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## UNIT 4

# Collaborative Learning

## 4.2 Planning, Implementation, Control

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## 4.2 Planning, Implementation, Control

### Learning Outcomes

#### Unit 4: Collaborative Learning

#### Subunit 4.2: Planning, Implementation, Control

Learning Outcomes	Knowledge	Skills	Responsibility and Autonomy
	Basic knowledge of: <ul style="list-style-type: none"> <li>• How to plan a collaborative learning process.</li> <li>• How to implement a collaborative learning process.</li> <li>• How to monitor a collaborative learning process.</li> </ul>	<ul style="list-style-type: none"> <li>• To be able to plan, implement and monitor collaborative learning within a company.</li> </ul>	<ul style="list-style-type: none"> <li>• To plan how the process would be implemented within our own organisation.</li> </ul>
Type of activity	<input checked="" type="checkbox"/> PDF <input type="checkbox"/> PPT <input type="checkbox"/> Image/Infographic <input checked="" type="checkbox"/> Video	<input checked="" type="checkbox"/> Test/Quiz <input type="checkbox"/> Game <input type="checkbox"/> Other (specify) _____	
Duration	180 minutes		
Activity	You will understand the planning of a collaborative learning process. <ul style="list-style-type: none"> <li>• Read <b>“4.2.1 How plan Collaborative Learning”</b></li> <li>• To complete the activity:               <ul style="list-style-type: none"> <li>• read articles listed in the references</li> <li>• watch the videos listed in the references</li> </ul> </li> </ul>		
Assessment	Self-assessment quiz		
Resources	Equipment: PC (laptop, tablet or smartphone) Internet connection		
Further reading	For further reading, see references at the end of the PDF file.		

### 4.2.1 How to plan Collaborative Learning

The planning phase is key in collaborative learning and company management should begin it by bringing together everyone in the organisation together in a second step. Before putting a collaborative learning system into practice within a business, the following elements must be in place:

#### Phase 1: Company management

1. **Management commitment:** Management must understand what collaborative learning is, the benefits it brings and the difficulties that can arise with it. They must understand that everyone involved in this process participates in learning design, in the pace of learning etc. and that everyone will have responsibility for achieving the desired results. This means sharing control over learning, and once the process has begun, trust must be placed in the organisations' employees to rise to the challenge.
2. **Set the desired objectives:** Firstly, the objectives in terms of technical and transversal competencies, attitudes, skills etc. must be chosen.

Management must identify what new knowledge and new transversal competencies have to be acquired. They must also identify what knowledge and which competencies should be shared between different people within the business and what attitudes should be reduced or eliminated.

	Technical competencies	Transversal competencies	Attitudes
To be <b>shared</b> within the company (already present but in few people)			
<b>New</b> , to be <b>incorporated</b> or <b>improved</b> (nobody in the company has them)			
To be <b>reduced</b> (negative attitudes)			

Some of the most common objectives are:

- To add new technical knowledge regarding technologies that could have an impact on the market, trends, etc.

- To share strategic business knowledge that is currently the preserve of a select few. To exploit competencies that already exist within the company, spreading them to everyone or improving people's ability in them (communication, customer focus, continuous development, quality, languages etc.)
  - To reduce or eliminate negative attitudes such as individualism, competition, lack of training, idleness, poor working environment etc.
3. **Define the resources that will be available throughout the process:** Communications, external personnel that will lead the processes, budget allocation, rooms or spaces available, free time during the work schedule for this learning to take place, benefits for participants, online tools to be used.
  4. Set the **size of the groups** and their ideal composition: Small groups, of around 3 people, do not have sufficient diversity and this may prevent divergent thinking. Using excessively large groups, of over 8 people, tends to lead to not every member participating. A medium-sized group of 4-6 is ideal.
  5. **Create a memorandum** explaining to people that a collaborative learning system is going to be put into effect, what it is all about, the benefits it will bring and the nature of the process.

## Phase 2: Company employees

1. **Set participant objectives:** Company employees must set their own objectives and priorities. This way an extensive list of knowledge people want to acquire will be produced.
2. **Set the overall learning priorities:** Using the list completed by the whole company, employees must rank the objectives according to their personal priorities and interests. This will mean that each person's motivation will be added to the list.
3. **Allow people to identify themselves as a source of knowledge:** Using the list created, people can sign up to share certain knowledge they already have with others.

