



Constraints

THEME 3



BOOST YOUR

C@Σ@T!v!TY

Introduction for the teacher

Constraints shape and focus problems and provide clear challenges to overcome. Creativity thrives best when constrained [...] Innovation is born from the interaction between constraint and vision.

Marissa Mayer, former CEO of Yahoo

AFTER COMPLETING THEME 3: CONSTRAINTS, STUDENTS WILL BE ABLE TO

- ***Explain and discuss the dual role that constraints play in a creative process, as constraints can both impede and enable new solutions***
- ***Analyse and discuss key constraints in a given creative assignment***
- ***Challenge and introduce constraints constructively as a resource to develop more original solutions***

Constraints are a key issue in creative processes. You could easily be tempted to think it would be a great advantage to have many options in a creative process, because such virtually unlimited creative freedom will increase the chances of arriving at a very original, perhaps even groundbreaking, solution. In other words, the assumption is typically that your creative opportunity space should always be as wide and open as possible.

In reality, however, creative forms of practice are more complex. Creative professionals generally prefer to work with the – to them – ‘right’ amount of constraints, so the creative problem feels reasonably defined, but not closed; fluid, but not diffuse. This is discussed in the literature in terms of us each having our own special creative ‘sweet spot,’ i.e. a kind of creative comfort zone, when it comes to how open/closed or free/limited we like a creative problem or task to be for us to work best.

In an overall perspective, you could argue, for example, that many artists will usually prefer to have a very open opportunity space that they themselves can define by making a number of free, creative decisions which influence their process. Conversely, many engineers, for instance, usually prefer a more specific, limited opportunity space right from the start of the creative process, so they can more easily relate to and challenge given constraints, and focus on including logical thinking and applying rational problem-solving in their creative process.

Constraints are not a single, homogeneous group. There are several subcategories, where the three classic types are intrinsic (bound up in the material, e.g. tensile strength or weight), imposed (caused by others, such as a budget or a deadline) and self-imposed constraints (voluntarily chosen, e.g. use of black and white, special motifs or properties, idiom, materials, etc.).

Then there are the type of constraints which are often invisible to us, namely the unconscious constraints which we impose on ourselves out of ingrained habit, perhaps in the form of preconceptions about culture, gender, the nature of the task, conventions, norms and expectations. Such unacknowledged constraints often mean that we do not think of ‘colouring outside the lines’, as we are not usually allowed to. If you want to learn to think ‘outside the box’ in a more focused and consistent way, you must be much more aware of the ‘box’ of unconscious constraints that you are already in. For this, greater knowledge and awareness of the role of constraints in creative processes is a critical requisite.

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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 4-6. 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 (60 min.)

EXERCISE 2) Analytical ideation with constraints

Before class, the teacher has selected 10 chairs that would be described as design classics. In this task the students will try to find the “DNA” of the chairs regarding what make them design classics and from this data design a new chair.

C Presentation (10 min.)

D Feedback session (5 min.)

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

E Concluding reflection (5 min.)

F Documentation

Questions presented in the introduction will be homework for the students.

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 (30-40 min.)*

EXERCISE 28) *Simple and short tasks about constraints*
(9 dot problem)

EXERCISE 2) *Analytical ideation via constraints*

EXERCISE 4) *Constraints in your own practice*

C *Presentation (15 min.)*

E *Concluding reflection (10 min.)*

D *Feedback session (5 min.)*

(If there is extra time)

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.)

B Practical exercises (30 min.)

EXERCISE 27) *Write a poem*

The teacher use words the students have already learned in class to constrain the task and help the students use new foreign words in practice.

C Presentation (10 min.)

D Feedback session (5 min.)

Further reading

Constraints

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