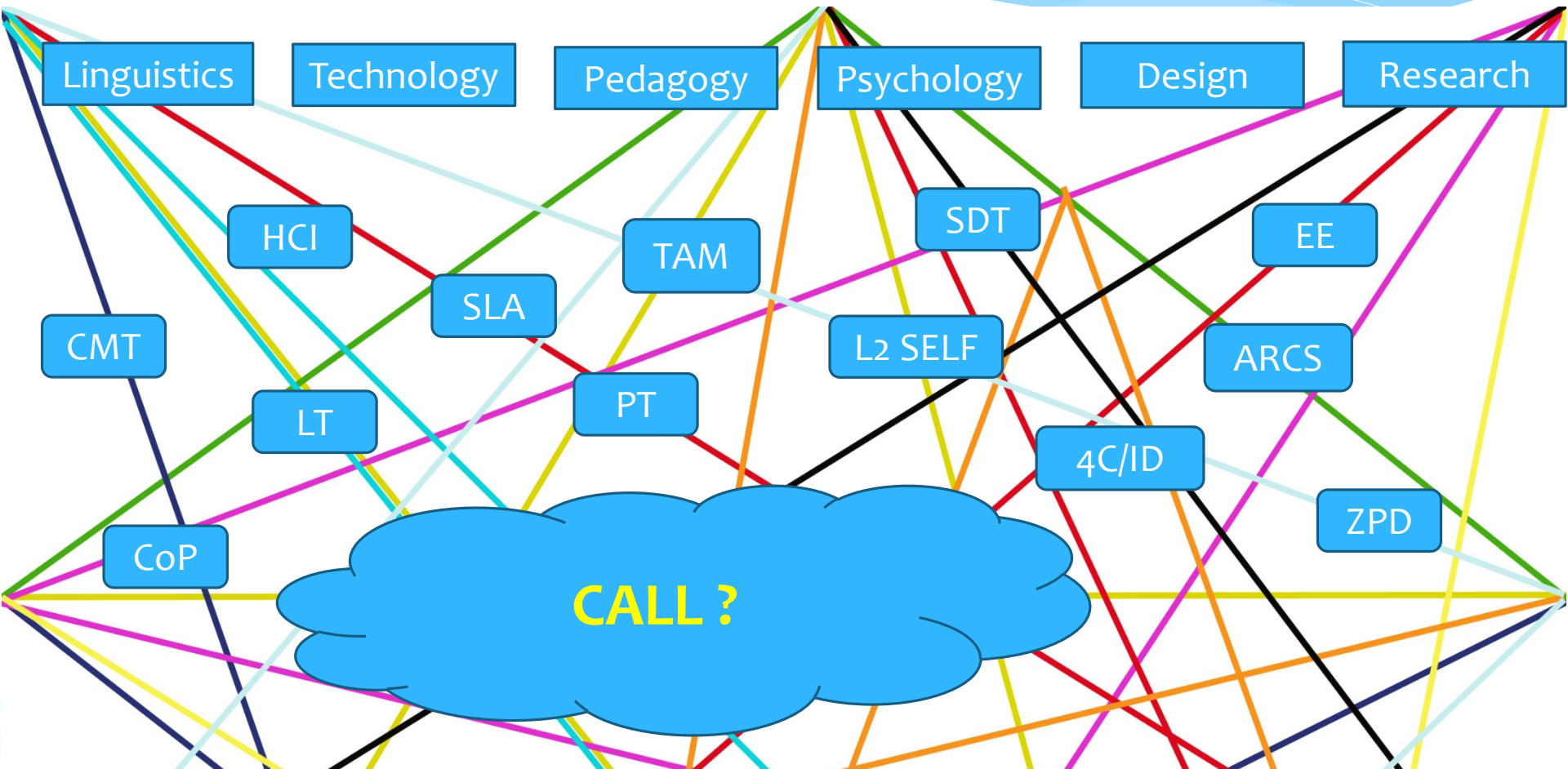


Multiple ...

