Innovative learning methods & strategies

February 2018

Part II

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SECTION 2: METHODS 2

VOCAL – Vocational Online Collaboration for Active Learning
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VOCAL - Vocational Online Collaboration for Active Learning

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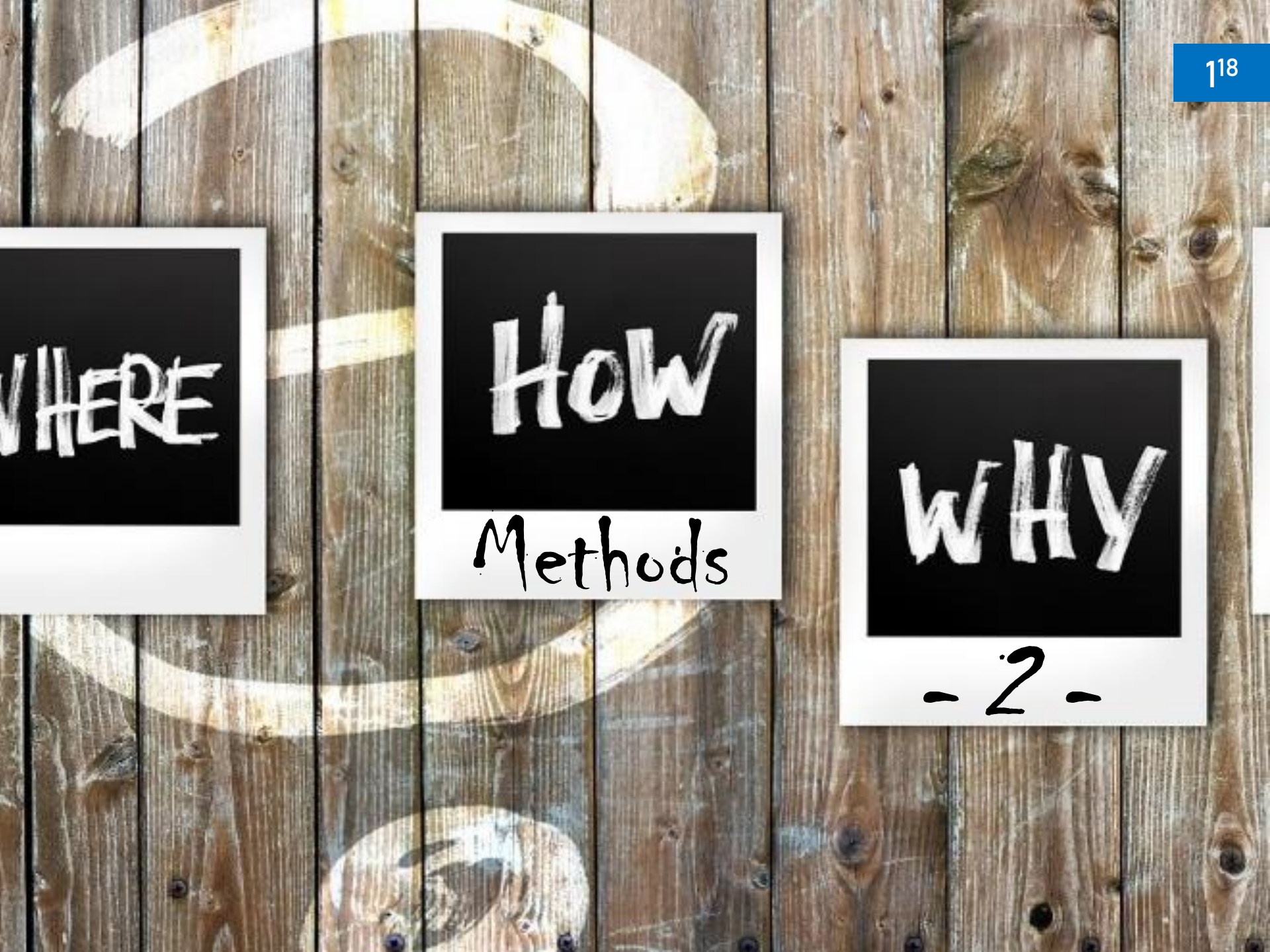

