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UPSKILLS Guidelines for Learning Content Creation

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UPSKILLS: UPgrading the SKIlls of Linguistics and Language Students

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Table of contents

Executive Summary

The core of the UPSKILLS project is the production of learning content aimed at students in language- and linguistics-related fields (modern languages and cultures, translation, general linguistics, etc.) and lecturers who want to incorporate the developed content and/or add their own, into their teaching. The topics are selected in light of a comparative analysis of the current academic offer and the requirements the job market has for graduates in these areas, conducted under the UPSKILLS project. The main focus is on the knowledge and skills that are insufficiently covered in existing linguistics and language-related curricula but can open new job perspectives for students. The created learning content can be used as individual elements or as an integrated module. These guidelines are created to serve as:

- **Reference material for UPSKILLS project partners** – the partners will consult the guidelines as they create the learning content in line with the project goals.

- **Teaching guides for those using the materials we create** – those who wish to use our materials can gain insight into our approach and methodology

- **Learning content creation guides** – for those who wish to create new materials based on the model we developed under UPSKILLS

List of Figures

List of Tables

1. Active and outcome-based learning

In line with the state-of-the-art in education research and pedagogical trends (Biggs & Tang 2011; Gjedde 2020), the UPSKILLS project adopts an active learning and outcome-based approach in the creation of new learning content. While all learning is active in some sense, a conscious effort to design education around having students engage with the content they encounter has been proven to be the most effective across different disciplines (Michaels 2006).

In a nutshell, this approach entails interactive content which guides the learner to reflect on the task they are given during and after performing it.

Most often, the student is directed to think critically about the presented content, solve problems, evaluate and propose solutions, practice skills, etc. This approach is challenging in the classroom (for more information about how to use this approach in face-to-face teaching, see Iva Buchberger's paper in Annex 1) and even more so in an online environment. A good way to ensure that the content you are creating promotes active learning is to make sure that the student is directed to develop the higher levels of Bloom's taxonomy of the cognitive domain of learning.

Bloom's taxonomy (Bloom 1956), especially its revised version (Anderson & Krathwohl 2001), remains the solid core on which learning materials can be built. It is also the basis on which new taxonomies of educational objectives are being developed and improved (e.g., Marzano & Kendall 2006). The way to incorporate this taxonomy when defining learning outcomes is discussed in more detail below, while the general details of the approach related to the cognitive domain are presented here. Namely, learning is described as a path towards intellectual mastery of a topic that follows six steps (from the bottom up):

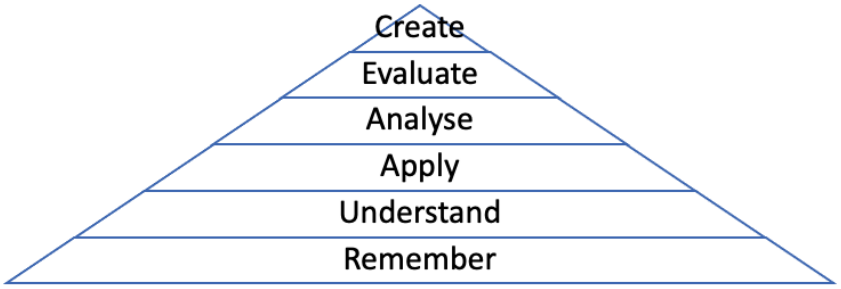

Figure 1. Revised Bloom's Taxonomy (adapted from Anderson & Krathwohl 2001)

In order to reach the higher levels, you first need to go through the lower ones. This does not have to be done through new learning materials – you can refer to readings, links, other resources, etc. In the overview of existing materials surveyed in the UPSKILLS project, you might even find resources covering higher levels, and these can be used to cover part of the content to reach the set learning outcome.

To test whether your learning content is reaching the higher levels, you can use the following table, for example:

Learning activity ***Level***	Quiz	Test with open-ended questions	Problem-solving task	Simulation task
Create e.g., produce original work			(✓)	✓
Evaluate e.g., justify an argument		(✓)	✓	✓
Analyse e.g., connect different ideas	(✓)	✓	✓	✓
Apply e.g., use in a new context	(✓)	✓	✓	✓
Understand e.g., explain concepts	✓	✓	✓	✓
Remember e.g., recall facts	✓	✓	✓	✓

Table 1. Creating materials that aim to achieve the higher levels of Bloom's Taxonomy, in line with the framework of active learning.

You can find a blank version of the above table in Annex 2

In addition to an active learning approach, the learning content also needs to be created keeping in mind the principles of outcome-based education. This means that what the learner is intended to learn and how they will demonstrate it is defined before the learning content is created through defining learning outcomes and assessment tasks. A useful design to guide content creators through this process is Constructive Alignment (Biggs 2014), which has been shown to lead to the high achievement of learning outcomes and high levels of student satisfaction. The core idea is that knowledge is constructed through learning activities, which thus need to be aligned with the learning outcomes and assessments tasks. This is sometimes also referred to as the triangle of effective learning, with each of the three components represented as one point of the triangle.

In sum, the key steps to achieve effective outcome-based learning are:

- Defining the intended learning outcomes
- Embedding the learning outcomes into the learning content, which is designed to bring the learner closer to the intended outcome
- Developing assessment tasks that will enable judgments about how well the learner meets the criteria defined in the learning outcome.

The process of Constructive Alignment is also summarized in the figure below:

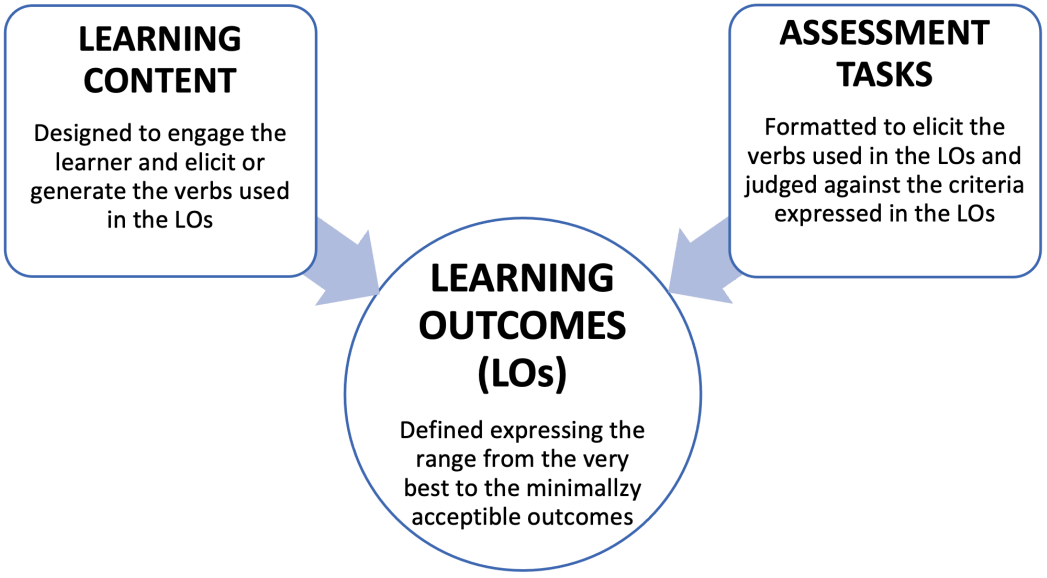

Figure 2. Constructive Alignment (adapted from Biggs & Tang 2011)

Thus, you need to start from well-defined learning outcomes and then construct the rest of your unit block in alignment.

2. Learning through theory and practice

The learning content created under UPSKILLS needs to tackle both theory and practice. While most teachers are familiar with presenting theoretical content, practice in this context entails that which occurs in the usual daily performance in the occupation(s) for which the student is being educated. This needs to be included in order to link theoretical knowledge and the procedural and dispositional knowledge that underpin competent practice (Billett 2010). In essence, engaging in practice is the same as learning.

Students need to learn the knowledge and skills required for their future profession, but they should also become familiar with the occupation's typical activities and interactions

Learning through experience is also closely linked to active learning. Through an interactive approach, students are stimulated to engage with the content and enhance their learning experience. This can be done by designing activities such as questionnaires, simulations, case studies, etc. (Wrenn & Wrenn 2009). Ideally, students should learn that "there is nothing more practical than a good theory" (ibid: 258).

The significance of taking this approach is apparent both in anecdotal accounts and reports from the labour market, as also evidenced in UPSKILLS needs analysis, but there are some challenges to keep in mind. Students often find it difficult to effectively and confidently apply their knowledge in practice, and this could be remedied by applying a version of the traditional apprenticeship model of practice-based learning, e.g., having close guidance by experienced practitioners. However, the changing demands of the labour market and frequent transformation of existing and development of new career opportunities make this difficult. Furthermore, if learning through theory and practice is seen as a path to creating "job-ready" graduates, the inevitable failure to achieve this goal could lead to overall disappointment with the approach, which puts additional pressure on educators who create such learning content (Billett 2010). These challenges can be tackled by:

- **Creating clear expectations**, e.g.:
    - listing the occupations that are considered when creating the learning content in the unit description
    - defining the skills that are targeted with precision in the learning outcome
- **Embedding agility/adaptability into the learning content**, i.e., emphasizing the higher-level learning which enables students to apply what they learned in new contexts and devise original solutions.

Your learning content should serve as initial preparation for entering the labour market, but – perhaps more importantly – it should help students get into or reinforce the mindset of being open to always learn new things.

The learning process is thus best geared through a dual approach that focuses on both theory and practice:

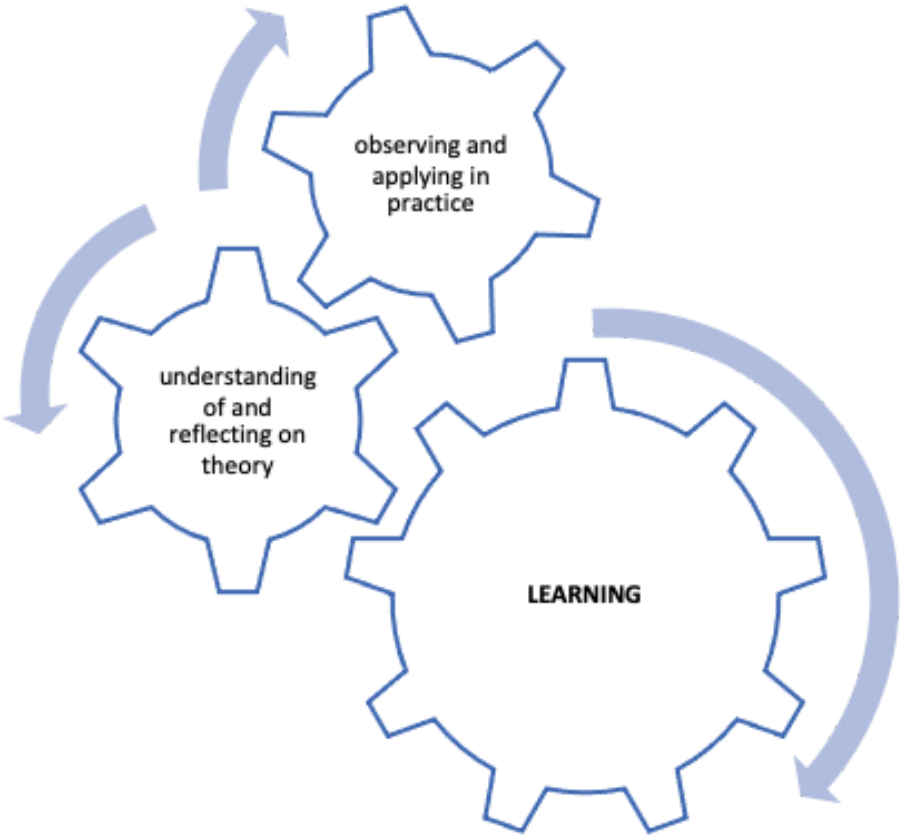

Figure 3. Learning through theory and practice

This approach facilitates achieving excellence within a given profession. However, the learning path does not need to be rigid and overly formal in order to be effective. On the contrary, it can be fun and playful, as elaborated in the following section.