- * **disciplines:** linguistics, computer science, pedagogy, psychology, sociology ...
- * cultures: democratic, religious, totalitarian, ...
- * languages: English, French, Farsi, ...
- * language learning types: mother tongue, L2, FL, minority languages ...
- * skills: reading, writing, listening, speaking
- * competences: digital, intercultural, communicative, ...
- * levels: A1 ... C2
- * contexts: migration, business ...
- * topics: special purposes
- * actors: learner, teacher, parent, provider ...
- * tasks: (tele)collaboration ...
- * language teaching types: CLIL, vocational, ...
- * education levels: primary, secondary, higher ...
- * countries: USA, Belgium, Japan, Chile ...
- * ...



Multidisciplinarity

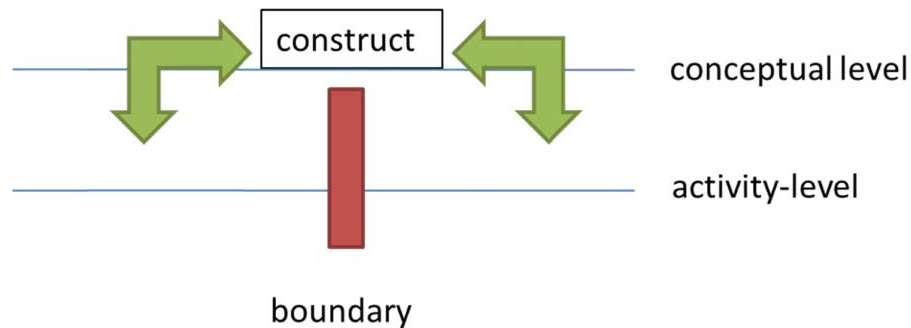


Interdisciplinarity



- * Example: computer scientist & language teacher
- * Learn each other's language ?
- * Interdisciplinarity occurs on one side, not on both
- * In 'one head': difficult with more disciplines
- * The more disciplines involved, the weaker the model

Transdisciplinarity



- * New definition: transdisciplinarity in this view is an activity and stands for a new way of thinking. The activity consist in the co-construction (conceptualization and specification) of mental artifacts or knowledge constructs on a higher level of abstraction. These constructs can be models, concepts, objects, methods, metaphors, images and even frameworks. The activity consist in crossing boundaries between disciplines (linguistics, pedagogy, psychology, technology, sociology...).

CALL = transdisciplinarity

CALL

Linguistics

Pedagogy

Psychology

Technology

SLA

Testing

Sociology

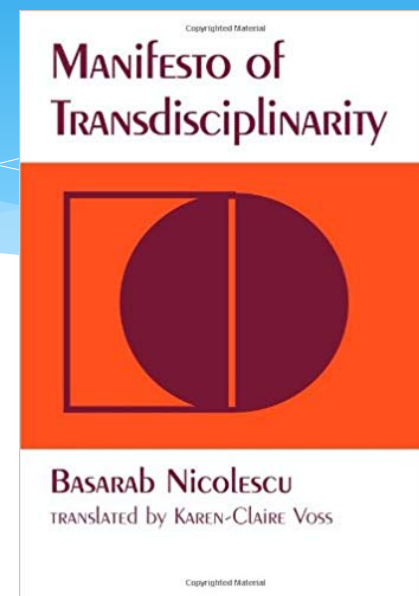
Design

Research methods

...

