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Activity coordinated by:
SI4LIFE

PYRAMID
TRAINING PATTERN 4

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TITLE

Pyramid

GENERAL DESCRIPTION

The Pyramid technique supports the convergence of a large group on a shared solution. Each individual participant studies the problem and proposes a solution. Groups (usually pairs) of participants compare and discuss their proposals and, finally, propose a new shared solution. These groups join larger groups to generate new agreed proposals. At the end, all the participants must propose a final agreed solution.

WHEN IS IT USEFUL?

The Pyramid technique is useful to tackle a complex problem, usually without a specific solution, the resolution of which involves reaching a gradual consensus among the participants.

It is used when there is a need for convergence of a large group on a shared solution for a complex problem (i.e. one that does not have only one right solution), e.g. for the collaborative design of projects where each participant contributes his or her own design, which is later compared with other proposals and refined.

HOW TO IMPLEMENT IT? SUGGESTED PHASES AND TASKS

A Pyramid flow is initiated with individual students solving a global task. Then, in a second level of the Pyramid, such individual solutions are discussed in small groups and agreed upon a common proposal. These small groups then form larger-groups iteratively and large group discussions continue until a consensus is reached on a global level.

In the **preparation phase,** the trainer should:

- ✓ define the global problem to focus on
- ✓ collect useful information (documents, links, etc) to analyse the problem
- ✓ determine the size of the groups, by planning the number of "phases/levels" of the Pyramid

The Pyramid usually has at least three phases.

PHASE/LEVEL 1 is usually characterized as follows:

- ✓ access to information
- ✓ individual study of the problem
- ✓ individual proposal of a solution

EACH FOLLOWING PHASE is characterized by:

- ✓ group formation
- ✓ group discussion
- ✓ proposal of a common solution…

…until only one group remains.

Usually, in the first phase, each student devises a solution to the problem. In the second phase, pairs or groups of three work together comparing and negotiating the individual solutions to come up with an even better one. In the subsequent phases, groups merge and participants build new "shared" solutions based on those elaborated during the previous phase, until the whole cohort of students produces a single solution progressively built on the pre-existing ones.

During the Pyramid technique implementation, the trainer should monitor the situation, decide how much time to give for each step and, at the end, once the whole group has presented the agreed solution, comment on it and optionally introduce a suggested solution.
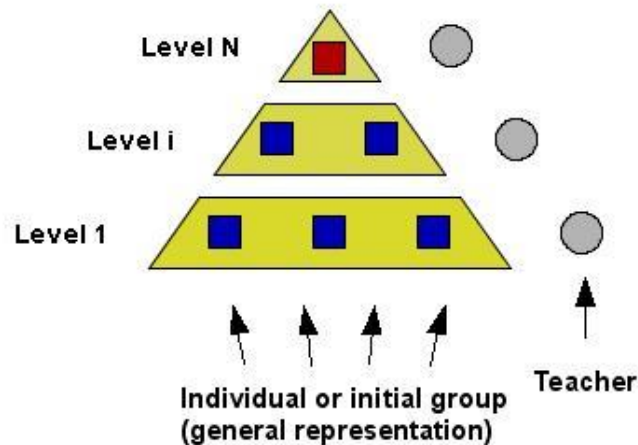
Figure 1: Graphical representation of the groups involved in a Pyramid technique (Hernández-Leo et al, 2005; 2006)

The Pyramid technique can be managed both in presence (F2F) and online, with the support of the proper technologies.

If it is performed F2F, the classroom should be organized in such a way to allow the different groups (both expert and jigsaw ones) to interact properly; thus, chairs and desks should be movable. Participants should be provided with the documents about the content they have to focus on (e.g. printouts) and groups should rely on devices that allow for the collaborative production of artefacts, i.e. boards and/or computers with the needed applications.

To convey the energy encapsulated in the F2F class to the online modalities, the anatomy of the F2F course should be emulated online by creating groups through adequate technologies.

Online interaction can be **synchronous or asynchronous**.

A web-conferencing system could effectively support a synchronous Pyramid activity if equipped with *break-out rooms*[1] where students can work collaboratively in smaller groups. Break-out rooms' functions can be designed to encompass Pyramid activities and thus offer opportunities for active online learning. For example, *Google Meet, MS Teams, Zoom, Webex* and *Discord* can be used to create break-out rooms to conduct online classes with synchronous delivery mode. The tools/resources to be used in the activity, such as text documents, videos, webpages, etc., should be identified and shared beforehand.

A Pyramid activity managed by progressive re-shaping of progressively larger break-out rooms needs an accurate design and good skills in using the tools.

A web-conferencing system could be used together with a *polling software tool*, such a *Mentimeter*[2] or *Slido*[3], which allow learners to participate in real time polling activities using a mobile device, tablet or computer. A *padlet*[4] can also serve the purpose of the Pyramid: visually, it looks like a sort of wall on which post-it notes with various information and content are 'hung' and it is a sort of 'virtual notice board' on which group members can upload, place and share all kinds of files and materials: images, pdfs, videos, links to sites.