## Phase 3: Final planning:

This phase can be carried out by management although it would be preferable to set up a voluntary committee for this purpose. It would also be possible for employees to independently establish the groups and the calendar, though this would require them to be already well versed in collaborative working.

1. **Creation of diverse groups:** At least for the first few collaborative learning processes, the groups should be created according to people's interests and always pursuing maximum diversity. An effort will be made to mix people of different ages, genders, roles, experience, technical and creative backgrounds and there will be different knowledge levels represented in terms of the issue at hand.
4. **Creation of the calendar** for the first learning processes.
5. **Allocation of resources according to needs:** Depending on each group's needs, spaces, tools, technologies etc. will be allocated.

6. **Appointment of process leaders for each group.** Depending on the topic and the members that make up each group, it may be necessary to hire an external learning leader but in other cases it will be someone within the group. It could even be a rotating role since everyone will be responsible for their own learning and for that of others.
7. **Informing** participants about the calendar, groups and basic rules.

## References

### Videos:

<https://www.youtube.com/watch?v=7gWS4mxM1Qc>

[https://www.youtube.com/watch?v=fgx\\_R847UAs](https://www.youtube.com/watch?v=fgx_R847UAs)

### Articles:

<https://thriveglobal.com/stories/cooperative-learning-planning-and-implementation/>

<https://www.opencolleges.edu.au/informed/features/facilitating-collaborative-learning-20-things-you-need-to-know-from-the-pros/>

## Self-assessment

1. Company management must be the ones to control collaborative learning processes
  - a. True
  - b. False
2. The maximum number of people for a collaborative learning group is:
  - a. 3
  - b. Between 8 and 10
  - c. Between 3 and 6
  - d. Between 10 and 15
3. Placing people of similar professional backgrounds in the same group promotes efficiency.
  - a. True
  - b. False
4. Planning in collaborative learning decreases creativity and efficiency
  - a. True
  - b. False
5. Company employees must take an active part in the design and planning of collaborative learning processes.
  - a. True
  - b. False

## Solution

1. False // 2. Between 3 and 6 // 3. False // 4. False // 5. True

#### 4.2.2 How to implement Collaborative Learning

After planning collaborative learning, it is time to put it into practice bearing in mind the following steps.

##### 1. Establish group objectives

As a first step, each group must establish or review their group objectives. This keeps the group on task and establishes an unambiguous purpose. Before beginning a task, to save time it is better to define goals and objectives.

##### 2. Establish flexible group rules

Collaborative learning is influenced by the quality of the interactions between individuals. Interactivity and negotiation are important in group learning. If a rule is broken, two things can be done: group members can be rotated or external information can be used to develop a new rule. It is better to have flexible rules. The rules should adapt to different situations so that groups do not become rigid and intolerant and subgroups are not formed.

##### 3. Design the learning process

The group should design the learning process and how they will acquire the knowledge that their members need according to the challenge they have set themselves.

##### 4. Build trust and promote open communication

Successful interpersonal communication is a must for any team. Building trust is essential. It is important to deal with sudden emotional problems and any interpersonal issues before continuing. The tasks should encourage team members to explain concepts to each other thoroughly. Studies have found that students that provide and receive complex explanations get more out of collaborative learning. Open communication is key.

##### 5. For larger tasks, create group roles

Break down a difficult task into smaller ones to save time. Later, different roles can be assigned. Students can take turns choosing their own role and alternative roles for sections of the task or classes.

Each group can choose its own roles depending on the challenge or can initially use group role methodology such as *The Nine Belbin Team Roles\**.

##### 6. Create a test for before and a test for after

A good way of ensuring that the group learns together would be by participating in a test before and after the process. In fact, many researchers use this method to see if groups are learning. An assessment gives the team something to work towards and ensures that learning is a priority. It also allows instructors to measure the group's effectiveness.

##### 7. Consider the learning process itself as part of the assessment

Experts have argued that the social and psychological effect on self-esteem and personal development are just as important as learning itself.

##### 8. Consider the use of different strategies, such as the Jigsaw technique

The Jigsaw or puzzle technique involves dividing the subject to be learned or the challenge between the groups. Each group researches, prepares and learns their part. This allows the students to become "experts" in their assigned topic. Then, the students return to the main group to educate their peers.