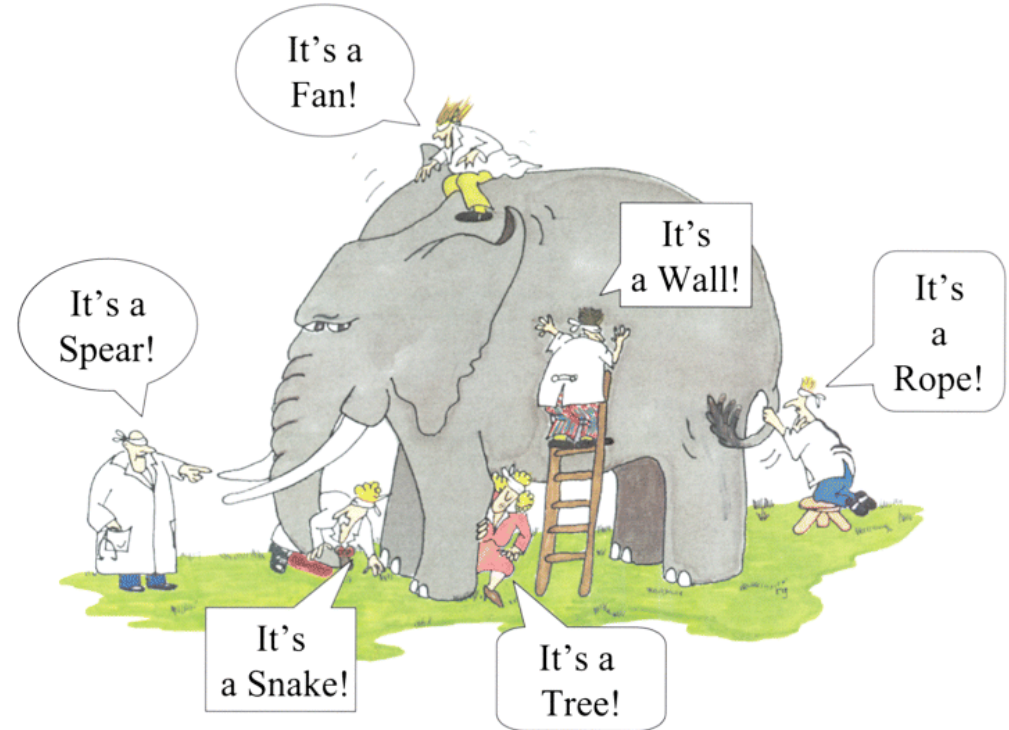
Transdisciplinarity in literature

- * Since Nicolescu's Manifesto on Transdisciplinarity
 - * CALL < SLA < Sustainability & Health Sciences
 - * Between actors > between disciplines
- * SLA: Douglas Fir Group (2016)
- * Colpaert, J. (2004). Transdisciplinarity. Editorial. *Computer Assisted Language Learning*.
- * Colpaert, J. (2018a). Transdisciplinarity revisited. Editorial. *Computer Assisted Language Learning*.
- * Hubbard, P. & Colpaert, J. (forthcoming). Toward Transdisciplinarity in Language Learning, *CALICO Journal*.



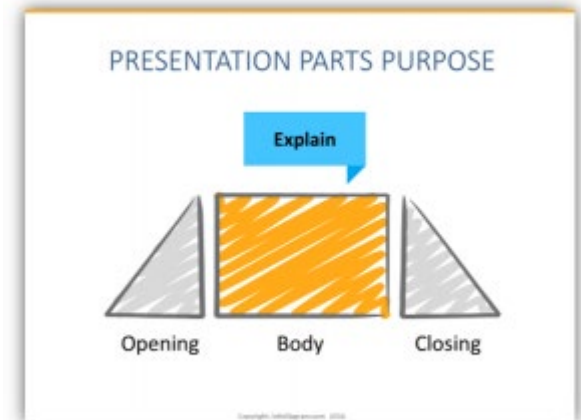
Examples

- * Courseware design
- * Adaptive language testing
- * Pronunciation training
- * Contextualization
- * Task design
- * Open Data
- * ...



Overview

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Real CALL

- * The multifaceted nature of CALL (Levy 1997)
 - * the 'pluriness' of CALL (Colpaert 2018)
 - * = multitude of different disciplines, actors, contexts, theories, cultures, languages, skills, levels, subjects, technologies, learning goals, content types and standards.
- * Fast evolution of its foundations:
 - * technology
 - * PC > smartphone > Augmented Reality
 - * pedagogical approaches
 - * Constructivism (sociocultural theory, activity theory, ...), Project-Based Learning, Connectivism, Problem-based Learning, Connectionism, Task-Based Language Teaching (TBLT), Deep Learning, Complex Dynamic Systems, Self-Determination Theory, Universal Design for Learning, Dörnyei's L2 SELF model, 4CD/ID, Complex Dynamic Systems, Bloom digital taxonomy, 21st century skills, Higher Order Thinking skills, TAM, TPACK, SAMR.