WHERE
How
Methods
WHY
-2-

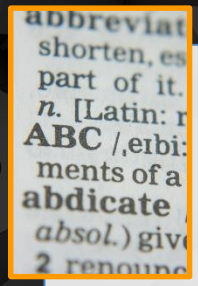
Methods II

"Did you know them before?"

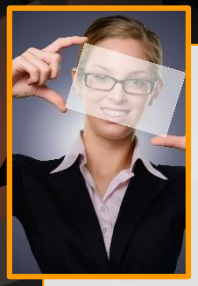
New forms* of teaching, learning and assessment for an interactive world:

Productive failure

Designing thinking



Translanguaging



Formative Analytics

- Ferguson R., Barzilai S., Ben-Zvi D., … ; Weller M., Whitelock D. (2017). *Innovative Pedagogy 2017.* Open University Innovation Report 6
- Sharples M., de Roock R., Ferguson R., Gaved. M.; … ; Weller M., Hsiang Wong L. (2016). *Innovative Pedagogy 2016.* Open University Innovation Report 5

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Strategies & Methods

Creative thinking

RETRIEVAL PRACTICE Strategy

No 6 Productive failure

No 4 Teachback

No 7 Designing thinking

DUAL CODING Strategy

No 7 Designing thinking

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Methods II

No 6

Why "Productive failure"?*

- to gain deeper understanding!

Learners

1. access and explore their prior knowledge in relation to the problem or concept,
2. attend to important parts of the problem,
3. discuss and explain these critical features,
4. organise these important conceptual features and include some of them in a solution.

* Sharples M., de Roock R., Ferguson R., Gaved. M.; … ; Weller M., Hsiang Wong L. (2016). *Innovative Pedagogy 2016.* Open University Innovation Report 5

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Methods II

No 6

Why "Productive failure"?*

- Learners are presented with unfamiliar concepts and asked to work through them right away, without being taught the method or solution.
- Research has shown that this method leads learners to significantly outperform those who learn through traditional instruction and problem-solving.

"Everyone sits in the prison of his own ideas; he must burst it open."
Albert Einstein

Learners know, the *limits* of what they know, and what they *don't* know actually activates parts of the brain that trigger deeper learning.

Getting comfortable with the concept of productive failure—or giving yourself "permission to be terrible"—isn't just healthy; it can help you learn, too.

*Seiter C. (2016). *How Productive Failure Leads to Better Learning*. Retrieved from: https://lifehacker.com/how-productive-failure-leads-to-better-learning-1759959637

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Methods II

No 6 How to use “Productive failure”?*

- Unleash on some lesson related problems with no teacher support or guidance;
- Give two class periods to try to solve each problem (for a group or individually);
- After a session of working on their own, the class should share their work with each other & the teacher;
- Finally explain how to approach and solve the problem the “correct” way;
- Assist the students in going back through the problems and arriving at the correct answer.

*Kageyama N. *Productive Failure”: A Teaching Method Which Leads to Short Term Failure, but Long Term Success*. Retrieved from: https://bulletproofmusician.com/productive-failure-how-strategic-failure-in-the-short-term-can-lead-to-greater-success-and-learning-down-the-road/

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Methods II

No7

Why "Designing thinking"?*

Applying design methods in order to solve problems.

- embrace diverse perspectives;
- explore or develop competing alternatives while making choices;
- understand the problem and evaluate possibilities;
- combine interdisciplinary knowledge and skills to generate solutions, which may be based on their practical experience;
- develop and apply interpersonal skills to communicate across disciplines and solve problems collaboratively;
- students cycle rapidly through a series of processes: observe, brainstorm, synthesise, prototype, and implement.

