

DESIGN THINKING applied to Training and Education

KATJA TSCHIMMEL MINDSHAKE _ DT TRAINER
ESAD _ DT EDUCATOR
D-THINK _ DT RESEARCHER

webinar INSME Academy - 24th January 2017



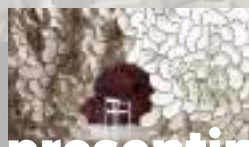
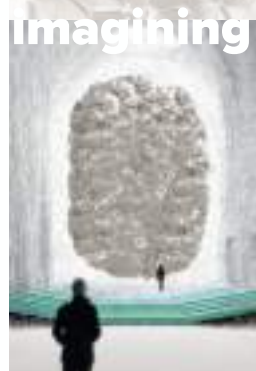
TOPICS

- The DT concept, principles and process models
- The DT model Evolution 6²
- Case Studies: DT applied in training and educational contexts
- D-Think - an european research project

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



DESIGN THINKING - the concept



presenting

doing

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



DESIGN THINKING - the concept

imagining
doing
presenting

design
culture

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



Design Thinking express the introduction of **design methods** and **design culture** into fields beyond traditional design, such as **business innovation**.

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017

MIMD SH4KE D-THINK Enamtu+

THE **EVOLUTION** OF THE **DESIGN THINKING** **CONCEPT**

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017

MIMD SH4KE D-THINK Enamtu+

YEARS **1980 - 1990**

Bryan Lawson (1986)

Peter Rowe (1987)

Gabriela Goldschmidt (1994),
On visual design thinking.
In *Design Studies*, Vol 16, N° 2.
Elsevier Science.

Rivka Oxman (1999),
Educating the designerly
thinker.
In *Design Studies*, Vol 20,
N° 2. Elsevier Science.

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017

MIMD SH4KE D-THINK Enamtu+

YEARS **1990**

international research group in design thinking

Studies of the cognitive process of a designer

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017

MIMD SH4KE D-THINK Enamtu+

YEARS 1990 - 2000

CROSS, N., DORST, K., ROOZENBURG, N. (Eds.) (1992). *Research in design thinking*. Delft: Delft University Press.

EASTMAN, C., MCCRACKEN, M., NEWSTETTER, W. (Eds.) (2001). *Design Knowing and Learning: Cognition in Design Education*. Oxford: Elsevier Science.

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



- analyse and understand problems of the artificial world
- finding new perspectives for well known realities (framing)
- materialisation of the new frames
- developing new symbolic meanings (sense-making)

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



1999

ABC Nightline, documentary about the creative process of a new shopping cart concept, created by **IDEO**

<https://www.ideo.com/work/shopping-cart-concept>



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



YEARS 2000



Tom Kelley
& Jonathan Littman
2001



David Kelley
& Tim Brown
2004



Tom Kelley
& Jonathan Littman
2005



Tim Brown
"Design Thinking"
2008

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



YEARS 2000/10



Tim Brown
2009



Roger Martin
2009



Thomas Lockwood
2010

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



YEARS 2010



Ellen Lupton
2011



Nigel Cross
2011



Idris Mootee
2013



Tom & David Kelley
2013



2015

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



YEARS 2010

DT = thinking (+ doing + culture)
which leads to new realities and
to **innovation**



semantic innovation
technological innovation
business innovation
service innovation
social innovation
educational innovation

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



YEARS 2000/10

d.school

- 2005** Hasso Plattner Institute of Design in Stanford / **d.school**
- 2007** Hasso Plattner Institute (**HPI**) at Potsdam University in Germany, Berlin
- 2012** **d.confestival** at HPI in Berlin, 600 people from all over the world share their experiences in Design Thinking
- 2012** Launch of Paris-Est d.school, approved by the French Ministry of Research and Education
- 2017** **d.confestival** at HPI in Berlin, an international "Multi-Layer-Forum" for Design Thinker



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



YEARS 2014/17

D-THINK

DESIGN THINKING applied in HEI and VET Education.