Third understream

- * BIG DATA
 - * pervasive but persuasive term?
 - * the availability of huge amounts of data analyzed with sophisticated routines for revealing aspects of human behavior
- * Phenomena such as Augmented Reality, Internet of Things, Smart Cities, ... are changing the world of CALL unnoticeably



CALL and DATA

- * → 20th Century: textbooks
- * 80s: interactive courseware
- * Fanned out into:
 - * authentic documents found on the Web, adapted (easy) readers, corpora, interactive (tutorial) courseware, Massive Open Online Courses (MOOCs), Open Educational Resources (OERs), Learning Analytics, Virtual Worlds (such as *Second Life* and *OpenSim*), Serious Games, Augmented Reality (the view of a real-world environment whose elements are augmented by sensory input such as sound, video, graphics or GPS data) and the Internet of Things (real-world objects and artefacts which carry readable data that can be used as content in tasks).



Limitations

- * Interactive courseware:
 - * endangered species due to labor-intensiveness of software & content development (Colpaert 2004)
- * MOOCs:
 - * Not M, not O, not O, not C ? (Colpaert 2014)
- * OERs:
 - * epistemological, juridical, technological and psychological barriers (Colpaert 2012)
- * Learning Analytics
 - * just about numbers or how learners build knowledge together in their cultural and social settings (Ferguson)?



Data, Information and Content

* Do these numbers mean anything to you?

27	9	18	15,0	51,0	10
31	19,5	22	21,2	71,7	14
26	9,75	22	17,9	53,7	10
21	4,5	18	13,5	39,0	8
24,5	12	18	16,0	52,4	10
34	24	19	20,7	78,7	16
16,5	3,75	22	15,9	36,2	7
33	27,75	19	21,9	82,7	17
28	24	19	20,7	72,7	15
30	17,25	18	17,8	65,0	13
26,5	24	17	19,3	69,8	14
29	30	22	24,7	83,7	17
30	10,5	21	17,5	58,0	11
32	12	20	17,3	61,3	12
32,5	30	18	22,0	84,5	17
0	0	0	0,0	0,0	0
32	25,5	22	23,2	80,7	16
27	26,25	20	22,1	75,3	15
25	9,75	18	15,3	50,0	10
29	16,5	17	16,8	62,3	12
31	30	22	24,7	85,7	17
24	24,75	22	22,9	71,7	14
27,5	21	18	19,0	67,5	14
19	24,75	17	19,6	63,3	13
28,5	14,25	21	18,8	61,5	12
28	22,5	18	19,5	70,0	14
31,5	18	17	17,3	66,8	13
25	13,5	17	16,0	54,5	11
27	21,75	17	18,6	67,1	14
33	18	23	21,3	72,3	14
31	26,25	21	22,8	80,0	16
29	24	19	20,7	73,7	15
36,5	26,25	18	20,8	83,5	17
35	24,75	21	22,3	82,6	16

Data, Information and Content



Data, Information and Content

- * Data = series of characters, tokens ...
- * Information: reduction of uncertainty
 - * The Mathematical Theory of Communication, Shannon & Weaver (1948, 1963)
- * Content:
 - * contributes to learning

Information

- * Information about the Learner (Learner Analytics):
 - * information provided by the learner, the teacher, the school, the parents, e-portfolios, social networks (e.g. through data scraping) and smartphones (e.g. by providing the learner's geotemporal location) ... This information can be useful and even needed for the adaptation and personalization of the learning process.
- * Information about the Learning Process (Learning Analytics):
 - * data gathered by a system or electronic learning environment with a view (a) to assessing and supporting the learner, (b) to analyzing the learning process, (c) to improving the learning environment and (d) to predicting learner behavior (in the case of Big Data or educational data-mining on a large scale).
- * Pedagogical metadata:
 - * sets of data that may facilitate the reusability and discoverability of digital learning resources, with a view to supporting the learner (hyperlink glosses, captions, just-in-time information, procedural information ...) or the teacher (tags, readability indexes, CEFR levels, pedagogical instructions...). These metadata are mostly integrated in content for learning or teaching.
- * Research Data:
 - * with the recent Open Access policies comes also the tendency to facilitate access to the datasets with any publication.