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[1] a small meeting room or a separate part of an internet meeting where a small group can discuss a particular issue before returning to the main meeting (https://dictionary.cambridge.org/)

[2] https://www.mentimeter.com/

[3] https://www.slido.com

[4] See for instance https://padlet.com/

A specific app supporting "pyramid-based collaborative learning activities" (Pyramid App[5]) has been developed by the University Pompeu Fabra in Barcelona. These tools facilitate an agile design and the technology-mediated *orchestration*[6] of the pyramid activity in both face-to-face and distance learning scenarios supported by mobile devices

A Pyramid activity can also be performed asynchronously through forum interaction. Asynchronous discussion and collaboration need more time than "real time" ones: they could take 3-10 days per phase depending on the theme and the number of people. A forum should be created for each group, so that people could access progressively larger forums of discussion, until they reach the last one involving the whole group. Since asynchronous collaboration (especially when it is meant for the co-production of an artefact) is normally effective when it involves from 3 to maximum 8 persons, an asynchronous approach could not be the best solution for the "last levels" of the pyramid when groups are larger.

A padlet can be adopted in order to support asynchronous collaboration, too.

A "**mixed approach**" can be designed integrating an asynchronous interaction in the first steps and F2F or web-conferencing in the last steps.

Time	"n" Phases		
	Phase 1	**Phase n**	**Final Phase** **(whole class)**
Task	access to information individual study of the problem individual proposal of a solution which can be formalized in a document or an artefact	group formation group discussion / artefacts comparison proposal of a common solution which should be formalized in a new document /artefact	group formation group discussion / artefact comparison proposal of a common solution which should be formalized in a new document /artefact
Team	Individual students	From pairs or small groups to progressively larger groups	The whole class
Classroom organization (F2F)	Movable chairs and desks; printouts of the documents; devices that allow for the collaborative production of artefacts, i.e. boards and/or computers with the needed applications	Movable chairs and desks; printouts of the documents; devices that allow for the collaborative production of artefacts, i.e. boards and/or computers with the needed applications	Movable chairs and desks; printouts of the documents; devices that allow for the collaborative production of artefacts, i.e. boards and/or computers with the needed applications
Needed technologies (online)	Digital resources focusing on the content	Digital resources focusing on the content Web-conferencing – using "break out rooms" (synchronous) + (optional) polling	Digital resources focusing on the content Web-conferencing – using "break out rooms" (synchronous) + (optional) polling software such as

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[5] https://www.upf.edu/web/tide/tools/-/asset_publisher/W2iQtvtwlOQl/content/id/183108101/maximized#.Ytq2zXZBw2w

[6] "Orchestration" refers to the real-time management of complete flows of collaborative learning activities, including group formulation and allocation, resource distribution and activity sequencing

	Text editors or software for presentations to produce a document or an artefact	software such as Mentimeter or Slido or a padlet	Mentimeter or Slido or a padlet
		or forums for online interaction (asynchronous) + (optional) a padlet	or forums for online interaction (asynchronous) + (optional) a padlet
		Text editors or software for presentations to produce a document or an artefact	Text editors or software for presentations to produce a document or an artefact

ADDITIONAL HINTS AND COMMENTS

Pyramid flows foster individual participation, accountability and a positive balanced interdependence. Furthermore, the Pyramid pattern promotes conversations in increasingly large groups, clear expectations of consensus achievement and positive reinforcement mechanisms leading to the desired positive behaviours in the learning process.

The "orchestration" of a Pyramid activity could be very complex, especially if it involves a big class and if it is at least partially managed online. Complex "orchestration" situations can be facilitated by technologies, but these should be flexible to support dynamic modifications of pre-designed flows, which are caused by unexpected situations, such as the absence of a student. Each step and its related tools must be planned in detail before the start of the activity.

If it is implemented online, it should not be the first activity of a course: people need a good degree of familiarization with their peers, the learning environment and mediated communication.

Participants' assessment should be based on the level of participation of the individual, aside to a self-assessment and a learning log[7].

Examples in NECTAR context

The Pyramid technique can be used to deal with complex problems, usually without a specific solution, which require a group to converge on a shared solution. These characteristics make it suitable for all the Learning Outcomes of the CGE Curriculum, which requires a "team-based" approach in an interdisciplinary perspective. It could also help to go deeper in issues concerning the kitchen staff organization.

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[7] Learning Logs are like diaries students keep that record their reflections about what they are learning and how they are going about learning it. Learning Logs are useful because they promote metacognition. They are also useful tools for teachers because they can reveal students' perceptions (and misperceptions) of the information, as well as reveal how they are reacting to the way the material is being taught

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