3. Learning gamification

Following on from the presentation of our main pedagogical perspective, it is time to move to the aspect that is expected to add unique value to our learning content, that is, the

gamification of our students' learning experience. Before going into this section, it is crucial to clarify right from the beginning:

We are not in the business of making educational games, but rather aim to use gamification techniques to make our materials more engaging for students

The reason for this is twofold. The first one is of a practical nature and has to do with the expenses involved in developing games from scratch. These expenses typically range from hundreds of thousands of euros to (more often than not) millions, which obviously forbids us from going down this route. Thus, the (minimal by comparison) funding we have received for this purpose can only be used to potentially add light skins to existing games – something that our partners involved with digital games are looking into – and will most probably be mainly used to identify games that could be incorporated as they are into our materials. This, however, does not mean that these games will take over the learning material; rather, they will be used to either introduce or help practice a particular concept within our teaching, with the intention of rendering it more enjoyable.

The second, and obviously more substantial reason, is that, from a pedagogical perspective, gamification is not even the process of developing educational games per se. Borrowing a standard definition from the relevant literature, "gamification is a technique that proposes dynamics associated with game design in the educational environment, in order to stimulate and have direct interaction with students, allowing them to significantly develop their curricular, cognitive, and social competences" (Manzano-León 2021:1). In relation to this, it has indeed been widely demonstrated (Alsawaier 2018; Flatla et al. 2011; Cechanowicz et al. 2013; Liu et al. 2013) that games may indeed help motivate students, especially children (Brewer et al. 2013), but learning exclusively through gameplay can just as easily have the opposite effect on older ones, and especially adults, like the ones we are targeting, since, by exclusively playing games they can easily lose sight of their original learning objectives, and thus lose trust in the process. What we need to avoid in this respect are comments, like 'I came here to learn, not to play a game' or 'I'm sorry, but why are we playing this game? I don't get it…'.

All in all, when it comes to developing our learning materials, we cannot rely too much – let alone exclusively – on games, as this would run the risk of undermining our main goal, which is to help students learn, rather than to just have fun. That being said, embedding game elements into our materials is bound to motivate our students to "learn by doing" (Shute & Ventura, 2013) and thus enhance their experience. That is because, as it has been widely

reported, the right amount of gamification can go a long way into engaging learners and promoting their problem-solving skills, which are after all, an ability that we clearly need to focus on, as per our needs analysis. At the same time, apart from knowledge-seeking per se (Toh & Kirschner 2020), gamification has been shown to encourage creativity (Vartanian & Beatty 2015) and provide social links (Waytz & Gray 2018) that not only reduce learning isolation (Valkenburg & Peter 2009) but also instil confidence in the students.

Against this backdrop, a principal reason why we will be seeking to gamify our students' learning experience is that our materials are expected to be used in hybrid-format instruction (i.e., through a combination of online and f2f sessions). In this setting, ensuring that the students' motivation remains high is certainly key to the success of learning content creation. Apart from a sense of self-discovery, this route can notably also mimic the reality of a potential future job environment, where collaborative work and individual initiative are highly valued, hence the focus on industry-based and research-based tasks in our project.

3.1 How will we do this?

We can now move on to see what gamifying our learning materials ultimately amounts to. As already mentioned, gamification consists in incorporating gaming principles, as well as features of game design into our teaching. Let's briefly discuss these two aspects of gamification in turn.

3.1.1 Gamifying our learning materials

When it comes to gaming principles and techniques, there are various strategies that we can use, with the most common being the challenge-, the immersion-, and the social-based ones. For our present purposes, we can, of course, use whichever fits our learning objectives best and are encouraged to use them all as the need arises (i.e., you do not have to base all your teaching on just one of them, and actually you shouldn't really do that as it is bound to make the learning process quite repetitive).

The first strategy is based on overcoming challenges (Majuri et al., 2018; Koivisto & Hamari, 2019), whereby you present the students with a problem that needs to be solved and task them with solving it. Note that this is something that you can do both at the beginning of a session, in order to pick your students' interest and gauge their ideas on the basis of what has already been previously covered, and at later stages, in order to allow your students to contextualise and at the same time monitor their understanding.

The second strategy amounts to immersing the student into a story and should thus be characterised by some sort of narrative - ideally an audiovisually rich one (Concannon et al., 2019). While this could also be used for part of a session, this strategy seems better suited for a full session, especially one that focuses on consolidating prior knowledge, or even a full module (perhaps of a more practical nature), as it involves a fair amount of role-playing and should allow enough time for the students to be immersed in the scenario.

Finally, social-based games basically have to do with the students either competing or collaborating (Romero, 2017). In the former case, you can provide some incentive for them to complete the game or come up with a solution first (perhaps some grade bonus or even avatar points - more on this in a bit), while in the latter, you can pair/group them up in order to complete a task. Clearly, you can combine both ways by, say, getting them to complete a competitive task where the reward would be to assume some particular role in the collaborative task or getting them to collaborate on a task and rewarding the ones who contributed more.

Needless to say, these gamification strategies are far from mutually exclusive, as they can (and perhaps should) be combined in different ways. Again, however, the aim in implementing them is to spark the students' interest in activities that are not only fun but also meaningful when it comes to their learning.

Situating this in gamification theory, there are several ways of looking at how this can be achieved. According to the self-determination theory, our “games” will need to cater to three needs of the students: their need to think independently and take charge in the activity at hand, their need to find the activity relevant to their learning objectives and the need to develop their own competence while achieving the game’s goal (Richter et al., 2015). Along similar lines, the goal-setting theory (Locke and Latham, 2002, 2006; Landers, 2014) can help us identify the most important factors in making gamification successful; these being, apart from the students’ commitment towards their learning goal (which the game should help enhance), the situational constraints (i.e., time permitted to play the game, whether the game takes place in class or online, etc.), the complexity of the game at hand and the feedback that the students will receive throughout this process.

Looking at this from the perspective of what we need to keep in mind while developing our materials, the flow theory can offer us significant insight (Huang and Hew, 2018). According to this model, gamification succeeds when we provide students with:

- specific and understandable instructions and goals, including achievement indicators
- immediate feedback (either on our own or through moderated peer discussion)

This means that while coming up with our gamified activities and tasks, we need to pay particular attention to explaining why the game at hand is helpful and what it will offer our students (unless the aim of the game is to introduce a concept or to act as an ice-breaker activity) and to also make sure that we do not only offer them feedback as the game goes along or when it ends, but also give them time to self-reflect on what the activity at hand helped them learn. That is why all the relevant activities need to be carefully planned in the interest of striking a balance between engaging the students and being challenging enough, given the knowledge they have at this stage, but not too overwhelming for them either.

Summing up the things to keep in mind while preparing your learning materials, here is a handy checklist:

- ☐ **Do not include a game in your materials just for the sake of gamifying them**. Always think about the added value that the relevant activity or task will add to the students' learning at the point in which it will be introduced. The goal could be to either introduce a concept in a fun way, challenge the students to apply some new knowledge, monitor their understanding, or even develop particular skills that are necessary for their employment prospects. Always take note of these goals, and include them in your plans, as they will ultimately help you assess whether a game is the best way to go in each particular instance.
- ☐ By the same token, **do not overdo it with games**, as we need to strike a balance between fun activities and meaningful interaction that will instil trust in our students in relation to our materials' credibility. You can also consider repeating the same game with different difficulty levels.
- ☐ **Always provide students with a description of each game** that includes clearly defined roles (if it is a collaborative one) and detailed instructions about what they are expected to do, as well as what kind of feedback (and reward, if applicable) they will eventually receive. While doing so, try to not overcomplicate your activity's design, and always give them enough time to complete it, taking into account the group's dynamics and prior knowledge.
- ☐ **Identify specific parts of a session in which a game could potentially be used to make learning more engaging**. Even if you cannot think of a particular game or gamified activity for that stage of the session, note the section and consult with other project partners. Keep in mind, however, that you are the experts in your area, so identifying gamified activities that will match the learning objectives you set is something that we'll need to do in collaboration with you.
- ☐ An important aim of this project is to **enable students to learn actively**. This does not need to be achieved exclusively through games, so interactivity should be central to all the materials you adapt/develop. This means that you should try to keep traditional lecturing to a minimum, or better still, in line with our gamification objective, embed it in a narrative that will engage the students (or at least convince them that it is something they could be using a lot in their future careers).

You can find a standalone version of this checklist in Annex 3

3.1.2 Incorporating features of game design into our curricula

While this particular aspect of gamification will be mainly dealt with as part of another part of this project (i.e., IO4), it is important to briefly outline what it entails so that you take

it into consideration while developing your learning content. Apart from trying to make our learning materials visually appealing within the Moodle platform, we will also try to incorporate (at least some of) the following gamification features in all developed modules:

- The ability to upload pictures / create avatars (if possible).
- A point system to mark achievements, coupled, if possible, with completion badges.
- Clearly signposted progression stages with progress bars that allow for feedback at regular intervals.

If necessary and decided by the content creator(s), a storyline for the whole module or leaderboards for competitive tasks.

4. Defining learning outcomes and determining workload

The aim of this section is to provide guidelines for defining and writing learning outcomes and determining workload translatable into ECTS credit – two interconnected procedures that lie at the heart of the educational process.

Learning outcomes are statements formulated by academic staff, involving students and other stakeholders. In order to facilitate assessment, these statements need to be verifiable, and their achievement needs to be assessable through procedures based on clear and transparent criteria (Cedefop 2017; European Commission 2015; Kennedy 2007). Learning outcomes connect the educational process and its programmes with the needs and the dynamics of the labour market as well. This connection is best illustrated by the feedback loop model proposed by Cedefop (2017: 26):

Figure 4. The interaction between education and training and the labour market

Having this in mind, it is important to align the learning outcomes of the block you create with the UPSKILLS project needs analysis report.