Content

- * Published materials:
 - * textbooks, courseware, MOOCs;
- * Self-made (or co-authored with colleagues or students) materials:
 - * OERS, LMS-embedded exercises, sound files, subtitles, captions, corpora, knowledge clips, fan fiction, textual or audiovisual content produced in online communities of practice ...;
- * Authentic Documents
 - * found on the Web, especially the Semantic Web, or level-adapted materials (e.g., easy readers);
- * Content
 - * found in Virtual Worlds, Serious Gaming, Ambient Intelligence, Augmented Reality and The Internet of Things.

The Open Movement

- * Open Courseware
- * Open Source (from source code to attitude)
- * Open Knowledge
- * Open Education
- * Open Government
- * Open Access

- * to ... Open Data

Open Data Initiatives

- * Open Knowledge Initiative
- * The Global Open Data Index
- * Belgian Open Data Initiative
- * Open Data China
- * Open Data Taiwan
- * Open Data Hong Kong
- * Open Data Australia
- * ...



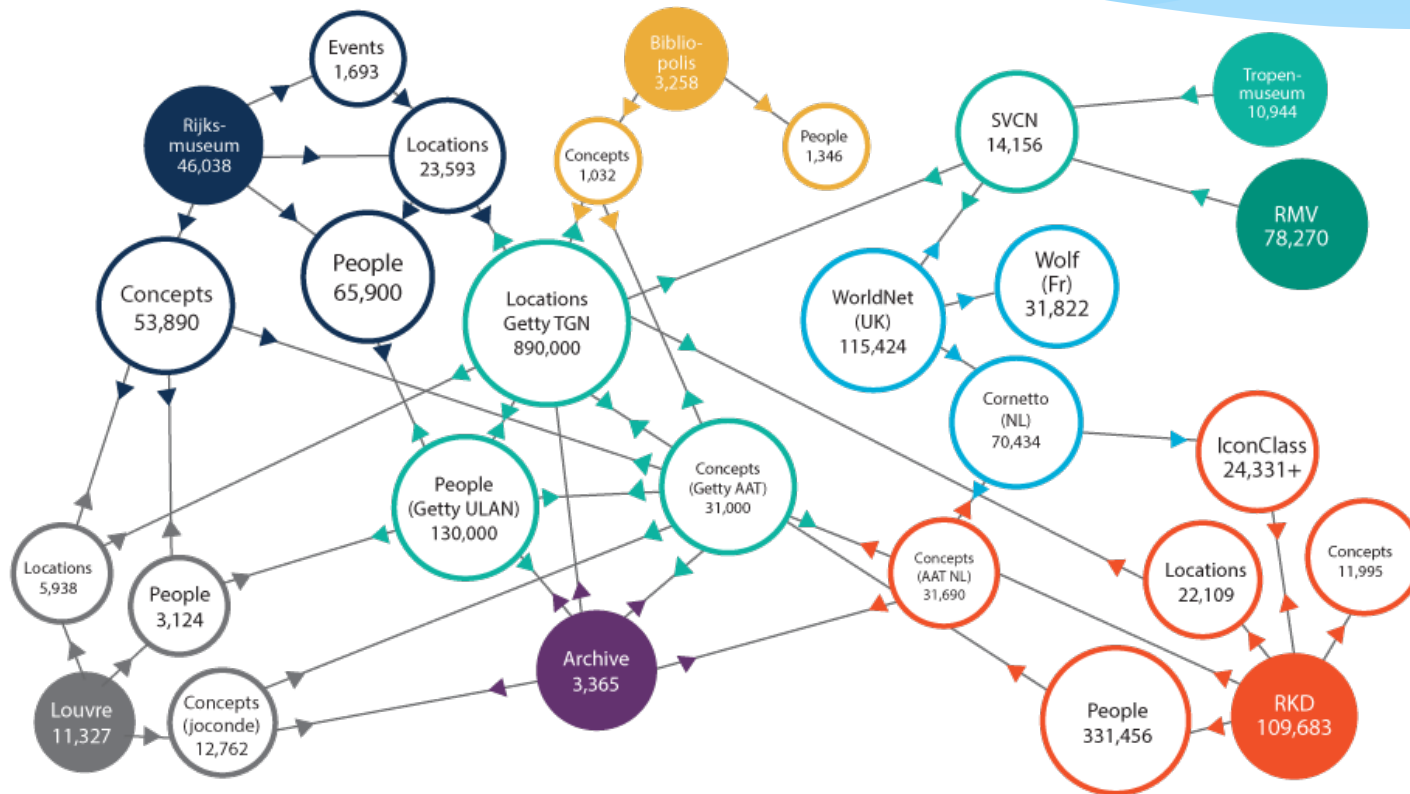
(Linked) Open Data

- * Open Data are FAIR but not really 'Open'
 - * FAIR = findable, accessible, interoperable and reusable

- * Open:
 - * only for apps or systems
 - * not for direct querying, editing, updating ...
 - * through an API or by 'scraping'

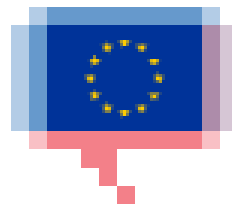


Linked Open Data



Advantages of LOD

- * Content providers do not have to physically restructure their data in order to make them interoperable, exchangeable, reusable ...
- * Examples:
 - * [Parking spaces](#)
 - * [Route planner](#)