Design thinking can be applied to any subject area that creates innovative products to address people's needs, including engineering, architecture, medicine, computer programming, website production and creative writing.

* Sharples M., de Roock R., Ferguson R., Gaved. M.; ... ; Weller M., Hsiang Wong L. (2016). *Innovative Pedagogy 2016.* Open University Innovation Report 5

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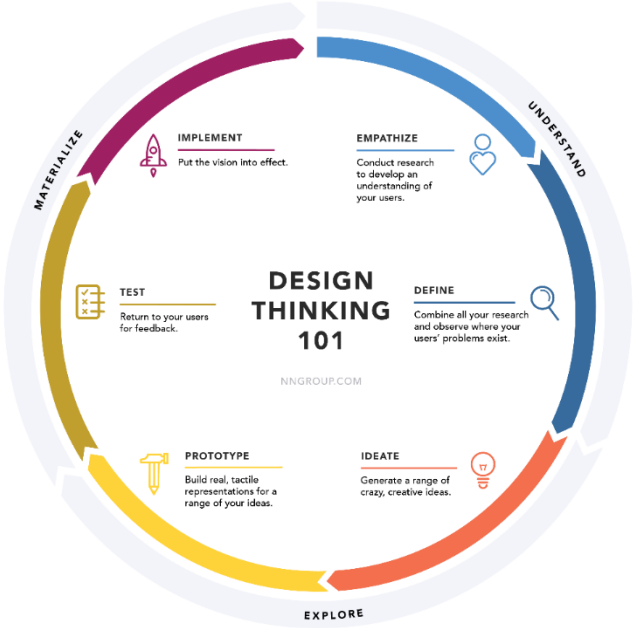
Methods II

No7

Why "Designing thinking"?*



The design-thinking ideology asserts that a hands-on, user-centric approach to problem solving can lead to innovation, and innovation can lead to differentiation and a competitive advantage. This hands-on, user-centric approach is defined by the design-thinking process and comprises 6 distinct phases.

The design-thinking framework follows an overall flow of 1) understand, 2) explore & 3) materialize. Within these larger buckets fall the 6 phases: empathize, define, ideate, prototype, test, and implement.

*Retrieved from: https://www.nngroup.com/articles/design-thinking/

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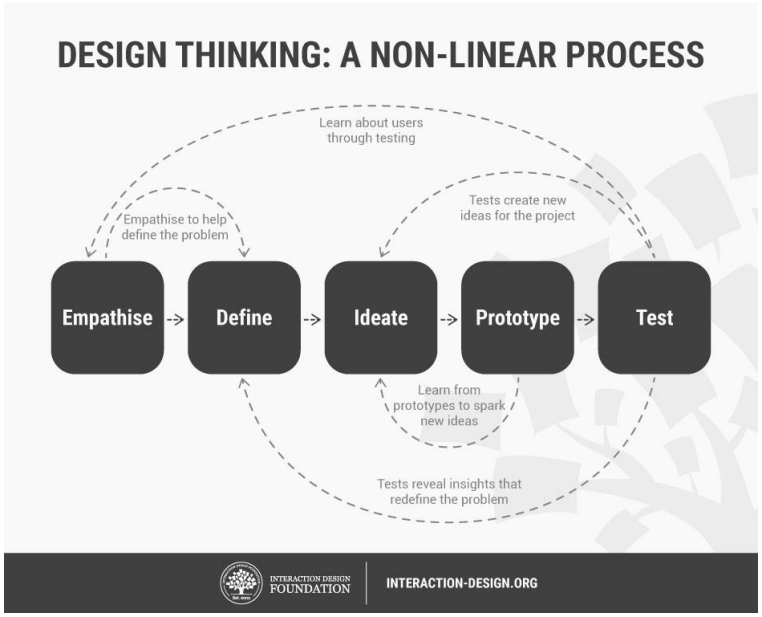
Methods II

No7

How to use “Designing thinking”?*



- learners work in pairs or groups on a project of personal meaning or community importance.
- then they display their projects to other learners.