Defining and writing learning outcomes is a demanding activity that requires considerable reflection. For starters, outcomes are always context-specific and can be written for different purposes (e.g., for a qualification standard, a programme/course/module description, a curriculum, an assessment standard, etc.).

There are no rules regarding the ideal number of learning outcomes, but the general recommendation is to keep this number as low as possible. For defining a course or unit, such as the UPSKILLS unit blocks, the optimal number of outcomes should be about four to six, whereas, for educational programmes as a whole, the recommendation is between 10 to 12 outcomes (Cedefop 2017, European Commission 2015). Limiting the number of learning outcomes makes it easier for the learner to relate to the intentions and engage in the learning. Additionally, it makes it easier to plan teaching, facilitate learning, and eventually carry out the assessment. (Cedefop 2017: 45-47).

Defining and writing learning outcomes should be **an iterative process**, starting from overall objectives and moving stepwise towards specific statements for units and assessment. Having arrived at specific statements, overall objectives could be reviewed and changed. When articulating your learning outcomes, bear in mind that learning outcomes:

- should adequately reflect the context, level, scope, and content of the educational programme
- have to be formulated as **succinct** and **not too detailed** statements
- have to be **easily understandable and verifiable** in terms of what the student has actually achieved at the end of the programme
- have to be **achievable within the specified workload**
- have to be **linked with appropriate learning activities**, teaching and assessment methods, and criteria.

(adapted from Cedefop 2017 and European Commission 2015)

Learning outcomes are **statements that include an action verb, an object, and some kind of context**. When writing a learning outcomes statement, focus on the learner and start with an action verb, followed by the object of the verb, as well as a statement specifying the depth/breadth of learning to be demonstrated. Complete the statement with an indication of the context (which can be related to learning, work, or other relevant social contexts). In general, there should not be more than one action verb for each learning outcome. These central principles are exemplified in the following table (adapted from Cedefop 2017: 47):

THE BASIC STRUCTURE OF LEARNING OUTCOME STATEMENTS			
SHOULD ADDRESS THE LEARNER	SHOULD USE AN ACTION VERB TO SIGNAL THE LEVEL OF LEARNING EXPECTED	SHOULD INDICATE THE OBJECT AND SCOPE (THE DEPTH AND BREADTH) OF THE EXPECTED LEARNING	SHOULD CLARIFY THE OCCUPATIONAL AND/OR SOCIAL CONTEXT IN WHICH THE QUALIFICATION IS RELEVANT
The graduate	is expected to **create**	electronic resources as transcriptions and digital images	and understand the benefits and implications of these methodologies.
The course participant	is expected to **produce**	transcripts of spoken language	by applying appropriate transcription conventions.
The student	is expected to **distinguish between**	perfective and progressive aspect of past tenses	in spoken and written accounts about past events.
By the end of this course, students	should be able to **use**	corpus-assisted tools and methods	to analyse and compare various contexts of language use on social networks.
Upon the completion of the module, students	will be able to **translate**	written administrative and legal texts	from language A to language B and vice versa.
Participants	can **explain**	the advantages and disadvantages of qualitative, quantitative, and mixed research methods	to develop a research design for their project.

Table 2. The basic structure of learning outcome statements

When articulating learning outcomes, it is important to use precise verbs and to avoid broad, ambiguous ones, as listed in the table below:

AVOID AMBIGUOUS VERBS:	USE PRECISE VERBS:
know, understand, enjoy, determine, appreciate, grasp the significance of, become familiar with, believe, be aware of, comprehend	*distinguish between, differentiate, assemble, adjust, identify, solve, write, recite, construct, contrast, compare*

Table 3. Ambiguous and precise verbs (from Cedefop 2017: 49)

One way to avoid ambiguity is to use action verbs. The notion usually refers to the taxonomies of learning domains developed by Bloom and colleagues, which were already mentioned at the beginning of these guidelines. Most learning outcomes are associated with the cognitive domain, and the scope of learning content created in the UPSKILLS project will also mostly target areas like knowledge, comprehension, application, analysis, synthesis, and evaluation. The other two main domains are the psychomotor domain, related to physical skills, and the affective domain, related to attitudes, feelings, and values (Kennedy 2007: 8). A list of suggested action verbs that can be helpful in the formulation of learning outcomes is provided in table 4.

DOMAIN OF LEARNING	LEVELS OF SOPHISTICATION	COMMON VERB ASSOCIATIONS
Cognitive (knowledge) ***What will students know?***	*remembering, understanding, applying, analysing, evaluating, creating*	*define, identify, describe, differentiate, explain, apply, analyse, resolve, justify, recommend, judge, create, design*
Psychomotor (skills) ***What will students be able to do?***	*imitation, manipulation, precision, articulation, naturalisation*	*adapt, arrange, build, calibrate, construct, design, deliver, demonstrate, display, dissect, fix, mimic, operate, sketch, use, perform*
Affective (attitudes, values, or habits of mind) ***What will students value or care about?***	*receive, respond, value, organise, characterise*	*ask, challenge, demonstrate, discuss, dispute, follow, justify, integrate, practice, judge, question, resolve, synthesise*

Table 4. Action verbs associated with learning domains (Cedefop 2017: 52)

More detailed lists of action verbs following a taxonomy of complexity for each learning domain are shown in tables 5, 6, and 7. These can be useful to define learning outcomes that will facilitate designing assessment tasks, as outlined in the introduction of the Constructive Alignment approach. These lists of verbs are based on a taxonomy proposed by Bloom and its subsequent modifications by other scholars (adapted from Kennedy 2007: 27-40). It should be noted that the level of detail describing the cognitive domain is not reflected in the literature for the remaining two domains.

COGNITIVE DOMAIN	
Domain levels (from higher to lower level of complexity)	**Commonly associated action verbs**
6. EVALUATION The ability to judge the value of material for a given purpose.	*appraise, ascertain, argue, assess, attach, choose, compare, conclude, contrast, convince, criticise, decide, defend, discriminate, explain, evaluate, grade, interpret, judge, justify, measure, predict, rate, recommend, relate, resolve, revise, score, summarise, support, validate, value*
5. SYNTHESIS The ability to put parts together.	*argue, arrange, assemble, categorise, collect, combine, compile, compose, construct, create, design, develop, devise, establish, explain, formulate, generalise, generate, integrate, invent, make, manage, modify, organise, originate, plan, prepare, propose, rearrange, reconstruct, relate, reorganise, revise, rewrite, set up, summarise*
4. ANALYSIS The ability to break down information into its components, e.g., look for interrelationships and ideas (understanding of organisational structure).	*analyse, appraise, arrange, break down, calculate, categorise, classify, compare, connect, contrast, criticise, debate, deduce, determine, differentiate, discriminate, distinguish, divide, examine, experiment, identify, illustrate, infer, inspect, investigate, order, outline, point out, question, relate, separate sub-divide, test*
3. APPLICATION The ability to use learned material in new situations, e.g., put ideas and concepts to work in solving problems.	*apply, assess, calculate, change, choose, complete, compute, construct, demonstrate, develop, discover, dramatise, employ, examine, experiment, find, illustrate, interpret, manipulate, modify, operate, organise, practice, predict, prepare, produce, relate, schedule, select, show, sketch, solve, transfer, use*
2. COMPREHENSION The ability to understand and interpret learned information.	*associate, change, clarify, classify, construct, contrast, convert, decode, defend, describe, differentiate, discriminate, discuss, distinguish, estimate, explain, express, extend, generalise, identify, illustrate, indicate, infer, interpret, locate, paraphrase, predict, recognise, report, restate, rewrite, review, select, solve, translate*
1. KNOWLEDGE The ability to recall or remember facts without necessarily understanding them.	*arrange, collect, define, describe, duplicate, enumerate, examine, find, identify, label, list, memorise, name, order, outline, present, quote, recall, recognise, recollect, record, recount, relate, repeat, reproduce, show, state, tabulate, tell*

Table 5. Action verbs often associated with learning outcomes in the cognitive domain

AFFECTIVE DOMAIN (ATTITUDES, VALUES)	
Domain levels (from higher to lower level of complexity)	**Commonly associated action verbs**
5. CHARACTERISATION At this level, the individual has a value system in terms of their beliefs, ideas, and attitudes that control their behaviour in a consistent and predictable manner, e.g., displays self-reliance in working independently, displays a professional commitment to ethical practice, shows good personal, social and emotional adjustment, maintains good health habits, etc.	*act, adhere, appreciate, ask, accept, answer, assist, attempt, challenge, combine, complete, conform, co-operate, defend, demonstrate (a belief in), differentiates, discuss, display, dispute, embrace, follow, hold, initiate, integrate, justify, listen, order, organise, participate, practice, join, share, judge, praise, question, relate, report, resolve, share, support, synthesise, value*
4. ORGANISATION This refers to the process that individuals go through as they bring together different values, resolve conflicts among them and start to internalise the values, e.g., recognises the need for balance between freedom and responsibility in a democracy, accepts responsibility for their own behaviour, accepts professional, ethical standards, adapts behaviour to a value system, etc.	
3. VALUING This ranges from simple acceptance of a value to one of commitment, e.g., the individual demonstrates belief in democratic processes, appreciates the role of science in our everyday lives, shows concern for the welfare of others, shows sensitivity towards individual and cultural differences, etc.	
2. RESPONDING This refers to the individual actively participating in their own learning, e.g., shows interest in the subject, is willing to give a presentation, participates in class discussions, enjoys helping others, etc.	
1. RECEIVING This refers to a willingness to receive information, e.g., the individual accepts the need for a commitment to service, listens to others with respect, shows sensitivity to social problems, etc.	

Table 6. Action verbs often associated with learning outcomes in the affective domain

PSYCHOMOTOR DOMAIN (SKILLS)	
Domain levels (from higher to lower level of complexity)	**Commonly associated action verbs**
5. NATURALISATION Displays a high level of performance naturally ("without thinking"). Skills are combined, sequenced, and performed consistently with ease.	*adapt, adjust, administer, alter, arrange, assemble, balance, bend, build, calibrate, choreograph, combine, construct, copy, design, deliver, detect, demonstrate, differentiate (by touch), dismantle, display, dissect, drive, estimate, examine, execute, fix, grasp, grind, handle, heat, manipulate, identify, measure, mend, mime, mimic, mix, operate, organise, perform (skilfully), present, record, refine, sketch, react, use*
4. ARTICULATION The ability to coordinate a series of actions by combining two or more skills. Patterns can be modified to fit special requirements or solve a problem.	
3. PRECISION At this level, the student has the ability to carry out a task with few errors and become more precise without the presence of the original source. The skill has been attained, and proficiency is indicated by smooth and accurate performance.	
2. MANIPULATION Ability to perform certain actions by following instructions and practising skills.	
1. IMITATION Observing the behaviour of another person and copying this behaviour. This is the first stage in learning a complex skill.	