 - * [Linked data fragments](#)
 - * [Open Street Map](#)
 - * [WorldBank](#)
 - * [Our world in Data](#)
 - * [Gap Minder](#)
 - * [Open Spending](#)



EU **Open Data** Portal

Affordances for education

- * On the level of data as Information we can distinguish:
 - * *Personalization* of the learning process
 - * *System upgrades* on the basis of extensive data mining about learner behavior and performance
 - * Better *integration of research findings* in education and in development of educational systems.
 - * Evidence-based *educational policy*: all data sources combined (learner, school, community) should allow policy makers to draw up a more justifiable education policy plan.



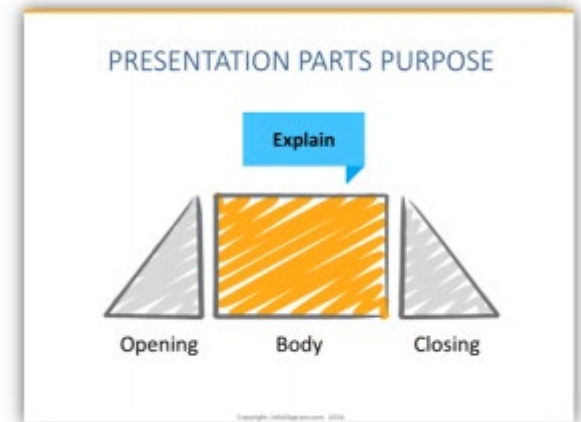
Affordances for education

- * On the level of Content we can distinguish:
 - * By linking existing content to other data sets, learning content can be *enriched*.
 - * Existing content can also be *reused* in order to generate new systems, services and products.
 - * Open Data may rejuvenate the old concept of *Open Educational Resources*.
 - * *Contextualization* of the learning process.



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Contextualization

- * Huge affordance for CALL
- * Depending on the geotemporal location of the learner, a system can look up content, interactive or not, from Open Data sources, which are relevant for the learner regarding his/her learning goal, interests and preferences. This approach fits perfectly within current phenomena such as Augmented Reality, Smart Cities and Internet of Things.

