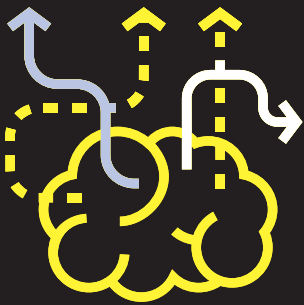




Ideation

THEME 1



BOOST YOUR

C@Σ@T!v!TY

Introduction for the teacher

If you look at history, innovation doesn't come just from giving people incentives; it comes from creating environments where their ideas can connect.

Steven Johnson, American writer

AFTER COMPLETING THEME 1: IDEATION, STUDENTS WILL BE ABLE TO

- ***Explain and analyse the way in which the opportunity space in a creative process alternates between expansion (divergence) and contraction (convergence)***
- ***Identify and discuss the need for ideation in one or more phases of a creative process***
- ***Select and apply simple techniques for developing ideas as a resource for creating a wider opportunity space in a creative process***

Ideation is such an important element in creative processes that the activity is often – incorrectly – equated with creativity. There is no doubt that many innovative solutions, insightful designs and original works of art started with one or more good ideas that were then thoroughly worked out in a creative process. However, ideas development, although it does generate many ideas, is not particularly valuable in itself if the ideas do not achieve a certain quality. The same is true if the people involved do not introduce the ideation phase at a favourable point in the creative process or are unable to choose the best ideas for further development based on anything other than gut instinct.

In this theme, students are introduced to methods for development, elaboration and selection of ideas, and to some basic models of creative processes. This ensures that the students gain a better understanding of when an ideation activity may be relevant and in which situations it should be abandoned in favour of a more systematic assessment and elimination of ideas. Although ideation is usually beneficial in a creative process, it may sometimes have the unintended effect of reducing the creativity of a person or group by introducing an unnecessarily wide and potentially confusing opportunity space, which the people involved then have to try to find their way around and subsequently reduce further.

Inspired by the American learning theorist, Donald A. Schön (1930-1997) and his influential theory of 'reflective practice', numerous studies have shown the importance of an increased understanding of process when it comes to enhancing skills within learning, general academic endeavours and creativity. Much modern design research is based on Schön's theories.

The purpose of this theme is therefore for the students to use basic creative process models and a variety of activities to learn and understand for themselves how a creative process switches between expanding the opportunity space (the technical term is 'divergence') supported by ideation, and deliberate, active contraction of the same opportunity space ('convergence'), by discarding and prioritising ideas.

As it can often be harder to generate ideas than to select them, students will be introduced to specific techniques for ideation, in which constraints and inspiration also play a key role. These techniques are not linked to one particular domain or subject area. Students can therefore use them at high school, in higher education and later in private contexts, e.g. to come up with ideas for a long journey, imaginative birthday gifts or the like.

© 2019 The authors, CIBIS, Aarhus University, Denmark: WWW.CAVI.AU.DK/CIBIS.

May be downloaded and re-distributed for non-commercial purposes.

Activities

This section describes the different activities of which each theme may consist. Objects for analysis, cases and objectives can be removed according to the actual teaching situation. This ensures the best possible match to the normal teaching and general learning outcomes for the individual subject area.

The duration of the activities is indicative only and may (to some extent) be shortened or extended, and the individual teacher can assess whether the activities can best be carried out individually, in pairs or in groups.

Suggestions for the composition of activities to underpin each of the three themes, here called subject-specific Templates, are shown on pages 5-7. Activities A, C, D, E, and F could well be used as parts of one connected programme, while B (PRACTICAL EXERCISES) can either be used in conjunction with the other activities or can stand alone and be added to the course individually, if the teacher has time to spare in a lesson or wants to vary the general teaching by including one or more of these small creative exercises.

A *Didactic and thematic introduction (10-20 min.)*

The teacher introduces the selected theme with the approx. ten integrated slides created for this theme. These slides run through the key learning outcomes to ensure a clear alignment of expectations between teacher and students, and present and elaborate on the theme via additional text and images. There are also slides with initial questions for reflection that students can work on individually, in groups and/or with the whole class. The purpose of these questions is to relate the theme to their daily lives, so they find the theme engaging and relevant.

B *Practical exercises (5-60 min.)*

The CIBIS creativity training package contains a number of practical exercises, which use active learning to help students to achieve the best possible learning outcomes for each of the three themes. These exercises, which can be used individually or put together as part of the modular structure of the training package, are presented in the separate catalogue: PRACTICAL EXERCISES.