ERASMUS + KA2 Strategic Partnerships

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



Creative professionals also can be Design Thinker

Ferran Adrià - El Bulli

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



Creative professionals also can be Design Thinker

when they

- discover new opportunities
- think in variety, possibilities and multiple perspectives
- operate against well known solutions, by experimentation
- think against stereotypes.

Ferran Adrià - El Bulli

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



Human-centred approach

Products and services should be experienced from the user's perspective. Development of empathy.

Ferran Adrià - El Bulli



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



Collaboration

Design Thinking is a collective and participatory process. As many stakeholders as possible should be included in the creative process.

Ferran Adrià - El Bulli



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



Experimentation

Mistakes and failure are an important part of every creative process. Without them, nothing really new can emerge.

Ferran Adrià - El Bulli



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



Divergent thinking

Thinking in variety and different directions. Looking for future possibilities.

Ferran Adrià - El Bulli



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



Visualisation

Images have the power to synthesise and clarify ideas. The visualisation of concepts helps to simplify what seems complex.

Ferran Adrià - El Bulli



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



Prototyping

Early materialization of ideas for simulation of processes and testing of formal-aesthetic solutions.

Ferran Adrià - El Bulli



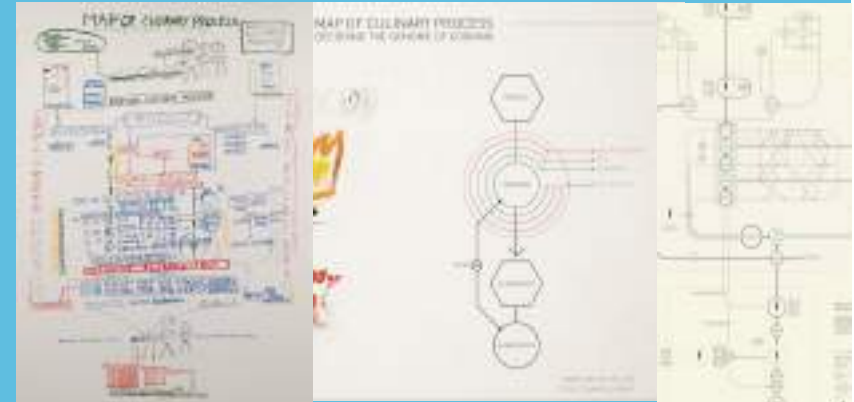
Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



Holistic perspective

Every product, service or media message belongs to a system of interactions and inter-dependent entities.

Ferran Adrià - El Bulli



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017

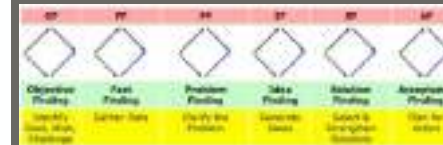


VISUAL MODELS WHICH EXPLAIN THE DESIGN THINKING PROCESS

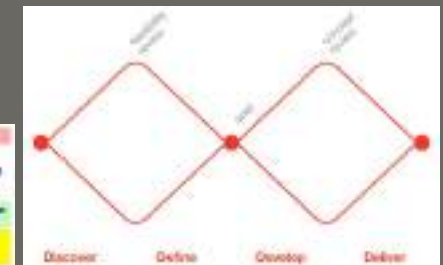
Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