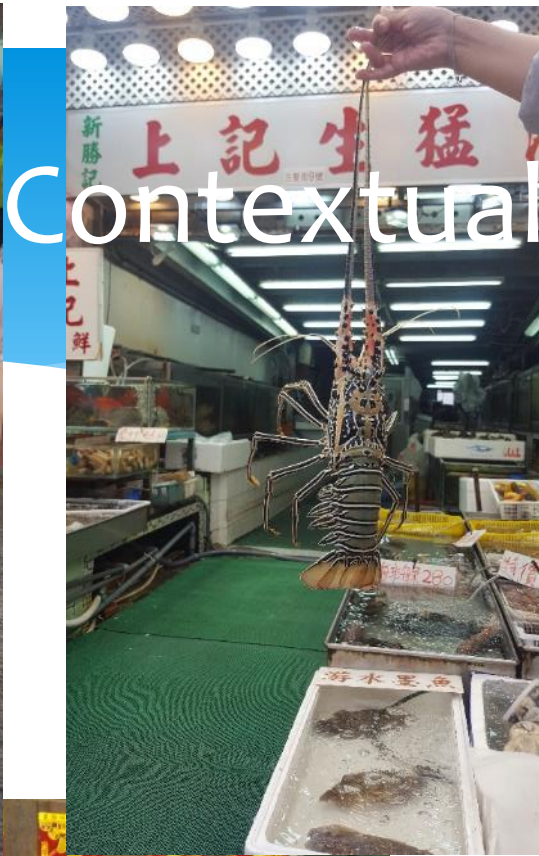
Contextualisation



Personalisation



Contextualization



Contextualization

- * Technologically speaking no problem
- * It all depends on available data (cfr. Google Glasses)
- * Pedagogically:
 - * literature on e.g. Situated Learning (Lave & Wenger) touts the benefits of contextual learning
 - * Huge opportunity for TBLT
 - * But: TBLT lacks psychological-motivational layer