##### 9. Allow the groups to reduce anxiety levels



Allow groups to use some stress-reduction strategies as long as they keep focused on the task.

#### 10. **Encourage group interaction**

The quality of discussions is a predictor of the group's achievement. Students must work together on tasks and in maintaining the group. Roles during a task include:

- Initiating discussions
- Providing clarification
- Summarising
- Challenging assumptions/playing the devil's advocate
- Providing or researching information.
- Reaching a consensus.

#### 11. **Use real-world problems**

The business' real problems can be used to facilitate project-based learning, and they often have adequate reach for collaborative learning.

#### 12. **Improve problem-solving and critical thinking skills.**

Design tasks that allow space for varied interpretations. The different types of problems can be focused on categorising, planning, taking multiple perspectives or putting together solutions. Try to use a step-by-step procedure for problem solving. The problem-solving procedure could be:

- Identify the objective
- Establish criteria or objectives
- Gather data
- Plot options or possible courses of action
- Assess the options using the data and objectives
- Come to a decision
- Implement the decision

#### 13. **Increasing responsibility as students begin to understand concepts**

Allow groups to take on more responsibility as time goes on. After all, greater responsibility for learning is a collaborative learning objective.

#### 14. **Technology facilitates collaborative learning**

Use the technology which will be of help to each team.

#### 15. **Individual time**

Time can be allocated to as students can spend some time alone writing notes before the group work starts. This can be a great way of evaluating an individual grade.

#### 16. **Collaborative spaces**

Collaboration depends on the company culture, technology and the work space. Offering a variety of specific spaces that encourage collaboration, making it possible to visualise the work of those around you and improving the quality of encounters between all members of a company can help in this respect.



### 17. Collaborative challenges

If a boost is needed to promote collaborative work, techniques such as the “[Marshmallow challenge](#)” can be used.

### 18. Open innovation

In line with open innovation, these collaborative learning teams can also be open, including people from their organisations (suppliers, customers, competitors...).

#### 4.2.2.1 The Nine Belbin Team Roles

Each team needs access to each of the nine Belbin Team Role behaviours to become a high performing team. However, this doesn't mean that every team requires nine people! Most people will have two or three Belbin Team Roles that they are most comfortable with, and this can change over time. Each Belbin Team Role has its strengths and weaknesses, and each is of equal importance.

However, not all are always required at the same time. It is important to first look at the team objectives, and work out which tasks need to be undertaken. Once this has been done, discussions can take place regarding which Belbin Team Role behaviours should be used and when.

The nine Belbin Team Roles are:

#### 1. Resource Investigator:

Uses their inquisitive nature to find ideas to bring back to the team.

**Strengths:** Outgoing, enthusiastic. Explores opportunities and develops contacts.

**Allowable weaknesses:** Might be over-optimistic, and can lose interest once the initial enthusiasm has passed.

**Don't be surprised to find that:** They might forget to follow up on a lead.

#### 2. Team worker

Helps the team to gel, using their versatility to identify the work required and complete it on behalf of the team.

**Strengths:** Co-operative, perceptive and diplomatic. Listens and averts friction.

**Allowable weaknesses:** Can be indecisive in crunch situations and tends to avoid confrontation.

**Don't be surprised to find that:** They might be hesitant to make unpopular decisions.

#### 3. Co-ordinator

Needed to focus on the team's objectives, draw out team members and delegate work appropriately.

**Strengths:** Mature, confident, identifies talent. Clarifies goals.

**Allowable weaknesses:** Can be seen as manipulative and might offload their own share of the work.

**Don't be surprised to find that:** They might over-delegate, leaving themselves little work to do.

#### 4. Plant

Tends to be highly creative and good at solving problems in unconventional ways.

**Strengths:** Creative, imaginative, free-thinking, generates ideas and solves difficult problems.

**Allowable weaknesses:** Might ignore incidentals, and may be too preoccupied to communicate effectively.

**Don't be surprised to find that:** They could be absent-minded or forgetful.

#### 5. Monitor Evaluator

Provides a logical eye, making impartial judgements where required and weighs up the team's options in a dispassionate way.

**Strengths:** Sober, strategic and discerning. Sees all options and judges accurately.

**Allowable weaknesses:** Sometimes lacks the drive and ability to inspire others and can be overly critical.

**Don't be surprised to find that:** They could be slow to come to decisions.

#### 6. Specialist

Brings in-depth knowledge of a key area to the team.