Table 7. Action verbs often associated with learning outcomes in the psychomotor domain

After defining the learning outcomes and before starting to create learning content, it is crucial to consider the workload. Workload is the estimated time a student needs to complete all activities required to achieve the defined learning outcomes of a particular course or study programme. It includes activities such as lectures, seminars, projects, practical work, but also the activities required to engage with the created content, such as studying, reading, preparation, practicing, taking quizzes, etc.

There is a distinction between *perceived* and *objective* workload. **Perceived workload** refers to the combination of the demands placed upon the student and the effect of these demands on the student, such as effort and frustration (Kyndt et al., 2014: 685). **Objective workload** is typically measured **as the number of hours** that students should objectively spend on course activities and studying. The best example of a system that quantitatively estimates the objective workload associated with a course or educational programme is the European Credit Transfer and Accumulation System (ECTS), developed by the European Higher Education Area. ECTS credits provide students an estimation of the time required to

take a particular course, i.e., the time needed to complete all learning activities such as lectures, projects, self-study, and examinations (Kyndt et al., 2014).

ECTS can be applied to all programmes, whatever the mode of delivery (classroom-based, work-based, distance learning) or the status of students (full-time, part-time), and to all kinds of learning contexts (formal, non-formal, informal). Allocation of ECTS credits is the process of assigning a number of points to qualifications, degree programmes, or single educational components, such as course units, dissertations, work-based learning, and work placements. **In the UPSKILLS project, each unit block should carry 3 to 6 ECTS**.

The full-time workload of an academic year corresponds to 60 credits. This is usually formalized by national legal provisions. In most cases, workload ranges from 1,500 to 1,800 hours for an academic year, which means that **one credit corresponds to 25 to 30 hours of work**. For example, a 5 ECTS credit course equals about 137 hours, a 10 ECTS credit course equals about 274 hours, and so on. It should be added that this represents the typical workload and that for individual students, the actual time to achieve the learning outcomes will vary (European Commission 2015: 10). An example of workload calculation and ECTS credit allocation can be seen in table 8.

Activity	**#**	**Time factor (hours)**	**Workload**
Lectures	30	1	30
Seminars	15	1.5	22.5
Reading (articles – 3,3 pages per hour)	100	0.3	30
Reading (book chapters – 5 pages per hour)	100	0.2	20
Essay	1	10	10
Group project	1	20	20
Presentation of group project	1	0.5	0.5
Preparation for an exam (one-fifth of the time frame given in the curriculum)	1	30	30
Written exam	1	3	3
In total			**166**
Conversion to ECTS credits (total hours / 1600 x 60)			**6.22**

Table 8. Calculating workload for a course (adapted from UNIS 2018).

You can find a blank version of the above table in Annex 4

As seen in Table 8, the total amount of hours slightly exceeds the planned credit value (6 ECTS), which means a small adjustment to the course workload should be made to align the course workload with the fixed course value. For example, the amount of reading or some assessment activities could be reduced.

Allocation of credits can be seen as a tool for teachers to evaluate and aim for appropriate workload, but it must be used in the context of the specific educational programme or unit. However, it must be done with the aim of **effective deep learning and not to "fit the form."**

Here are some **useful guidelines for calculating workload and allocating ECTS credits:**

- List up all activities involved in the course to ensure students have enough time to achieve the defined learning outcomes.
- Include time for reading, preparing for exams and lectures, seminars, labs, and other activities.
- For each activity, include enough time for deep and affective learning. Insufficient time for the activities may lead to *surface* learning.
- Keep in mind that the time allocated for each activity **is an average estimate** and that, depending on their backgrounds, experiences, and individual differences, some students might need more or less time to achieve the defined learning outcomes.

(adapted from UNIS 2018 and European Commission 2015)

It is important to balance objective and perceived workload. Students' experiences and backgrounds differ, which can influence their varied perception of workload. Perceived workload can lead to frustration and dropping out among students, which is why teachers should reduce negative workload perceptions by clearly communicating their expectations and implementing Constructively Aligned curricula (Scully and Kerr, 2014). In the context of the UPSKILLS project, this can be tackled by explicitly stating any prior knowledge or experience students need to have to achieve the defined learning outcomes. You can also provide additional materials and resources for those who need more preparation, but these should not be calculated as the unit's ECTS if they are not part of the required learning content.

5. Selecting learning material formats

Keeping in mind the above, there is a wide range of formats you can select to create your learning content. You are free to choose the format and tools you use, as long as you

follow the outlined pedagogical approach. You can produce typical materials that are used in classrooms, such as textbook-style texts, presentations and handouts, just make sure you:

- Include a reference to the UPSKILLS project and website link
- Select and copy in a license indicating how the materials can be (re-)used
- Save and upload your materials as .pdf files to ensure all the formatting is preserved

In addition, in order to make the content more engaging, you can produce some other common formats of online learning materials. Here are some examples with useful tips and links:

- **PPT presentation with audio narration**. Your presentation can be enhanced by adding narration and creating a slide show or video that resembles a live presentation or lecture. All the equipment you need is a computer with audio-recording capability and a decent microphone (e.g., the one in your headphones). A step-by-step guide can be found here.
- **Presentation with presenter's video**. A next step further to the above is to add a video recording of the presenter. The easiest way to do this is to start a Zoom call and share your screen with the desired presentation and then record the call (no other call participants are needed). A step-by-step guide can be found here.
- **Recording of your screen**. For practical demonstrations, it could be useful to produce a screencast – a recording of what you are doing on your screen. This can be done with or without audio and covering only a part of or your entire screen. Most operating systems today have simple built-in options to do this easily, but you can also explore more advanced software, as for example, discussed here.
- **Recorded (filmed) lectures**. You can produce a decent quality video with even the simplest in-built recording software that comes with most personal computers or smartphones today. Once you record your video, you can further edit it or add interactive elements. A step-by-step guide can be found here.

For all of the above, there are some important considerations to keep in mind:

- Make a **script** with a detailed outline of the structure and precise plan of the timeline
- Use the best possible **microphone** you have at your disposal (e.g., at least the microphone in your headphones) and speak slowly and clearly – audio quality is more important than video quality
- Test different **lighting** options before you start if you are making a video recording (e.g., aiming a lamp at a white wall can create a pleasant, soft light)
- Keep it **short** – breaking up your content into 2-5 minute knowledge clips ensures better student engagement

In addition to the above, a wide array of additional formats is at your disposal – from Moodle plugins to independent online tools for learning content creation to more complex software for creating simulations. We encourage you to be creative and share what you find with other UPSKILLS project partners. **Throughout the content creation process, if you discover an approach you think might be useful to other partners, please share it with us.**

For all the formats, make sure you accurately calculate the workload. Also, try and include some elements of gamification to make sure the students are engaged to continue learning. Studies show that students like to have independent access to learning materials so that they can work at their own pace (e.g., Tarr et al. 2015), but it is up to the content creator to try and set the optimal learning rhythm through which the learning outcome is best achieved.

6. Aligning content with relevant standards and guidelines

When creating your learning content, there are standards and guidelines that need to be followed. Some are legal requirements, while others represent examples of best practices or stem from our project proposal. Please refer back to this section after you are done with creating your learning content as well to make sure all the requirements have been met.

6.1 GDPR

The General Data Protection Regulation (GDPR) 2016/679 is a regulation in EU law on data protection and privacy in the European Union and the European Economic Area. It also addresses the transfer of personal data outside the EU and EEA areas and became enforceable in 2018. Moodle offers features to help us be GDPR compliant by setting up different privacy and policy options, allowing users to track how their data is handled. For more about Moodle GDPR and privacy settings, see this video.

6.2 Accessibility

Try to make your learning content accessible to the widest possible audience. While not all of the created units can be fully accessible to persons with disabilities, whenever possible, try to consider enabling them to engage and actively participate in the learning community. WebReader by ReadSpeaker, a WCAG 2.0 AA compliant accessibility technology, is fully integrated within Moodle as an assistance tool for all learners with literacy or accessibility challenges with text or documents. WebReader includes accessibility and translations tools for all text content.

Web Content Accessibility Guidelines (WCAG) 2.1 covers a wide range of recommendations for making Web content more accessible (WCAG 2.2 will be published later in 2021. WCAG 2.1 is organised under 4 main principles: perceivable, operable, understandable, and robust. Specifically, aim to make the content (https://www.w3.org/WAI/standards-guidelines/wcag/glance/):

- **Perceivable**
  - Provide text alternatives for non-text content.
  - Provide captions and other alternatives for multimedia.
  - Create content that can be presented in different ways, including by assistive technologies, without losing meaning.
  - Make it easier for users to see and hear content
- **Operable**
  - Make all functionality available from a keyboard.
  - Give users enough time to read and use the content.
  - Do not use content that causes seizures or physical reactions.
  - Help users navigate and find content.
  - Make it easier to use inputs other than a keyboard.
- **Understandable**
  - Make text readable and understandable.
  - Make content appear and operate in predictable ways.
  - Help users avoid and correct mistakes.
- **Robust**
  - Maximize compatibility with current and future user tools

A few practical examples which can be implemented include:

- providing a good contrast between the foreground and the background
- making good use of colours and font sizes
- enabling subtitles and transcripts for audio resources (WebReader is fully integrated within Moodle)
- make use of the **Moodle Atto-Editor Accessibility checker**: one of the tools available in the text editor is an automated accessibility checker which checks for some common errors in the text. These are usually things in the way the text is constructed that can prevent all users from having equal access to information and functionality. The list of problems that the accessibility checker looks for is:
  - Images with missing or empty alt text (unless they have the presentation role)
  - Contrast of font colour and background colour meets WCAG AA guidelines
  - Long blocks of text are sufficiently broken up into headings
  - All tables require captions

- Tables should not contain merged cells as they are difficult to navigate with screen readers
- All tables should contain row or column headers

6.3 The FAIR guiding principles.

Creating online training materials from scratch can prove to be extremely taxing. Finding already existing materials which can be easily reused is many a time equally challenging for many reasons, namely:

- "finding suitable online materials that aren't subject to licensing and/or copyright restrictions can be hard" (Garcia et al. 2020: 1)
- such resources are "often scattered across different repositories, are siloed in their home institutions, or lack the metadata required to enable their (re)use" (ibid)

The FAIR principles aim to make digital assets findable, accessible, interoperable and reusable so as to minimise future challenges. Hence, it is of the essence for the UPSKILLS training materials to follow the current best practices by choosing to GO FAIR (https://www.go-fair.org/go-fair-initiative/). The following points, adapted from https://www.go-fair.org/fair-principles/, are guidelines that enable our training materials to abide by the FAIR principles. These best practices should be adopted while creating materials and using already existing materials so as to ensure that the materials created are FAIR and that if any already existing materials are utilised, this is done so appropriately.