THE PROCESS MODELS



Osborn-Parnes Model, 1970s

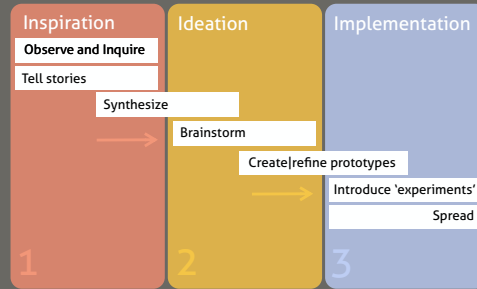


Double Diamond,
British Design Council, 2005

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017

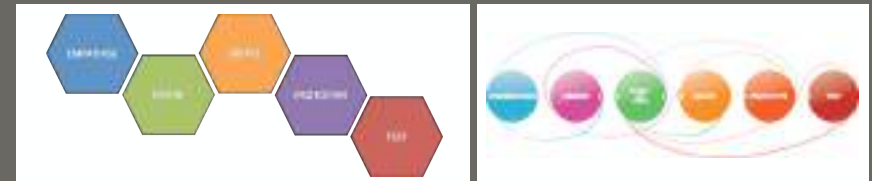


THE PROCESS MODELS



3 I model, IDEO, 2008

THE PROCESS MODELS



Hasso-Plattner Institute of Design at Stanford, 2010

Hasso-Plattner Institute of Design at Potsdam

THE PROCESS MODELS



Design Thinking for Educators, Riverdale + IDEO, <http://www.designthinkingforeducators.com/>

THE PROCESS MODELS



MINDSHAKE model Evoluton 6², 2012 - 2016

THE PROCESS MODELS

DT Models Names & Authors

DT - Model Phases

DT Model	Double Diamond	3 I's	HCD	DT for Educators	Evolution 6 ²
d. school (Stanford + Haase Plattner Institut) + IDEO	British Design Council	IDEO	IDEO + Bill Gates Foundation	IDEO + Riverdale School	Mindshake Portugal
Understand	Discover	Inspiration	Hear	Discovery	Emergence
Observe	Define			Interpretation	Empathy
Ideate				Ideation	Experimentation
Prototype	Develop	Ideation	Create		Elaboration
Test				Experimentation	Exposition
	Deliver	Implementation	Deliver	Evolution	Extension

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



THE PROCESS MODELS



<http://www.designkit.org/>

INSPIRATION
In this phase, you'll learn how to better understand people, how to observe their lives, how their hopes and desires, and get smart on your challenge.

IDEATION
Here you'll make sense of everything that you've heard, generate tons of ideas, identify opportunities for design, and test and refine your solutions.

IMPLEMENTATION
Now is your chance to bring your solution to life. You'll figure out how to get your idea for an artifact and how to maximize its impact in the world.

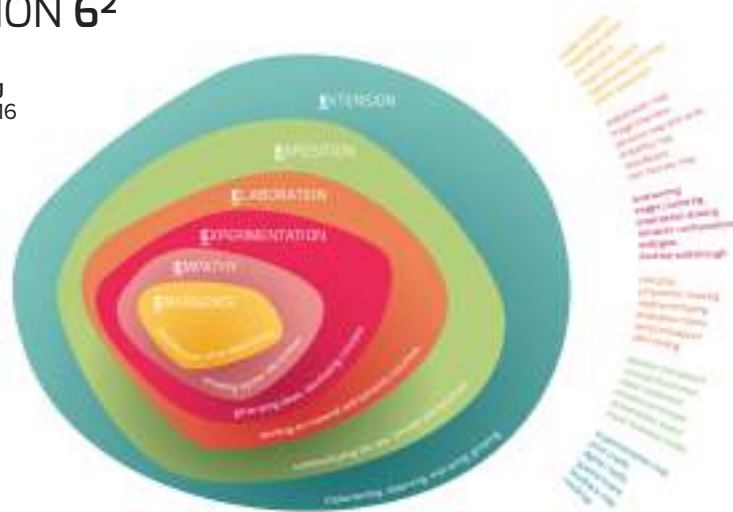
Human Centered Design, IDEO, 2015

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



EVOLUTION 6²

The Mindshake
Design Thinking
Model, 2012/2016



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



Case Study 1

Training
in Design Thinking



Client: ROCHE Portugal



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



PHASE 1 - workshop em Design Thinking for project managers



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



PHASE 2 - innovation day



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



PHASE 2 - innovation day



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



PHASE 3 - intensive training of innovation agents



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



EMERGENCE



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



EMPATHY



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



EXPERIMENTATION



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



ELABORATION



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



EXPOSITION



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



PHASE 4 - coaching and consulting



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



Case Study 2

Application of DT
in the
**RE-Design of the
Multimedia Course**




Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



EMERGENCE



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



EMPATHY



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



EMPATHY



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



EXPERIMENTATION



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



ELABORATION



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



Case Study 3

Post Graduation
Design Thinking
**Application of DT in
an innovation
project**



Client: Amorim Cork Ventures



Case Study 4

European Research Project
D-Think

ERASMUS +
KA2 Strategic Partnerships



The D-THINK research project 2014 - 17

challenge

Increasingly complex and technological world |
Competitiveness in business | Continual social
transformation | Irrelevance of classroom | ...