**Strengths:** Single-minded, self-starting and dedicated. They provide specialist knowledge and skills.

**Allowable weaknesses:** Tends to contribute on a narrow front and can dwell on the technicalities.

**Don't be surprised to find that:** They overload you with information.

#### 7. Shaper

Provides the necessary drive to ensure that the team keeps moving and does not lose focus or momentum.

**Strengths:** Challenging, dynamic, thrives on pressure. Has the drive and courage to overcome obstacles.

**Allowable weaknesses:** Can be prone to provocation, and may sometimes offend people's feelings.

**Don't be surprised to find that:** They could risk becoming aggressive and bad-humoured in their attempts to get things done.

#### 8. Implementer

Needed to plan a workable strategy and carry it out as efficiently as possible.

**Strengths:** Practical, reliable, efficient. Turns ideas into actions and organises work that needs to be done.

**Allowable weaknesses:** Can be a bit inflexible and slow to respond to new possibilities.

**Don't be surprised to find that:** They might be slow to relinquish their plans in favour of positive changes.

### **9. Completer Finisher**

Most effectively used at the end of tasks to polish and scrutinise the work for errors, subjecting it to the highest standards of quality control.

**Strengths:** Painstaking, conscientious, anxious. Searches out errors. Polishes and perfects.

**Allowable weaknesses:** Can be inclined to worry unduly, and reluctant to delegate.

**Don't be surprised to find that:** They could be accused of taking their perfectionism to extremes.

[Download Sample Belbin Team Report](#)

## References

### Videos:

<https://www.youtube.com/watch?v=z5ejKE3HtjA>

### Articles:

[http://docentes.unibe.edu.do/wp-content/uploads/2014/10/JornadaIE2012\\_Ayala\\_Francisco-taller.pdf](http://docentes.unibe.edu.do/wp-content/uploads/2014/10/JornadaIE2012_Ayala_Francisco-taller.pdf)

<http://www.teachthought.com/pedagogy/20-collaborative-learning-tips-and-strategies/>

<http://lms.vocalerasmus.eu/mod/page/view.php?id=34&lang=hu>

<https://abfromz.jimdo.com/module-3/>

### Websites:

<https://www.belbin.com/>

## Self-assessment

1. Roles can be used within the groups only when they are too small or not very diverse.
  - a. True
  - b. False
2. Technology facilitates collaborative learning.
  - a. True
  - b. False
3. Collaborative learning cannot be combined with other methodologies.
  - a. True
  - b. False
4. The group rules must be strict so that the group remains cohesive.
  - a. True
  - b. False
5. It is very important to build trust and promote open communication.
  - a. True
  - b. False

## Solution

1. False // 2. True // 3. False // 4. False // 5. True

## Collaborative challenges

In the planning and design phase of the learning process, the desired outcomes in terms of the final result and results during the process are defined. Individual goals can be set as well and all of them can be measured.

It is specified in the design how the achievement of each objective will be assessed, with the possibility of combining different techniques according to each type of objective.

### 4.2.3 How to evaluate Collaborative Learning?

In the planning and design phase of the learning process, the desired outcomes in terms of the final result and results to be obtained during the process are defined. Individual goals can be set as well and all of them can be measured.

It is specified in the design how the achievement of each objective will be assessed, with the possibility of combining different techniques according to each type of objective:

**Tests before and after the process:** A test of proficiency in a certain area of knowledge before the process begins and after its conclusion can be used to measure progress.

Before focusing on the sources and instruments for assessing collaborative learning, below are some clarifications about assessment in this area:

- a) Assessment must be viewed as a learning opportunity.
- b) There is no one single assessment method, as this will depend on the end goal and the theoretical basis on which it is built. We will speak, then, about multiple assessments and combinations of techniques and strategies that all share a common principle: authentic assessment.
- c) It must be considered as a process that runs parallel to the entire training pathway, with the following key features: serving as support so that learning takes place, and continuously or repeatedly informing us about the relevance of the process in development.
- d) We must be conscious that students use our assessment methods to establish priorities and guide their work. Therefore, if we opt for the collaborative teaching methodology, we must adapt our criteria and assessment techniques, focusing on the success of interactions, feedback and holistic development, both in individual terms and in terms of each group. Furthermore, we must make this explicit in our assessment design, adopting criteria-based assessment. The aspects to be assessed must be clearly formulated, as must the indicators that will be observed and the weighting that each indicator will have.
- e) Another issue to bear in mind is that assessment processes must be coherent. Therefore, if we are trying to train students and evaluate learning situations in a collaborative context, our students' assessments cannot continue to be focused on individual assessment, which places emphasis on a final grade. Accordingly, the search for appropriate criteria for assessing group learning leads us to be innovative in our assessment processes, considering different types of assessment (initial or diagnostic, formative and summative).