F To be **Findable,** the training materials must:

- be assigned a globally unique and persistent identifier
- be described with rich metadata (provide generous and extensive metadata, including descriptive information about the context, quality, and condition, or characteristics of the data)
- include metadata clearly and explicitly stating the identifier of the data being described
- be registered or indexed in a searchable resource

A To be **Accessible,** the training materials must:

- be retrievable by using a standardised communication protocol which
  - is open, free, and universally implementable
  - allows for authentication and authorisation where necessary
- have accessible metadata even when the data is no longer accessible

I To be **Interoperable,** the training materials must:

- use a formal, accessible, shared, and broadly applicable language for knowledge representation (the data should be readable for machines without the need for specialised or ad hoc algorithms, translators, or mappings)
- use controlled vocabulary which can be documented and resolvable using globally unique and persistent identifiers (this documentation needs to be easily findable and accessible by anyone who uses the dataset)
- include qualified references to other (meta)data

R To be **Reusable,** the training materials must:

- be richly described with a plurality of accurate and relevant attributes
- be released with a clear and accessible data usage license
- be associated with detailed provenance
- meet domain-relevant community standards

...if and where applicable to the materials being created

The following visualization of the 10 rules transpiring from the FAIR principles and detailed here can be used by the UPSKILLS material creators and distributors as a reference to ensure that the materials are in line with the FAIR guiding principles:

Figure 5. 10 Simple Rules for making training materials FAIR (Luc Wiegers and Celia van Gelder, https://doi.org/10.5281/zenodo.3593257)

6.4 Copyright

One must always consider the copyright status of training content when reusing already available materials. Disseminating material in electronic format, including uploading it to Moodle, constitutes copying and is, therefore, likely to infringe the rights of the copyright owner unless permission has been granted. When in doubt, always ask for permission from the copyright owner prior to copying, modifying and disseminating their work. This includes using lecture slides, images, videos, and texts which are not one's own (apart from those where it is explicitly stated that the material is in the public domain or covered by an open license such as Creative Commons (CC)), scanning and uploading journal articles and extracts from a book (linking the article or chapter might be a better option and this can be done on Moodle).

Finally, linking to other websites does not cause copyright issues, but the following are two good practices to also keep in mind:

- Every now and again, check that the link is still valid
- When linking to an external website, ensure the link opens in a new browser window/ new tab. This will enable the student to navigate back to Moodle.

For examples and details from St George's Library University of London in relation to Moodle and copyright material click here.

6.5 Licensing (our materials)

The most widely used model for licensing educational resources is the one developed by Creative Commons. Notably, in line with the requirements of our funding body, it provides free and perpetual permission to use materials in line with UNESCO's vision for Open Educational Resources, according to which OERs need to be available in the public domain and licensed in a way that enables everyone to:

- Retain – make, own, and control a copy of the resource
- Reuse – use the original, revised, or remixed copy of the resource publicly
- Revise – edit, adapt, and modify your copy of the resource
- Remix – combine your original or revised copy of the resource with other existing material to create something new
- Redistribute – share copies of your original, revised, or remixed copy of the resource with others

(https://creativecommons.org/about/program-areas/education-oer/)

An appropriate license for your materials can be selected here.

6.6 Internal UPSKILLS alignment

The learning content we all create needs to be coherent, which is why it is important to follow this document and the work process. In addition, it needs to be congruent with the best practices and guidelines formulated in other parts of the project (IO2), so we will keep track of the development of their deliverables. Finally, the content you produce is crucial for the creation of games and gamified learning (IO4), which is why we will work on these tasks in parallel and regular communication.

Useful links

https://zenodo.org/record/3593258#.YRE5-IgzY2x
http://elene4life.eu/dynamic-toolkit/
https://ethinkeducation.com/what-is-moodle-guide/
https://www.ncbi.nlm.nih.gov/geo/info/MIAME.html
http://schema.datacite.org/

7. Determining assessment and evaluation procedures

Trying to navigate what seems to be a minefield of approaches and techniques linked to assessment and evaluation in post-secondary education often feels like a daunting task. The purpose of this section is to contextualize the two terms from the perspective of the UPSKILLS project and then provide some pointers about what to remember while adapting/developing our learning materials. For our current purposes, it should suffice to say that assessment is best seen as an integral part of the more general evaluation process, which, apart from student performance, is meant to also encompass a critical appraisal of the ability of our materials to help the students achieve the foreseen learning outcomes (for more information about the general pedagogical perspective on the concepts under question, seeabout how to use this approach in face-to-face teaching, see Martina Podboj's paper in Annex 5). In this regard, it is best to look at assessment as a looped exercise that includes not only performance metrics but also gives students the opportunity to self-reflect on their progress while receiving meaningful feedback on it, and additionally allows instructors to adapt materials on the basis of the students' experience following their feedback. Ultimately, this means that we need to design our materials in a way that allows for some tweaking so as to meet the dynamics (and perhaps different levels of knowledge or more specific interests) of the different groups using them.

7.1 Assessment in the UPSKILLS context

Adopting an active learning approach, as we do for our purposes, means that we are called to move away from the traditional view of assessment in tertiary education as being primarily or even exclusively carried out by formal and standardized end-of-semester exams or assignments that require students to just recite what has been covered in class. Obviously, there is nothing stopping you from using both these forms of assessment if you feel that they fit the purpose, but you should always first consider (and potentially note down in your session description) how they do so. For example, a short test or quiz (rather than a formal final exam of course) can be an effective way of checking whether what has been covered at some part of a course has been digested by the group and can be justified as a metric that would allow you to see whether something needs to be revisited before moving on. Similarly, a short essay-type assignment that asks students to critically reflect on some theoretical concept and/or its practical application (and NOT just repeat what has already been discussed in the virtual classroom) can easily boost their engagement if properly planned.

In view of our pedagogical approach then, what we definitely need to avoid is thinking of student assessment as comprising just (a couple of) summative elements. Apart from our commitment to providing our students with an active learning experience, the need for continuous, formative assessment is also tied to two further aspects of our project. The first one is that our materials will be designed so that they are suitable for use in online/hybrid courses, where the maintenance of student engagement for the duration of the course can be more challenging than in a face-to-face scenario. In this regard, formative assessment ties really well with gamification, which, after all, calls for tracking progress and rewarding student achievements (both individual and group) as the course unravels. At the same time, formative assessment allows both the students to evaluate their own progress and the instructors to get a better sense of the group dynamics and adapt future sessions accordingly. In this respect, it is crucial to point out that, in this context, assessment is not necessarily tied only to some eventual grading. Even a task or a game achievement could form part of our more general evaluation strategy without being necessarily couched in terms of marks. Even so, for the sake of concreteness, we should flag a number of activities or tasks as assessment components in our course descriptions.

In order to give you some more concrete pointers about what to keep in mind while thinking about assessment for your materials, it would be useful to refer to the often-quoted '*9 Principles Good Practice for Assessing Student Learning*' of the American Association for Higher Education:

1. First of all, assessment is not an end in itself. It should provide opportunities for students to reflect on their progress and take charge of it.
   → **Meaningful bidirectional feedback – more on this later on – is essential.**
2. Similarly, learning is not only tied to what students know but also, and far more importantly, to what they can do with what they know. Assessment should thus not

only focus on knowledge retention but also on how this knowledge and the learning experience overall can feed into the development of all the skills that we want our students to develop so that they succeed in pursuing their future careers.
→ We need to make sure that students get assessed in a variety of ways that will feed into the improvement of their organisational, communication, research, problem-solving, etc. skills too.

3. Assessment is a goal-oriented process, so it needs to be closely tied to the aims of the course under question.
→ It is essential to justify, and make it transparent for the students too, how their assessment ties in with specific course objectives and learning outcomes. For complex tasks or tasks that are repeated or span sessions, this is what rubrics are all about - again, more on this in just a moment.
4. Assessment requires attention to outcomes but also to the experiences that lead to these outcomes.
→ A basic way in which our planned assessment can provide for a more meaningful and impactful experience is by not only making sure that meaningful feedback will be passed on to students, as per (1) above, but also by allowing students to pass on their remarks and thoughts to the instructor too, and engage in a meaningful discussion with them.
5. Following the previous principle too, the assessment process should be continuously refined in light of emerging insights.
→ If the cohort is overperforming, share some thoughts about how an assessment component could become more challenging. In the opposite case, identify how the task at hand could be slightly simplified. Our students' feedback should also have an impact in this vein.
6. Assessment is not a task for small groups of experts but a collaborative activity.
→ Given that we will not necessarily have the means to involve other stakeholders on this occasion (even though we could ask industrial partners to comments on our assessment components), we could in principle also think of ways for assessment criteria to allow on occasion students to give each other feedback too. This has been shown to promote independence, personal responsibility and critical thinking (e.g., Sambell et al., 2013).
7. Assessment makes a difference when it is contextualised in something that the students really care about.
→ Apart from coming up with engaging assessment tasks, seeing that one of our central aims is to enhance our students' employment prospects, it would make sense to link these tasks with academic and industry-based research when possible.
8. Assessment alone changes little.

→ We should make it clear to instructors who would use our materials and to students alike that assessment typically plays a double role: it does not only help monitor progress, knowledge retention, and skill development but can and should also set the pace for future sessions.

9. Similarly, assessment is NOT just a box-ticking part of curriculum development. We all need to see it as an opportunity to improve the student experience.

7.2 How will we do this?

While there should be a fair amount of freedom when it comes to selecting assessment methods while designing your materials, common ones for you to consider are quiz, test, project, application development, logbook, simulation, case study, presentation, task analysis, critical review, portfolio, poster, report etc.

No matter what method of assessment you may select, however, it is essential to include:

- clear instructions about what the students are expected to do (perhaps including a step-by-step guide if the task is complex)
- information about how the assessment meshes with their learning outcomes, and
- information about the feedback they can expect to receive and eventually also provide.

7.2.1 Rubrics

When it comes to the connection of some particular assessment component with the course aims, a typical way of providing information about this is by making dedicated rubrics. As Goodrich Andrade (2000: 17-18) discusses, such documents, which define the assessment criteria and the different levels of accomplishment that students can reach, have been shown to be effective because they are easy to use and explain, they make teachers' expectations clear and provide students with more informative feedback about their strengths and areas in need of improvement than traditional forms of assessment do, all the while supporting learning, good thinking and the development of skills and understanding. As she goes on to discuss, creating a rubric usually involves the following steps:

1. Look at models.
2. List criteria.
3. Pack and unpack criteria
4. Articulate levels of quality – “4: yes; 3: yes, but; 2: no, but; 1: no.” (these should also be aligned with the learning outcomes)
5. Create a draft rubric.
6. Revise the draft.