The goal is not for learners to master a topic, but to gain enduring competences and dispositions, to think about their everyday world as a set of interlocking designs and its obstacles as design problems.

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Tools

Productive failure

- Electa-live
- ClassMarker
- Easy Test Maker
- Hot Potatoes

Designing thinking

- Quandary
- Jeopardy
- Bubblr
- Storybird
- ShowMe Interactive Whiteboard

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Strategies & Methods

Analytical skills

INCIDENTAL LEARNING Strategy

No8 Translanguaging

COMPUTATIONAL THINKING Strategy

No9 Formative analytics

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Methods I

No 8

Why "Translanguaging"?*

Enriching learning through the use of multiple languages!

- learners may benefit from bilingual students' increased awareness of cultural and linguistic differences, if they have opportunities to share that knowledge and experience.
- it extends educational practices that depend on understanding and using standard national languages, to support diversity and encourage integration of mobile and social technologies into everyday communication and learning.

If we consider languages to be flexible resources for meaning-making, then traditional boundaries between languages become permeable.

The versatility of mobile and online tools supports this permeability and additional tools to support translanguaging could be developed.

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Methods I

No 8

How to use "Translanguaging"?*

- identify bilingual partners who can help each other;
- design group work with individuals' language backgrounds in mind;
- allow learners to discuss some topics and issues in their preferred language;
- in an online setting, check and negotiate meanings with the support of online resources;
- find multilingual resources and tools and demonstrate to learners their advantages when compared to resources in one language;
- set tasks to search for information in multiple languages or access a wider range of online communities, comments and resources;
- allow learners to use preferred languages when working together to create digital artefacts such as annotated pictures or videos, while ensuring the products are understandable to others;
- co-teach with teachers from a different language background,
- make use of multilingual chatbots or virtual assistants.

* Sharples M., de Roock R., Ferguson R., Gaved. M.; … ; Weller M., Hsiang Wong L. (2016). *Innovative Pedagogy 2016.* Open University Innovation Report 5

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Methods I

No 9

Why "Formative Analytics"?*

Developing analytics that help learners to reflect and improve!

- makes use of the data produced during learning and teaching.
- helps us to understand and improve learning and the environments where it takes place.
- helps us to predict which students need additional support.
- specialised learning analytics tools, collects behavioral data that includes time spent on an online learning unit and performance on an assessment.
- is focussed on supporting the learner to reflect on what has been learned, what can be improved, which goals can be achieved, and how to move forward.
- aims to empower each individual learner to reach his or her potential through real-time personalised automated feedback and visualisations of potential learning paths.

* Sharples M., de Roock R., Ferguson R., Gaved. M.; ... ; Weller M., Hsiang Wong L. (2016). *Innovative Pedagogy 2016.* Open University Innovation Report 5

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Methods I

No9

How to use “Formative Analytics”?*

- learners are continuously assessed to determine their mastery and understanding of key concepts;
- receive instant formative feedback on what they know and how they can further improve their understanding;
- draws on a range of learning analytics techniques applied to existing distance learning courses;
- interpret whether activities such as answering a quiz or viewing supplementary material are effective or not;
- compare the behaviour of each learner with the performance of the current set of learners;
- monitoring student behaviour are also possible.