need

Change of curricula e learning methods |
Transversal and transferable skills in "T-shaped"
curriculas | Entrepreneurial skills | Creative and
Critical Thinking | Collaboration

solution

Design Thinking is seen as an innovation method,
capable of delivering new teaching and learning
approaches to Education.

The D-THINK research project 2014 - 17

goals

D-Think aims to promote the use of
Design Thinking to:

- * redesign educational systems
- * develop new educational contents and tools
- * change the educators mindset

The D-THINK research project 2014 - 17

RESEARCH OUTCOME

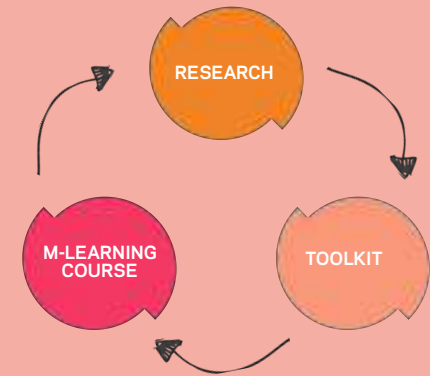
- 1 New knowledge about DT as an innovative learning methodology (Research Report and other Publications)
- 2 D-Think Learning Toolkit
- 3 Mobile Learning Platform
- 4 Pilot Training Sessions

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



The D-THINK research project 2014 - 17

RESEARCH OUTCOME



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



RESEARCH OUTCOME 1

<http://www.d-think.eu/food-for-thought.html>



WHAT DO YOU FIND IN THE REPORT?

- * an exposition of the DT concept;
- * a clarification of the role of DT in HEI and VET Education;
- * an identification of **new approaches** to teaching/learning;
- * the **baseline** for the D-Think toolkit and m-learning course;
- * a **case study** of DT applied in a research project.

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



RESEARCH OUTCOME 1

<http://www.d-think.eu/food-for-thought.html>



Trendmatrix

Classification of Trends of Teaching and Learning Methods

	formerly	currently	emerging
educational style	PELAGOSKY: discipline based education, lecture style	ANDERSONY: interdisciplinary education, project based teaching and learning, certificate in credits	HEU/ANDERSONY: interdisciplinary and problem-based education, team work, collaborative, project based
learning style	individual work, dependent learning, learning by memorizing, visual experiences	group work, independent learning, learning by doing, self-direction and collaboration	collaboration of individual and group work, self-learning, experiential learning (active participation), reflective experiential and the experiential, cooperative learning (group goals), team-cognition, learning modules
students role	passive participant	active participant, individual and critical	peer support, self-directed, team effort, control of own learning, scaffolded self
teaching style	teacher and expert role, top-down, management teaching	knowledge communication style, student centered, affective teaching in class	collaborative teaching style, co-determination of teaching/learning contents
teachers role	Teacher = Master, teacher monitor	Teacher = Facilitator, shared responsibility (teacher/ group self-education)	Teacher = Facilitator, assessment of self-education
training offers	classroom teaching, lecture, conference	in and out of class teaching, online learning, experiential learning courses	short training courses, on working courses, major tasks, combination of on-site, off-site, blended, e-learning
learning ambience	in classroom/lectures, hierarchical distribution of content, rigid structure	in flexible rooms, tables in group position, partial distribution of content, together and flexible structure	without walls, efficient social forms, technology, 24h/24h, online and face-to-face
technology (web, mobile, etc.)	using computers in classroom	e-learning, online courses, learning	in learning, virtual reality, MOOCs, blended/blended/blended/blended/blended