As a minimum, the group process carried out within the teams, the type of content development done by each team, and, lastly, the final product of the group work must be measured. For each one of these, we will design a series of assessment instruments. Each one will allow us to look at a different aspect of students' learning.

## Collaborative learning assessment tools and procedures: evaluating learning processes, content and products

Evaluating the group process is probably the key to making sure that the group is really functioning as a team and that learning comes out of the overall, co-ordinated building and dissemination of knowledge among all members. However, it is not easy to measure all of the complex skills that an individual can develop in and with a group, or inter-group skills. Additionally, assessing a process is more complicated than evaluating a product. If, on top of that, we add the fact that each process takes place in a collective context, which determines the nature of each of the actions that emerge from the group, evaluation becomes much more difficult in terms of the assessment's reliability, validity, usefulness and balance. Likewise, it is not always easy or indeed possible to comprehensively measure every single skill that an individual/group can develop: cognitive (knowledge and beliefs), affective (feelings and preferences), behavioural (declaration of intentions or clear actions). Consequently, a complex network of indicators is required to evaluate group work and a group's collaborative skills. The following assessment tools were designed to be able to calibrate the results of each activity and the actions carried out during the group process. These are applicable when a collaborative learning task is being undertaken: group consciousness and identity, allocation of roles and tasks within the groups, performance and efficiency, group atmosphere, feedback in terms of learning etc.

### Assessing the group process

We will describe a list of direct and indirect techniques that can help to evaluate and re-route group learning processes: questionnaires, direct observation techniques, narrative recording where the students describe the processes, portfolios and diaries, task monitoring sheets, session log books, etc. Nevertheless, we must point out that the value of the assessment does not lie in the instrument itself, but rather in the use that we make of the information that these tools gather to develop an authentic assessment exercise.

#### 1. Questionnaires and scales:

We will focus on four kinds of questionnaires for evaluating four important indicators: the degree of group cohesion, the type of roles assigned by the students, the performance of team duties and the environment that exists between the teams.

- a. **Group roles questionnaire:** This questionnaire evaluates twelve ways of behaving within the group, on a five-point scale. Two types of behaviour are evaluated: task-oriented behaviour and behaviour focused on maintaining group activity. The former category includes giving and asking for information, defining objectives and roles, summarising, motivating, checking understanding etc.

The second category refers to activities such as encouraging participation, facilitating communication, easing tension, observing processes, interpersonal problem solving and giving support.

- b. **Group roles inventory:** This inventory brings together 26 different roles, present in any kind of group work. Three broad types of roles are defined: task-based roles (contributor, researcher, opinion gatherer, developer, evaluator, recorder etc.); socio-emotional roles (encouraging others, maintaining harmony, facilitating, observing the group etc.); individual roles (aggressor, blocker, dominator, evader, self-confessor, help-seeker, recognition-seeker). More than recording the



predominant roles in the different teams, using this questionnaire also has the purpose of increasing the degree of participant consciousness of the variety and complexity of the roles available.