Obviously, rubrics are most commonly used in relatively complex assignments or for tasks that may repeat themselves and would not be necessary for smaller formative tasks within our materials. That said, even such tasks should be accompanied by a clear set of instructions, as well as a description of their aims and how they link up to the learning outcomes; if anything, this will be essential for lecturers outside the consortium who will be using our materials.

An example of rubrics created for a problem-solving task is: (adapted from https://kpcrossacademy.org/active-learning-online/):

Level of achievement		
High	**Moderate**	**Low**
Considers the processes for solving the problem and self-monitors efforts and progress	Recognizes the underlying structure of the problem	Solves the problem

Table 9. An example of rubrics created for a problem-solving task (adapted from https://kpcrossacademy.org/active-learning-online/).

7.2.2 Feedback

Turning to feedback, it is essential to note that it is currently considered the most powerful way to boost learning. As Rawlusyk (2018) points out, the main reason for this is that access to feedback gives students control over their learning, as it allows them to manage and monitor it in a meaningful way (in comparison to a mark/grade on its own). At the same time, feedback is best conceived of as a process rather than as a unidirectional flow from the lecturer to the student (Carless 2015). As such, when thinking about how to incorporate opportunities for feedback in our materials, we should provide space for constructive dialogue between the students and ourselves and, when possible, among the students themselves too. Ultimately, this enhances the effectiveness of feedback, as it continuously reminds students of the expected learning outcomes and instils confidence in them by enabling them to feel in charge of their learning.

When it comes to implementing this in our materials then, we should clearly signal points in each session where feedback should be provided and also note the nature of the feedback at hand and the means through which this will be effected. Here, we have several options which include and should ideally combine:

- Feedback from the lecturer to students individually (in written or video form, or even through automated responses when they make specific mistakes during a task, etc.)

- Feedback from the lecturer to students as a group (in the form of a discussion with the students or a pre-recorded message when the task is simple)
- Feedback from individual students to the lecturer (through questionnaires, one-to-one interviews, etc.)
- Feedback from students as a group to the lecturer (through open discussion)
- Peer feedback in relation to some task (either in written form or orally - in this case, of course, a detailed description of what students are expected to do would be necessary)

7.2.3 Evaluation

As a final step in the overall evaluation process, the overall quality and fitness of the learning content for achieving the intended learning outcomes also need to be checked. This can be done using Moodle feedback features (more information on that can be found here), but you can also create other forms of evaluation surveys. Some of the main principles to consider are that evaluation needs to be:

- Anonymous – you should never require those providing feedback to identify themselves
- Optional – evaluating the unit block or any part of it should not be obligatory
- Clear – you can use the same approach as suggested for the assessment and provide rubrics for evaluating all the individual learning content
- Student-centred – the questions should be formulated from the students perspective

Finally, in addition to the results of the evaluation survey, you should consider whether students are actually learning when using the content you created. This means that the results of evaluation surveys need to be coupled with the results of student assessment. This step is crucial for the next and final section of these guidelines – how to pilot your learning materials.

8. Outlining a piloting plan

Piloting learning content is an essential part of the creation process. Conducted once a first usable version of the materials is created, piloting enables us to test how the learning process is carried out in practice and to maximize the effectiveness of what we have created. Similar to pilot studies in research, the goal "is not simply to declare that this has been conducted or to justify the methods deployed without making any details explicit; rather, the focus should be to identify the necessity to modify" (Malmqvist et al., 2019: 3).

When creating a piloting plan for your materials, the first step is to identify where and how you will be able to test your learning content. During the creation process and in discussion with project partners, think about suitable courses, study programs and institutions where you could pilot your unit block or parts of it. This will likely be at a partner institution. At least one piloting process needs to be done, but if you have the option of piloting the same materials in different contexts, that can even give you even more reliable feedback. Once you know your available options, you can determine the scope of what you can do. As in research, piloting can include in-depth interviews, focus groups, questionnaires, tests, etc. (van Teijlingen & Hundley 2001). The choice of format will likely depend on the number of learners and how much time they can volunteer to evaluate your learning content and give you feedback.

Piloting learning content can focus on different areas, but usually, the focus is on (Watkins, Curry & Mynard 2014):

- Amount and quality of learning
- Quality of teaching (which might not be applicable for the UPSKILLS materials)
- Quality of course and material design
- Learner satisfaction

These aspects can be examined through qualitative and quantitative methods, with the end goal of determining the strengths and weaknesses and improving our learning content. Piloting can be repeated if we establish that major improvements are needed.

Finally, after this process, it is important to write a piloting report and include it in the course materials for teachers who want to use them. In this way, they gain full insight into the process and can better understand our pedagogical approach.

Good luck!

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Annex 1 - Teaching for active learning: Guidelines for teachers

Teaching for active learning: Guidelines for teachers[1]

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1. Teaching for active learning

Active learning is defined as a learning process whereby the focus is on the individual learner and their active engagement in that process. It should be noted that learning is defined as a process of a relatively permanent change of behaviour of an individual, primarily as a result of the learner's activity. In that sense, every learning is active learning. However, in pedagogy and psychology, the syntagm *active learning* is used to emphasise the importance of the activity of the learner/student in the process of learning and to argue against teaching characterised by passivity of the learners/students, which unfortunately appears too often in practice. The role of teachers in achieving active learning is crucial, since it is their task to organise teaching that will stimulate learners/students and ensure that they do not only passively receive and reproduce information, but learn actively, cooperatively, and critically (Bell & Kahrhoff, 2006; Peko & Varga, 2014; Vizek Vidović, Benge Kletzien, & Cota Bekavac, 2002).

In pedagogy, two approaches to teaching are recognised[2] – teaching to transmit information (Teaching as Transmission) and teaching to encourage active learning (Teaching for Critical Thinking). The main features of the two approaches are summarised in the table below.

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[2] Many authors have written about this dichotomy, such as Freire (2002), who differentiates between the banking model of education and liberating education, Lipman (2003), who compares the standard paradigm of normalised teaching practices and the reflexive paradigm of educational practices for critical thinking, Klooster (2002), who opposes traditional to modern education, and Vizek Vidović et al. (2002), who write about teaching as information transfer and teaching to encourage deeper understanding or teaching guided to shape the learner's experience.

Approaches to teaching	
Teaching to transmit information (Teaching as Transmission)	**Teaching to encourage active learning (Teaching for Critical Thinking)**
Focuses on the transmission of teaching content from teacher to learners/students. Learners/students are passive recipients who mechanically memorise and reproduce the teaching content. Learning outcomes are predominantly defined only for lower achievement levels (memorising and comprehension). Learning outcomes are predominantly defined only for the cognitive domain – the aim of the teaching process is to acquire knowledge.	Focused on creating teaching content as part of an active and collaborative relationship between teacher and learners/students. Learners/students actively shape teaching content and think critically about it. Learning outcomes are defined for all achievement levels (memorising, understanding, application, analysis, evaluation, and creation). Learning outcomes are defined for the cognitive, psychomotor, and affective domain – the aim of the teaching process is to acquire knowledge and develop skills and values.

Table 1. Approaches to teaching

Teaching aimed to encourage *active learning* (Teaching for Critical Thinking), which makes the essence of contemporary (higher) education, is discussed in more detail below. Guidelines for teachers to encourage active learning are given[3] (a) through an explanation of key didactic elements – learning outcomes, teaching content, teaching methods and forms of class organisation, assessment methods, and classroom environment, precisely from the perspective of active learning, and (b) by highlighting the importance of constructive alignment of said didactic elements.

2. Learning outcomes

Planning teaching based on the principles of active learning cannot be exhausted with learning outcomes aimed at the lowest achievement levels – memorising and comprehension. For example, *Upon completion of the programme, students will be able to list the most important representatives of certain periods in English literature ending with the 18th century.* or *Upon completion of the programme, students will be able to define basic concepts and describe the basic principles of phonetics and phonology.* In teaching based on the principles of active learning, learning outcomes aimed at the lowest levels of achievement are just a starting point and one part of the teaching process that necessarily involves learning outcomes aimed at higher achievement levels as well – application, analysis, assessment, and creation (Bloom, 1956; Anderson & Krathwohl, 2001). At the same time, it should be noted that, in

[3] Guidelines are based on the generic teaching model for critical thinking (Buchberger, 2020).

addition to learning outcomes in the cognitive domain, teaching for active learning also includes learning outcomes in the psychomotor (aimed at developing skills) and the affective domain (aimed at developing attitudes and values). Therefore, upon active participation in a teaching programme aimed at active learning, students are expected to be able to list key concepts, define key phenomena, give examples, apply the topic in practice, evaluate phenomena, formulate their own attitudes towards the topic, etc., but also to develop certain skills (i.e., to guide a discussion, to actively listen, etc.) and values (e.g. openness, initiative, responsibility, tolerance, etc.).

Guidelines for teachers: learning outcomes
To encourage active learning, formulate learning outcomes aimed at different achievement levels and in different domains.
Examples of learning outcomes[4] aimed at encouraging and achieving active learning Upon active participation in the teaching programme, students will be able to • Identify relevant information about the topic, • Differentiate between relevant and irrelevant information about the topic, • Interpret relevant information about the topic, • Interpret the phenomenon from different perspectives, • Give examples that additionally explain the topic, • Evaluate key phenomena related to the topic (e.g. list advantages and disadvantages), • Justify a hypothesis related to a certain phenomenon, • Recognise reliable sources of information, • List the features of reliable sources of information, • Differentiate between reliable and unreliable sources of information, • Give an example of an argument related to the topic, • Debate argumentatively about a topic, • Structure pieces of information into a coherent unit, • Moderate a discussion, • Actively listen other interlocutors and ask questions related to the discussion, • Create own vision and suggest solutions, • Invent and innovate existing practices, • Demonstrate openness towards discussions, • Demonstrate initiative in work, • Formulate own attitudes about a topic, • Justify own attitudes about a topic,

[4] These examples of learning outcomes are generic formulations that require further specification depending on the teaching content. For example, specifying the following learning outcome: *Students will be able to evaluate key phenomena related to the topic (e.g. list advantages and disadvantages)* would result in: *Students will be able to evaluate different approaches to translation.* It should also be noted that there is a difference between learning outcomes formulated for a course unit as a whole (*Upon active participation in the course, students will be able to…*) and learning outcomes formulated for a specific lesson or topic (*Upon active participation in class, students will be able to…*).

- Evaluate different attitudes about a topic,
- Respect other opinions about a topic,
- …

To encourage active learning, teachers can use these guidelines as scaffolding to independently design and innovate their teaching.