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



COMPLEMENTARY RESEARCH OUTCOME



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



RESEARCH OUTCOME 1

<http://www.d-think.eu/food-for-thought.html>



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



- chapter 1 Introduction to the Research Project
- chapter 2 Research Methodology
- chapter 3 Research Process
- chapter 4 The Design Thinking Concept
- chapter 5 Design Thinking applied in HEI and VET Education
- chapter 6 Conclusions of the Research Phase
- chapter 7 Bibliography List

RESEARCH OUTCOME 1

**DT
educator
=
coach/
facilitator**

characteristics of a Traditional Educator	characteristics of a Design Thinking Educator
discipline based	problem and design-based
principally individual focused	principally collaborative
student-driven, deep understanding about what students have to learn according the curricula	empathic and human-driven, deep understanding of learners' needs and dreams
classroom centric, tables in group position	without walls, different social forms
lead by organizing and planning	comfortable with ambiguity and uncertainty
mainly verbal, use of diagrams and tables	mainly visual, use of sketching and prototyping tools
analytical, deductive and inductive	abductive and inventive
looking for 'correct' answers	failure is a part of the process

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



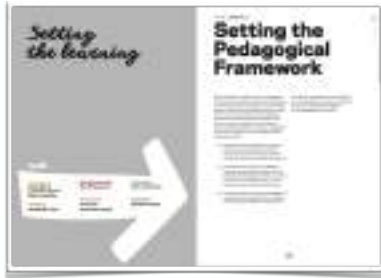
RESEARCH OUTCOME 2



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



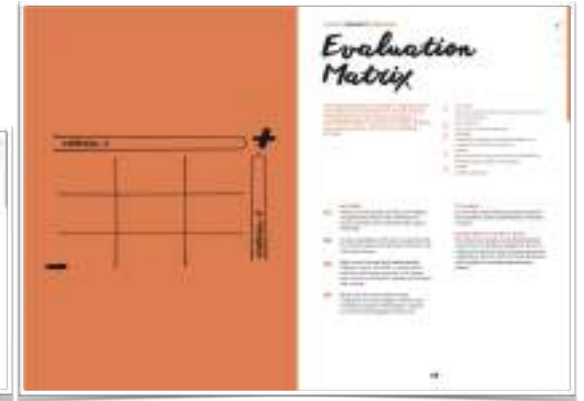
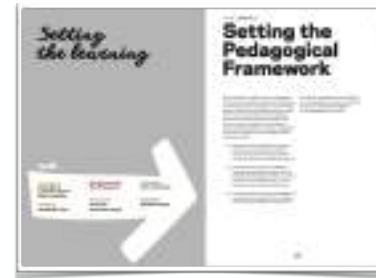
RESEARCH OUTCOME 2



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



RESEARCH OUTCOME 2

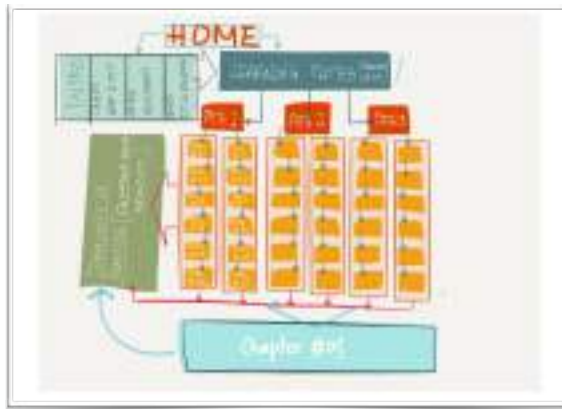


Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



RESEARCH OUTCOME 3

m-learning
course/
platform



Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017



thank you
for your
attention :)

kt@mindshake.pt
www.mindshake.pt

Dr Katja Tschimmel
Design Thinking applied to Education and Training
webinar INSME Academy - 24th January 2017