- c. **Team environment scale (CES):** The existence, or not, of a good socio-emotional atmosphere within a group will have a great influence on the type of work dynamic that is produced. Atmosphere measurement includes not only the relationships between team members, but also the relationships that these group members have with the teacher. Its 99 true-false items are grouped in 9 subscales of 10 items each (involvement, membership, help, tasks, competitiveness, organisation, clarity, monitoring and innovation). In turn, these are organised into four large factors: a) relationships: evaluates the degree to which students feel integrated into the group, supporting and helping each other (involvement, membership and help); b) self-realisation: considers the students' evaluation of the importance of undertaking the tasks within the group (tasks and competitiveness); c) stability: evaluates issues relating to the adequate functioning of the group (organisation, clarity and monitoring); and d) change: refers to the group members' perception as regards the existence of diversity, novelty and variation (innovation).
- d. **The Verbal Conduct questionnaire is a six-item instrument:** 1) You request help from group members. 2) You provide help to fellow group members who ask you for it. 3) You ask questions when you have doubts. 4) You provide answers when you are asked questions. 5) You provide explanations and 6) You receive explanations from others. The questionnaire has a Likert-style format with five intervals in numerical form from 0 to 4, which represent a continuum that goes from "Never" to "Always".
- e. **Observation logs:** On top of self-maintained logs, we think it is also necessary to undertake a group work in-class observation task. To this end, we have provided a simple observation scale that will allow us to identify some of the most relevant variables.
- f. **Learning portfolios or files:** This is a collection of documents, annotations, analysis, reflections, images etc. put together by the student under the supervision of the teacher. They are arranged in chronological order and show development, progress, and the degree to which the objectives set for each portfolio hand-in have been achieved. They also show each student/group's strategies for inquiry, reflective thought, analysis and, consequently, reflective and experiential learning.
- g. **Group and individual diaries:** The main objective which led us to experiment with techniques such as group or individual diaries is the desire we have to turn our participants into reflective and critical students. They were conceived as a tool for reflection and supervision, in terms of their progress in the activity in question and the management of the group dynamic.
- c. **Personal diaries:** This type of diary collates participants' personal experiences of their group's interaction and that of the individuals as a collective (perceptions,

expectations, consensus, shared norms, conduct, incidents, etc.). They include personal goals, objectives, to what extent these have been achieved, the adaptation of individual goals to become group goals, reflections on group activity, coursework etc.

- d. **Group diaries or group activity reports:** These include actions carried out, the time taken for each, those responsible for actions, work progress, problems, difficulties, diverse opinions. They will also include remarks or ideas about the functioning of the group or about the development of the topic, a synthesis of the results by stages, a brief assessment of the process and the product (report) etc.
- e. **Team interviews:** This interviewing technique allows the group to verbally communicate with the teacher, explaining their way of working to them and “accounting” for their performance.

This assessment procedure for group processes is aimed at extracting qualitative information about how the team functions, what difficulties they experience, what they are learning, how they feel in terms of motivation and interest in the task. In the same vein, it allows us to contrast the information gathered using other instruments and comment on the learning process as the course progresses. At least three interviews on this topic of group functioning are envisaged. Each one of them has been given a generic phase interview name. These will include reflection on achievements and possible errors, where everyone (the group and the teacher) work together to try to look for possible alternatives that would improve group performance. Among the evaluated elements are fulfilment of commitments and task management efficiency and new learning goals are set for the following session. At the end there could be a final interview to bring everything together and look at people’s overall perception of the experience as a whole.

## 2. Other techniques:

On top of the aforementioned instruments, we are including a series of information-gathering tools aimed at facilitating strategic team management.

- a. **Task planning timelines:** for forecasting and monitoring the work to be undertaken. For this tool, each group must define their objectives, general performance criteria, allocation of concrete timescales for tasks and performance review.
- b. **Group task monitoring panels** to monitor the work effectively carried out with the aim of discovering how the group works, at what pace, and at the same time being there to guide and monitor the group and the teacher.
- c. **Role and task assignment templates** distributed to each group so that they have a document which explicitly outlines the function and the type of activity that each group member must participate in. In this way each student will become more aware of the interdependence within the group and the group as a whole can more easily monitor each member’s degree of commitment in performing

their role. At the same time, it allows the group to track the fulfilment of each task's specific objectives and to monitor the timing of their actions within the collaborative project.

- d. **Minute books for each group's sessions.** The agendas, all of the events that take place and decisions taken in a session are recorded in these minutes. It is a rich source that forces students to consider the importance of the group meetings in the strict sense, to plan them, record the facts or events, take decisions and reflect on specific issues. Moreover, it makes them a lot more aware of the need for sequenced and gradual preparation of the collaborative project.