C *Presentation (5-20 min.)*

Students present and share proposed solutions (models, poems, concepts, etc.) in a plenary session. The teacher facilitates this. This type of recapitulation is crucial to optimising learning outcomes both collectively and individually. Possible types of presentation might be:

- *Voluntary, where individual students who wish to do so present their creative solutions to the person next to them, in groups or in plenum*
- *Systematic, where the teacher directs the recap, so all students present either individually or in groups*
- *Written, with a view to submitting a small written exercise*
- *Written, with a view to reporting back as part of a more extended course-related assignment.*

D Feedback session (5-30 min.)

The feedback should ideally mean that students are helped to ask questions about each other's results and discuss key elements of them, e.g. how, when and why they took which creative decisions, what types of ideas, sources of inspiration and constraints were present and why, and what they think about the results of a given task. Examples of types of feedback activities might be:

- *Individual peer feedback (5 min.)*
- *Group feedback (10 min.)*
- *Collective feedback (10 min.)*
- *Written feedback not submitted (10-15 min.)*
- *Written feedback to be submitted (25-30 min.)*

E Concluding reflection (5-10 min.)

Students can usefully be involved in this final reflection by assessing for themselves what they have learnt from the day's teaching, and by presenting and documenting their views in the way they find best suited to the subject. This could take the form of a project blog, a slide show, general notes or part of a written assignment, etc. Examples of ways of approaching a concluding reflection might be:

- *Individually (written/digital)*
- *In pairs (oral/written/digital)*
- *In groups (oral/written/digital)*
- *Collectively (oral/written/digital)*

F Documentation (5-30 min.)

In order to ensure cumulative learning, it is important that students document their experiences of each theme, so that they can return to these new insights in the course of the school year. This can be done in several ways, such as:

- *Taking photos with mobile phones and uploading to the class folder on a central server*
- *Formulation of preliminary questions in e.g. activity A (Didactic and thematic introduction) and/or B (Practical exercises). These questions can be answered by the students after the lesson in writing or orally in combination with e.g. activity E (Concluding reflection) and F (Documentation)*
- *These questions can, for example, be based on the questions for reflection given for each activity under C (Presentation)*
- *Creating a wiki, either physical (paper/noticeboard) or digital*
- *Sharing via IT solutions such as Google Docs, Evernote, Pinterest, OneNote Class Notebook or Google Classroom, etc.*

Template 1

Design/Architecture, 90 min.

This template is suitable as an introduction to a project where the students must generate ideas. Examples in the practical exercises can be changed to fit the given theme of the project.

See descriptions of the activities (A-F) in this document and go to the document: PRACTICAL EXERCISES to find detailed descriptions of the exercises (1-29) that are suggested in the following:

A *Didactic and thematic introduction (10 min.)*

B *Practical exercises (50 min.)*

EXERCISE 1) *Age line-up without words*

EXERCISE 7) *Circulating inspiration group work*

C *Presentation (10 min.)*

D *Feedback session (5 min.)*

E *Concluding reflection (7 min.)*

F *Documentation*

3 minutes introduction by the teacher. The questions that was presented in A will be answered by the students in writing as homework and added to their portfolio.

Template 2

Innovation, 75 min.

This template is suitable as an introduction to a project where the students must generate ideas. Examples in the practical exercises can be changed to fit the given theme of the project.

See descriptions of the activities (A-F) in this document and go to the document: PRACTICAL EXERCISES to find detailed descriptions of the exercises (1-29) that are suggested in the following:

A *Didactic and thematic introduction (10 min.)*

B *Practical exercises (50 min.)*

EXERCISE 18) *What did they think of?*

EXERCISE 3) *Bad ideas*

EXERCISE 9) *The six thinking hats*

C *Presentation (10 min.)*

E *Concluding reflection (7 min.)*

Template 3

Language teaching, 75 min.

This template is suitable as an introduction to a project where the students must generate ideas. Examples in the practical exercises can be changed to fit the given theme of the project.

See descriptions of the activities (A-F) in this document and go to the document: PRACTICAL EXERCISES to find detailed descriptions of the exercises (1-29) that are suggested in the following:

A Didactic and thematic introduction (5 min.)

Here, a few slides from the material are picked containing the most central elements of theme 1.

B Practical exercises (30 min.)

EXERCISE 1) Age line-up without words

You can get the students to speak in the foreign language they are taught - to increase the level of complexity, the age example can be replaced.