* Sharples M., de Roock R., Ferguson R., Gaved. M.; … ; Weller M., Hsiang Wong L. (2016). *Innovative Pedagogy 2016.* Open University Innovation Report 5

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Tools

Translanguaging

- SEAGULL
- Prepply
- Coursera
- Verbalplanet

Formative Analytics

- Blackboard
- Desire2Learn
- ALEKS tutoring system
- OU Analyse

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Link collection & References

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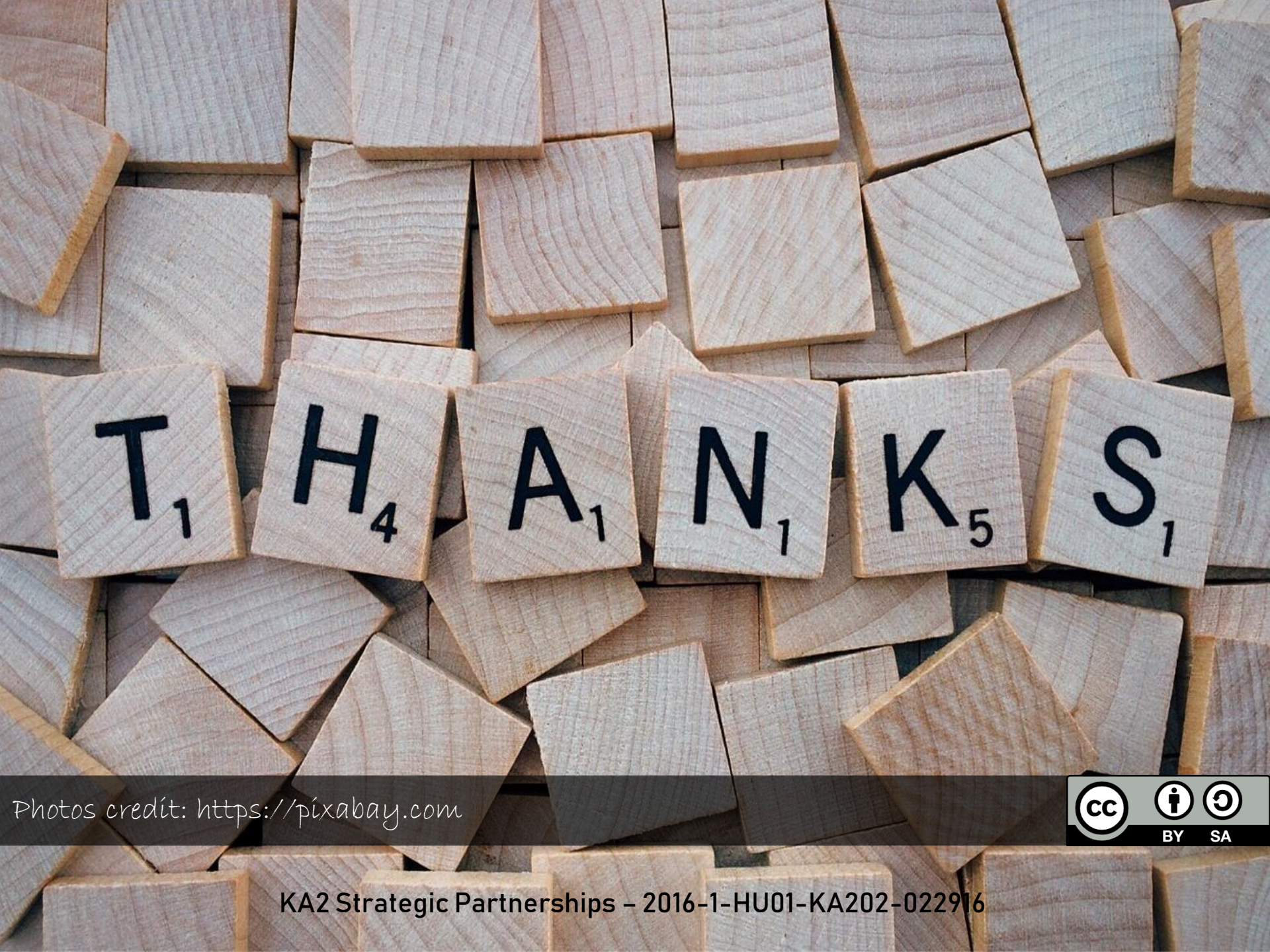

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