### Evaluation of content: information and degree of knowledge development

This element of assessment handles the degree of cognitive development of working materials. Likewise, it means testing to what extent the content is relevant and significant for the students. To meet this assessment objective, we will analyse the quality of students' interactions with each other, which means analysing the content of their argumentation, their strategies and the messages they use to support and guide the building of knowledge (Gunawardena, Lowe and Anderson, 1997; Derry y Durussel, 1999). This objective is met by preparing debates, whether in-person or on a virtual discussion forum, which can be recorded, transcribed and studied, using discourse analysis techniques, considering the five phases proposed by Gunawardena et al (1997): 1) Share/Compare information, 2) Exploring dissonances or inconsistencies between ideas or concepts, 3) Negotiating meanings-construction of knowledge, 4) Testing or modifying synthesis: co-construction and 5) New agreements/application of the newly constructed meanings. At the same time, the teaching strategies used by the teacher to support this construction should be borne in mind.

Thus, each group participates in a teacher-guided debate that will be recorded and latterly analysed, in terms of the aforementioned phases. Once more, there is a double purpose in organising the debate: a) the debate as a diagnostic tool looking at how information is being built and developed, and b) the debate as a hermeneutic tool which helps students to become aware of the processes and strategies, the argumentation they are using, the expressions they use when discussing an issue etc.

Alongside the video recording observation technique, we can use other types of measuring instruments to evaluate the degree of knowledge construction within each group. These include interviews, narrative records such as diaries and portfolios, checklists or assessment scales.

### Team product evaluation

At the end of the course each team will have developed some kind of product, whether it be a research project, the resolution of a practical case study, a mental map that synthesises the content worked on, a theoretical-practical exhibition, an experiment, a prototype etc. Whatever the nature of this product, it is the result of the team's collaborative work and, as such, an indirect measurement of the quality of that collaboration.

A product assessment necessitates a clarification of the assessment criteria to be used, which should be known before the assessment is carried out.

In order to make the assessment collaborative too, it must be an activity shared between the teacher and the group, through a representative from each team that will act as a member of an assessment panel. This approach means that the students' own work is evaluated by the students themselves, which leads to them being more aware of the assessment criteria they will be employing. Some of these criteria could be: identifying a subject's main concepts; producing an adequate synthesis of them through techniques such as concept mapping, diagrams, graphics etc.; incorporating other texts or work documents that develop and supplement the issue/topic being worked on; presenting alternative proposals for problems and issues raised; showing a critical thinking in respect of one's own work and that of others, in a constructive way and backed up with sound arguments; outlining issues/topics in a clear, meticulous and engaging way, developing dialogic-rhetorical skills; reflecting on learning achievements and limits etc.

So, as the assessment is also collaborative, the use of different means of assessment is advised (self-assessment, co-assessment and hetero-assessment. This will allow the student to refocus and improve their learning processes and experiences, to become aware and, at the same time, take control of what they are doing and what they intend to or should do, to recognise their progress and achievements and to demonstrate a critical and reflective attitude. It will help the instructor in planning their dynamic and gradual learning supervision so that students are supported in the progressive development of their self-regulated learning skills.

Assessment of the final product can be done through a final report, a research paper, a final project, the presentation of a case study, the design of a prototype or product etc. Complementary assessment tools could include narrative records such as diaries and, specifically, learning portfolios or files for sequential evaluation of the process of product construction.

It is important to consider a final stage of overall assessment that triangulates these three sources (process, development of group content or materials and products of group work) with the aim of jointly evaluating all the dimensions of collaborative group work. In order to carry this out, alongside quantitative measurement techniques, we can employ qualitative techniques through instruments such as interviews or opt for other observation and recording tools such as focus groups, in which issues relative to strategic group management are debated, commentaries on the materials are produced, the presentation of materials is evaluated etc. This last technique will mean a process of collective and democratic reflection in which concrete practice will be valued just as much as the planning and supervision of instructional design, with the objective of analysing its strengths and weaknesses in order to reinforce learning processes and situations.

#### **References:**

<file:///Users/mamen/Downloads/9876-Texto%20del%20art%C3%ADculo-9957-1-10-20110601.PDF>

## Self-assessment

1. It is only necessary to assess if the final objective has been achieved.
  - a. True
  - b. False
2. We can combine various measurement tools.
  - a. True
  - b. False
3. The team environment scale (CES) is a measurement tool:
  - a. True
  - b. False
4. It is necessary to use all possible tools.
  - a. True
  - b. False
5. List five tools that you could use in your company
  - 1.
  - 2.
  - 3.
  - 4.
  - 5.

## Solution

False // 2. False // 3. True // 4. False //