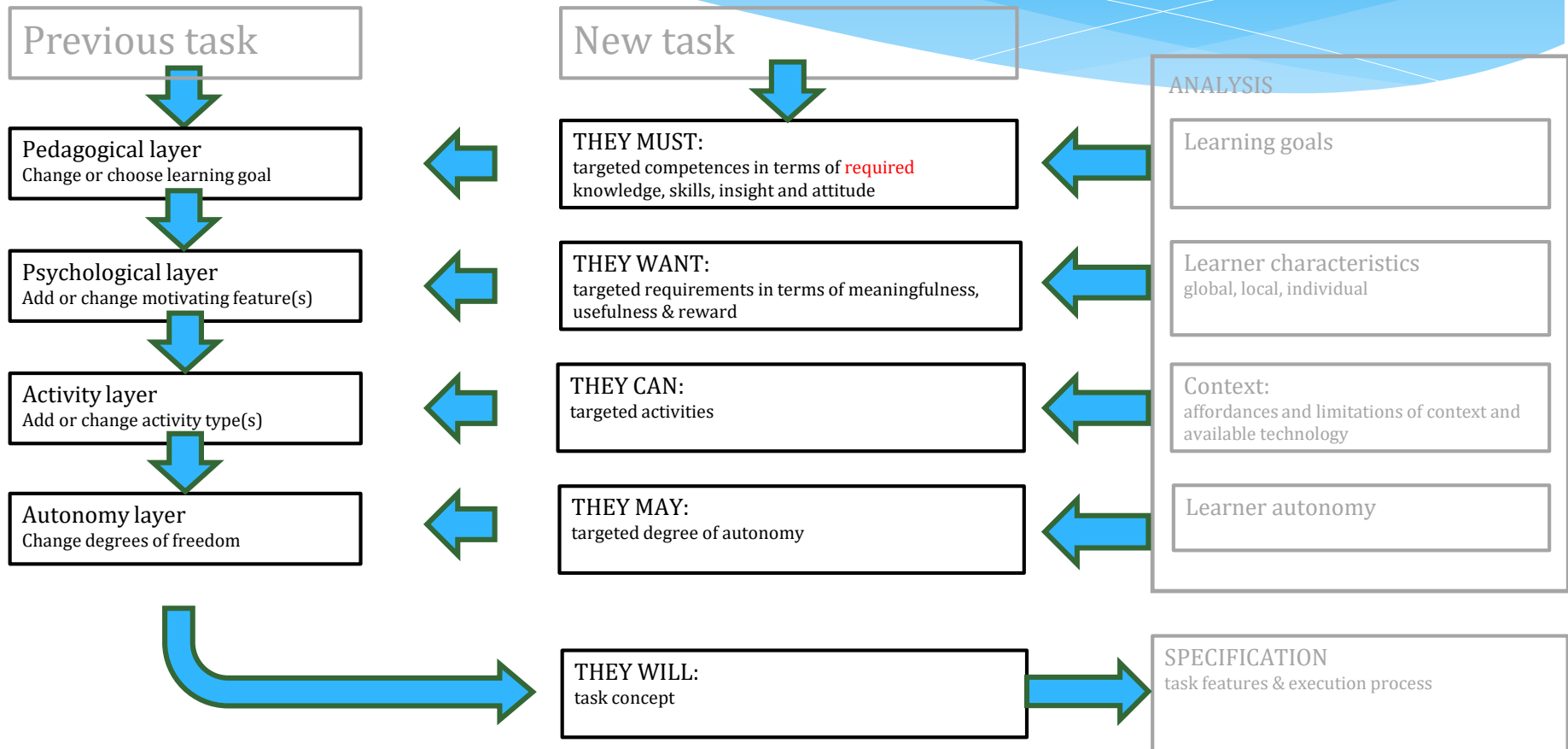
TBLT
Task-based
Language Teaching

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Task conceptualization model



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Open Data

- * The Open Data phenomenon affords several unique opportunities for education worldwide. It will allow teachers and publishers to find, retrieve, edit and share content worldwide without having to change the structure of the content.
- * Teachers will still need to fundamentally rethink their attitude towards learning content and their innate notion of intellectual property.
- * Researchers might need to focus more on designing interfaces for exchanging data in the most effective way.
- * Policy makers may need to stop providing for repositories of learning content, but instead stimulate emergence of start-ups around development of learning apps.
- * Publishers should finally understand that they have to fundamentally rethink their obsolete production chain, adopt a new business-to-business model and radically choose for sustainable learning content.

Con**clu**sion 

Transdisciplinarity

- * If we want to learn from the past, then we should know that interdisciplinarity is not the solution to solve the ‘pluriness’ of CALL. Open Data is a focal point where it all comes together: technology, pedagogy, policy, business, linguistics, psychology.
- * Transdisciplinarity defined as Colpaert 2018 implies the construction of mental and physical artefacts on a higher boundary-transcendent level of abstraction. We can start with conceptualizing the learner, the teacher, the learning environment in a new way.

Con**clusion**



The Education University of Hong Kong

Social CALL 10-12 July 2019

The XXth International Call Research Conference



**Keynote
Speakers**

Antonie Alm

Associate editor of CALL Journal
University of Otago, New Zealand



Mirjam Hauck

President of EuroCALL
Open University



Gu Yueguo

President of ChinaCALL
Beijing Foreign Studies University

Enquiry

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CALLendar

- * TEFL conference, Tunghai University, Taichung, Taiwan, 17-18 May 2019
- * CALICO, Montréal, Canada, 22-24 May 2019
- * JaltCALL, Aoyama Gakuin University, Tokyo, Japan, 31 May – 2 June 2019
- * 2nd PPTCELL Conference, National Taiwan Normal University, 3-5 July 2019
- * XXth International CALL Research Conference, the Education University Hong Kong, 10-12 July 2019 (<http://www.call2019.org>).
- * GloCALL / VietCALL, Danang, Vietnam, 9-10 August 2019
- * EuroCALL, Louvain-la-Neuve, Belgium, 28-31 August 2019
- * 27th ICCE, Kenting, Taiwan, 2-6 December 2019
- * ...



Questions ?

Thank you!

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"So this software... Does it tell you to do things?"