EXERCISE 24) Marshmallow challenge

This exercise is good for exploring collaboration and discussing the roles one takes in a creative process. Students can be told that they can only communicate in the foreign language in which they are taught.

C Presentation (10 min.)

D Feedback session (5 min.)

C and D are mixed together. After each student presentation the other students will give some brief feedback. Optionally, each group could have a pre-chosen feedback group.

Further reading

Ideation

- Biskjaer, M. M., Dalsgaard, P., & Halskov, K. (2017). Understanding creativity methods in design. In Proceedings of the 2017 Conference on Designing Interactive Systems (DIS'17), (pp. 839-851). New York: ACM. <http://dx.doi.org/10.1145/3064663.3064692>
- Chan, J., Dow, S. P., & Schunn, C. D. (2015). Do the best design ideas (really) come from conceptually distant sources of inspiration? *Design Studies*, 36, 31-58. <https://doi.org/10.1016/j.destud.2014.08.001>
- Dove, G., Hansen, N. B., & Halskov, K. (2016). An argument for design space reflection. In Proceedings of the 2016 Nordic Conference on Human-Computer Interaction (NordiCHI'16), (article 17). New York: ACM. <http://dx.doi.org/10.1145/2971485.2971528>
- Dove, G., Lundqvist, C. E., & Halskov, K. (2018). The life cycle of a generative design metaphor. In Proceedings of the 2018 Nordic Conference on Human-Computer Interaction (NordiCHI'18), (pp. 414-425). New York: ACM. <https://doi.org/10.1145/3240167.3240190>
- Gray, C. M., McKilligan, S., Daly, S. R., Seifert, C., & Gonzalez, R. (2017). Using creative exhaustion to foster idea generation. *International Journal of Technology and Design Education*, 1-19. <https://doi.org/10.1007/s10798-017-9435-y>
- Inie, N., & Dalsgaard, P. (2017). How interaction designers use tools to capture, manage, and collaborate on ideas. In Proceedings of the 2017 Conference on Human Factors in Computing Systems (CHI'17), (pp. 2668-2675). New York: ACM. <http://dx.doi.org/10.1145/3027063.3053210>
- Linder, R., Snodgrass, C., & Kerne, A. (2014). Everyday ideation: All of my ideas are on Pinterest. In Proceedings of the 2014 Conference on Human Factors in Computing Systems (CHI'14), (pp. 2411-2420). New York: ACM. <http://dx.doi.org/10.1145/2556288.2557273>
- Lucero, A., Dalsgaard, P., Halskov, K., & Buur, J. (2015). Designing with cards. In P. Markopoulos, J.-B. Martens, J. Malins, K. Coninx, & A. Liapis (Eds.), *Collaboration in creative design* (pp. 211-243). CH: Springer.
- Onarheim, B., & Friis-Olivarius, M. (2013). Applying the neuroscience of creativity to creativity training. *Frontiers in Human Neuroscience*, 7 (article 656). <https://doi.org/10.3389/fnhum.2013.00656>
- Paulus, P. B., Baruah, J., & Kenworthy, J. B. (2018). Enhancing collaborative ideation in organizations. *Frontiers in Psychology*, 9 (article 2024). <https://doi.org/10.3389/fpsyg.2018.02024>
- Smith, G. F. (1998). Idea-generation techniques: A formulary of active ingredients. *Journal of Creative Behavior*, 32(2), 107-134. <https://doi.org/10.1002/j.2162-6057.1998.tb00810.x>
- Smith, S. M., & Ward, T. B. (2012). Cognition and the creation of ideas. In K. J. Holyoak & R. G. Morrison (Eds.), *The Oxford handbook of thinking and reasoning* (pp. 456-474). New York: Oxford University Press.
- Valgeirsdottir, D., & Onarheim, B. (2017). Studying creativity training programs: A methodological analysis. *Creativity and Innovation Management*, 26, 430-439. <https://doi.org/10.1111/caim.12245>
- Wiltchnig, S., Christensen, B. T., & Ball, L. J. (2013). Collaborative problem-solution co-evolution in creative design. *Design Studies*, 34(5), 515-542. <https://doi.org/10.1016/j.destud.2013.01.002>
- Yilmaz, S., Daly, S. R., Seifert, C. M., & Gonzalez, R. (2016). Evidence-based design heuristics for idea generation. *Design Studies*, 46, 95-124. <https://doi.org/10.1016/j.destud.2016.05.001>