Table 2. Guidelines for teachers: learning outcomes

3. Teaching content

The key to encourage active learning is overcoming teaching aimed at information transfer, whereby teachers predominantly transfer content to students, while they mechanically memorise it, understand the basics, and then reproduce it. When teaching for active learning, teachers approach the teaching content so that they expect their student to reach different achievement levels defined by learning outcomes, starting from the lowest level (memorising 'only' key information), towards understanding, application, analysis and evaluation, all the way to creation, e.g. by developing arguments and opposing or coming up with possible solutions to posed problems, etc. In other words, when teaching to encourage active learning, teachers approach the teaching content in such a way that they aim at selecting key information related to the content; differentiating relevant and reliable information; explanation and interpretation of teaching content; giving examples while interpreting the teaching content; connecting previously acquired teaching content while acquiring new content; connecting teaching content with content from other courses; connecting the teaching content with the requirements and the dynamics of the labour market; connecting the teaching content with everyday situations; applying teaching content in practice; presenting the teaching content from different perspectives; questioning the teaching content and assumptions on which it is based; recognising and formulating arguments related to the teaching content; formulating and providing arguments to support own attitudes towards the teaching content; forming and providing arguments and questioning different attitudes towards the teaching content.

Guidelines for teachers: teaching content
Approach teaching content through interpretation, analysis, synthesis, application, evaluation, and innovation – not just reproduction.
Example: The teacher asks students not only to define basic terms from English morphology and syntax, but also to provide arguments and take a stance regarding controversial issues in English morphosyntax. *To encourage active learning, teachers can use these guidelines as scaffolding to independently design and innovate their teaching.*

Table 3. Guidelines for teachers: teaching content

4. Teaching methods and forms of class organisation

Research shows that students memorise very little of the content transferred by teachers' oral presentation. Additionally, there are findings that suggest that listeners' attention is decreasing after 15 minutes of one-sided oral presentation. All this points to the importance of overcoming the dominant understanding of the teaching process as merely giving *ex cathedra* oral lectures to transfer teaching content to students. Furthermore, these findings highlight the need to teach active learning in practice, by applying various teaching methods (from traditional ones, such as oral presentation, conversation, writing, demonstrating, etc. to contemporary active learning techniques such as brainstorming, the INSERT method, the KWL method, written conversation, etc.). Applying different teaching methods results in distancing from reducing teaching to only frontal instruction and in active implementation of collaborative forms of class organisation – pair work, group work, and teamwork. Teaching to encourage active learning also involves combining different forms of class organisation, from individual and frontal, to different types of collaborative learning. Finally, teachers are expected to create and innovate their teaching methods and forms of class organisation.

Guidelines for teachers: teaching methods and forms of class organisation
Implement active teaching methods and collaborative learning techniques in the classroom, with an aim to continuously innovate teaching.
Examples of active teaching methods (Benge Kletzien, Cota Bekavac, & Vizek Vidović, 2002; Vizek Vidović, Benge Kletzien, & Cota Bekavac, 2002) 1. **Conversation / Asking questions** is a teaching method whereby the teacher does not give all the information to students but asks them questions about the teaching content so that students can arrive at answers on their own. This enables students' increased activity, evokes previous knowledge, ideas, different perspectives and approaches to teaching content, etc. 2. **The INSERT method** is an interactive way of engaging readers to read critically by finding in the text: (1) information they are already familiar with (symbol: +); (2) new information / information that can be learned by reading (symbol: !); (3) unclear, confusing information (symbol: ?); (4) information they wish to know more about (symbol: →). The symbols are inserted on the margins of the text or written separately into an INSERT handout sheet. 3. **The KWL method** (*I know – I want to know – I learned*) is a teaching method that encourages thinking about what students know (previous knowledge), wish to know (motivation), and what they have learned (synthesis). Students fill in the K and W columns of the table before the content is covered (i.e. before reading a text or before a teacher's presentation) and the L column after it was covered. 4. **Written conversation** is a written communication structured so that the teacher chooses a topic that pairs of students write comments about back and forth, in silence. This method fosters a high degree of concentration and an intensive form of interaction between students. The greatest advantage of this method is that it provides a space and opportunity for equal

activity of all students (especially those that find it harder to participate in oral discussions and conversations).

5. **Written discussion** is a method that guides a discussion by adopting individual forms of class organisation (although it can be used in other forms of class organisation, such as pair- or groupwork). Students are given handouts where they write down: (1) the topic of the discussion; (2) questions; (3) important information; (4) answers to posed questions with valid arguments; (5) additional questions opened by the discussion; (6) commentary (written or graphic). Written discussion fosters interactive learning, deep concentration, and precision in adopting attitudes. Finally, it should be noted that written discussion, just like written conversation, provides a space and opportunity for equal activity of all students (especially those that find it harder to participate in oral discussions and conversations).
6. **Academic controversy** is a teaching method that involves active involvement of students through discussion, in such a way that they represent a certain stance, regardless of their own opinion on the topic at hand. Academic controversy fosters deeper understanding of the topic from different perspectives, encourages critical thinking and values of empathy, tolerance, and responsibility.

To encourage active learning, teachers can use these guidelines as scaffolding to independently design and innovate their teaching.

Table 4. Guidelines for teachers: teaching methods and forms of class organisation

5. Assessment methods

Bearing in mind the examples of learning outcomes presented above, the assessment of students' achievements should include those assessment methods that go beyond just looking for one correct answer. Therefore, active assessment methods involve the process of assessing students' work with an emphasis on applying different assessment procedures (from multiple choice questions to essay-type questions, both oral and written). Additionally, when teaching to encourage active learning, teachers should not be focused only on the assessment of the learned material, i.e. assessing the achievement of learning outcomes (summative assessment), but also on formative assessment that relies on assessment for learning and assessment as learning (Earl, 2003). When assessing for learning, the level of current achievement of defined learning outcomes is assessed, without grading, to guide the ongoing learning process. Through assessing as learning, students are involved in the assessment process, e.g. through peer assessment, self-assessment and evaluation of the teaching process, whereby students learn in the process. Finally, active assessment methods involve an element of self-criticism, i.e., teachers' self-assessment, whose task is to develop values of self-criticism, for both themselves and their students.

Guidelines for teachers: assessment methods

Apply methods of both summative and formative assessment in the teaching process.

Examples of tasks[5] that aim at assessing the actively learned teaching content – summative assessment

- Single out the main idea about X.
- Specify the importance of X.
- Give examples of X.
- Interpret X from the perspective of Y.
- Compare X and Y according to criterion C.
- Classify X according to criterion C.
- List the features distinguishing X from Y.
- List the similar features of X and Y.
- List the advantages of X.
- List the disadvantages of X.
- List the ways to overcome disadvantages of X.
- Propose a solution for fixing the problems of X.
- Make a decision related to situation X.
- Ask a question to debate X.
- Formulate your own opinion in the debate about X.
- Defend your opinion on X.
- Come up with a suggestion about X.
- …

Examples of activities for students that apply formative assessment – peer assessment

Peer assessment: students' paper presentation	
Name and surname of the student presenting the paper / Name and surname of the student assessing the paper	
Criteria	1 – Not at all; 2 – Mostly not; 3 – Partly; 4 – Mostly yes; 5 – Completely
All the formal criteria are satisfied (presentation follows the given guidelines; work is presented, not read; the allotted presentation time is not exceeded, etc.)	1 2 3 4 5
Interpretation of material is followed by selection of key information and useful examples.	1 2 3 4 5
Both verbal and nonverbal communication is used to effectively present the paper.	1 2 3 4 5
There is interaction with colleagues.	1 2 3 4 5

[5] These examples of tasks are generic formulations that require further specification depending on the teaching content.

Work is presented in a clear and structured manner.	1 2 3 4 5
Work is presented in accordance with professional and academic standards (professional terminology is used, relevant and recent research findings are presented).	1 2 3 4 5
Work is presented in an original and creative manner.	1 2 3 4 5

To encourage active learning, teachers can use these guidelines as scaffolding to independently design and innovate their teaching.

Table 5. Guidelines for teachers: assessment methods

6. Teaching environment

Asking students challenging questions, engaging them in a serious dialogue in which they show mutual respect, but also express disagreement with opinions of others has shown to be an important element of teaching that encourages active learning (Shim & Waltzcak, 2012). Creating an environment that allows incorrect answers and helps student overcome the fear of answering incorrectly is particularly motivating and encouraging for students' participation. Finally, it is important that teaching for active learning occurs in an environment of stimulating interaction and involvement of all participants, dialogue, and mutual respect.

Guidelines for teachers: teaching environment
Create and encourage a teaching environment that fosters interaction, openness, dialogue, and mutual respect.
Example Encouraging a teaching environment that fosters interaction, openness, dialogue, and mutual respect is achieved by applying various active teaching methods. It is exactly such an environment that active teaching methods require. For example, discussion as a teaching method requires participants to demonstrate openness, dialogue, and mutual respect. *To encourage active learning, teachers can use these guidelines as scaffolding to independently design and innovate their teaching.*

Table 6. Guidelines for teachers: teaching environment

7. Constructive alignment

Constructive alignment is the process of adjusting planned learning outcomes to teaching (i.e. teaching methods and forms of class organisation) and assessment (i.e. assessment methods) (see more about constructive alignment in Anderson, 2002; Biggs, 2014). Designing and writing quality learning outcomes is the basis for achieving quality teaching and it sets out clear guidelines for the teaching process – teaching methods, forms of class organisation and assessment methods.

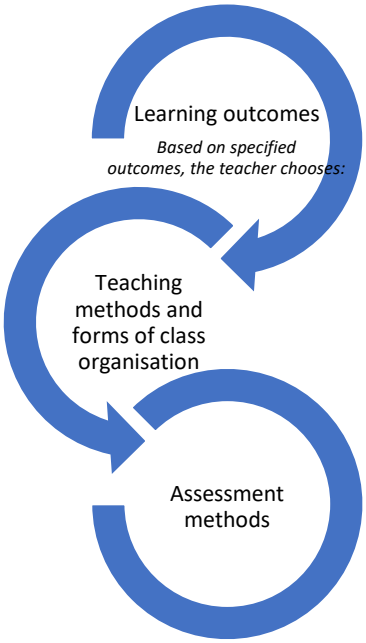

Figure 1. Constructive alignment of didactic elements

<table>
<tr><th colspan="3">Guidelines for teachers: constructive alignment</th></tr>
<tr><td colspan="3">Adjust teaching methods, forms of class organisation, and assessment methods to formulated learning outcomes.</td></tr>
<tr><td colspan="3">Example
<table>
<tr><th colspan="3">Constructive alignment</th></tr>
<tr><th>Learning outcomes</th><th>Teaching methods and forms of class organisation</th><th>Assessment methods</th></tr>
<tr><td>Students will be able to point out the advantages and disadvantages of different approaches in lexicology.</td><td>Asking questions, pair work

Note: There isn’t a single correct answer as to which teaching method and form of class</td><td>Essay task

Note: There isn’t a single correct answer as to which assessment method fits the achievement of</td></tr>
</table></td></tr>
</table>

	organisation fits the achievement of the formulated outcome. There are more possibilities to achieve this. In order to achieve a desired learning outcome, teachers should apply teaching methods that will allow students to list all the advantages and disadvantages of approaches in lexicology. Clearly, teaching that aims to achieve the formulated learning outcome cannot be reduced to oral presentation, but it is necessary to apply active teaching methods. Likewise, the same outcome can be achieved through various forms of class organisation.	the formulated outcome. There are more possibilities to achieve this. In order to assess the level of achievement of the desired learning outcome, teachers should apply assessment methods that will allow students to list all the advantages and disadvantages of approaches in lexicology. Clearly, the formulated outcome cannot be assessed through a multiple-choice question task; instead, students should be allowed to produce their own answers.

To encourage active learning, teachers can use these guidelines as scaffolding to independently design and innovate their teaching.

Table 7. Guidelines for teachers: constructive alignment

8. Conclusion

To conclude, students' active role in the teaching process requires guiding them towards active learning, which is why teachers play a significant role in that process. In order to encourage active learning, teachers should:

1. Plan teaching based on learning outcomes aimed at different levels of achievement (memorising, comprehension, application, analysis, evaluation, creation) and different domains (cognitive, psychomotor, and affective).
2. Approach teaching content through interpretation, analysis, synthesis, application, evaluation, and innovation, and not mere reproduction.
3. Apply active teaching methods and collaborative forms of class organisation in teaching, and continuously innovate their teaching.
4. Apply active methods of summative and formative assessment.
5. Strive towards a teaching environment that fosters interaction, openness, dialogue, and mutual respect.

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Annex 2 - Checklist for creating materials that aim to achieve the higher levels of Bloom's Taxonomy

This table is designed as part of the UPSKILLS project to help learning content creators create materials that aim to achieve the higher levels of Bloom's Taxonomy, in line with the framework of active learning.

HOW TO USE: Write each learning activity in one field in the top row and start from the bottom of the column checking which level of learning is required.

Level	*Learning activity*							
Create e.g. produce original work								
Evaluate e.g. justify an argument								
Analyse e.g. connect different ideas								
Apply e.g. use in a new context								
Understand e.g. explain concepts								
Remember e.g. recall facts								

Annex 3 - Checklist for gamifying materials

This checklist is designed as part of the UPSKILLS project to help learning content creators create materials that are gamified in a meaningful way.

HOW TO USE: When preparing your learning materials, keep the following things in mind. Once you are done, go through the list and check the items once again.

- ☐ **Do not include a game in your materials just for the sake of gamifying them**. Always think about the added value that the relevant activity or task will add to the students' learning at the point in which it will be introduced. The goal could be to either introduce a concept in a fun way, challenge the students to apply some new knowledge, monitor their understanding or even develop particular skills that are necessary for their employment prospects. Always take note of these goals, and include them in your plans, as they will ultimately help you assess whether a game is the best way to go in each particular instance.
- ☐ By the same token, **do not overdo it with games**, as we need to strike a balance between fun activities and meaningful interaction that will instil trust in our students in relation to our materials' credibility. You can also consider repeating the same game with different difficulty levels.
- ☐ **Always provide students with a description of each game** that includes clearly defined roles (if it is a collaborative one) and detailed instructions about what they are expected to do, as well as what kind of feedback (and reward, if applicable) they will eventually receive. While doing so, try to not overcomplicate your activity's design, and always give them enough time to complete it, taking into account the group's dynamics and prior knowledge.
- ☐ **Identify specific parts of a session in which a game could potentially be used to make learning more engaging**. Even if you cannot think of a particular game or gamified activity for that stage of the session, note the section and consult with other project partners. Keep in mind, however, that you are the experts in your area, so identifying gamified activities that will match the learning objectives you set is something that we'll need to do in collaboration with you.
- ☐ An important aim of this project is to **enable students to learn actively**. This does not need to be achieved exclusively through games, so interactivity should be central to all the materials you adapt/develop. This means that you should try to keep traditional lecturing to a minimum, or better still, in line with our gamification objective, embed it in a narrative that will engage the students (or at least convince them that it is something they could be using a lot in their future careers).

Annex 4 - Calculating workload for a course

This table is designed as part of the UPSKILLS project to help learning content creators calculate the workload of their units, based on UNIS – The University Centre in Svalbard. 2018. *Guideline on calculating student workload*.

HOW TO USE: List each activity included in a unit block, put in the number of occurrences (#) and how long it lasts (hours). Calculate the rest.

Activity	#	Time factor (hours)	Workload (# * hours)
In total			
Conversion to ECTS credits (total hours / 1600 x 60)			

Annex 5 - Assessment (incl. rubrics) and evaluation strategies

Assessment (incl. rubrics) and evaluation strategies

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The aim of this chapter is to define and contextualize the notions of *assessment* and *evaluation* and to provide a general outline of selected *assessment and evaluation strategies* that educators can implement into their teaching and/or curriculum design.

The chapter consists of:

- Definitions and contextualisation of the notions of *assessment* and *evaluation*
- Explanation of the position of evaluation and assessment within the educational process as a whole and its connection to learning outcomes
- Explanation of assessment strategies: quantitative vs. qualitative assessment, informal vs. formal assessment, summative vs. formative assessment, traditional vs. 'alternative' assessment
- Examples of assessment rubrics
- Definition and contextualization of effective feedback

1. Defining assessment and evaluation

Assessment and *evaluation* are terms that frequently appear in educational contexts and are sometimes used interchangeably. However, they mean quite different things.

Assessment is an umbrella term encompassing all types of procedures that teachers use to collect information about the performance and achievement of their students. Assessment is an ongoing process that can include many different techniques, methods, and strategies, such as written, oral, or practical tests, self- and peer-assessment, performance-based assessment, portfolios, projects, etc. Traditionally, the most frequent type of assessment technique is *testing*. **Tests** are formal, administrative procedures that are planned in a curriculum. They typically consist of tasks that require students' performance and have explicit and structured methods. Most frequently, test take the form of multiple-choice questions, which are highly practical to administer and assess but are rather limited in allowing test-takers to actually demonstrate their knowledge and nuances of performance.

Tests are used to ***measure*** and ***evaluate*** students' knowledge or performance in a given domain. Even though tests are the most obvious, they are certainly not the only type of assessment procedure. Testing is one possible subtype of assessment procedures that involves measurement. **Measurement** is a process of quantifying students' performance on a test according to explicit procedures or rules. Evaluating means translating this quantified performance into a grade.

Evaluation does not necessarily entail testing; rather, evaluation is involved when the results of any assessment procedure are used to make decisions (Brown and Abeywickrama 2018). Simply recording numbers or marking check marks on a chart does not entail evaluation. Evaluation requires "valuing" the results so that the worth of the performance is conveyed to the student, and this usually involves some reference to consequences (good or bad) of performance. For example, a test score of 45% is an example of measurement, while telling the student that they have failed the course conveys the "meaning" of this score (evaluation). However, evaluation does not always include measurement. For example, a teacher can evaluate students' performance by providing positive (or negative) oral feedback, e.g. "Well noted.", "Excellent observation!", or "Your answer is incorrect. Would you like to try again?".

To summarize:

- **Testing** is the use of (typically) formal paper-and-pencil assessment procedures, objectively scored.
- **Measurement** is the process of quantifying performance by adopting formally defined numeric scales using some statistical technique.
- **Assessment** is the determination of what students know and can do through any means, including tests, but predominantly through judgement-processes.
- **Evaluation** is the determination of the value and worth of performance, usually done systematically and summatively (Brown 2018: 21).

2. Positioning assessment and evaluation within the educational process

Testing, measurement, assessment, and evaluation are tightly interconnected. The overlapping of these concepts is shown on a diagram proposed by Brown and Abeywickrama (2018: 7).

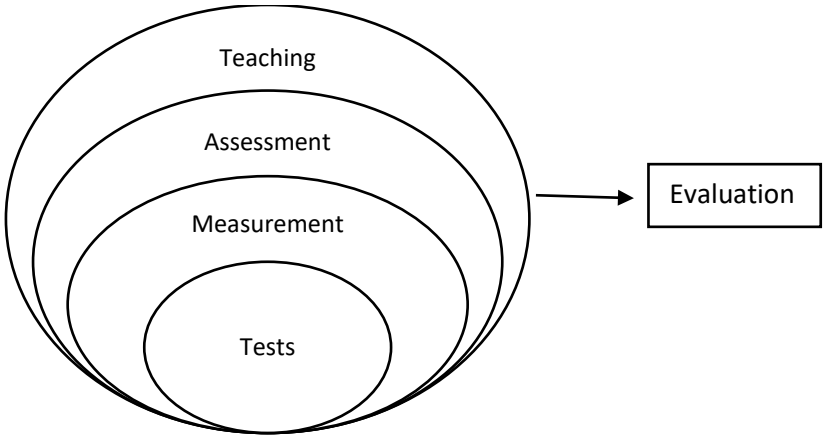

Figure 1. Tests, measurement, assessment, teaching, and evaluation (Brown and Abeywickrama 2018: 7)

As the diagram shows, assessment encompasses all strategies, activities, and procedures that are used to estimate students' progress in the course or educational programme as a whole, whether they involve measurement and evaluation or not. Evaluation occurs when assessment results in determining the value of students' results, in quantitative or qualitative terms. All of this occurs in the broader context of teaching.

According to Brown and Abeywickrama (2018: 3), "a good teacher never ceases to assess students, whether those assessments are incidental or intended". In other words, assessment is a process constantly evolving inside, but also outside of the classroom. For optimal learning, students must have the freedom to experiment, try and potentially fail in the classroom (physical, virtual, or hybrid), without the consequence of their overall competence being judged in terms of those trials and errors. During this process and activities, the teacher is involved as an observer (possibly, but not necessarily taking measurements), i.e. by offering feedback and suggesting strategies for improvement, which all entails assessment.

During the teaching process, based on their professional judgement, teachers observe students' performance, possibly take measurements, offer qualitative feedback, and suggest further learning strategies. This process can involve:

- comparing performance with previous efforts,
- identifying better aspects of performance,
- noting whether the student is performing up to an expected potential,
- identifying what the student can do to improve performance in the future,
- comparing student's performance to that of others in the same learning group or community (Brown and Abeywickrama 2018: 6).

3. Types of assessment and evaluation strategies

When planning assessment, teachers should consider the following: what assessment tasks and criteria will tell me that students have achieved the outcomes I intend? There are different qualifications and divisions of assessment and evaluation strategies, based on different criteria.

3.1. Quantitative vs. qualitative assessment

Student performance can be described **quantitatively**, by assigning numbers such as rankings and letter grades, and **qualitatively**, by giving written descriptions, oral feedback and other nonquantifiable type of report.

Tests are typically assessed quantitatively, either by following *norm-referenced* or *criterion-referenced* standards. In norm-referenced tests (usually standardized tests), each test-taker's score is interpreted in relation to a mean (average score), median (middle score), standard deviation (extent of variance in scores), and/or percentile rank. The purpose of such tests is to place test-takers in rank order along a mathematical continuum. Norm-referenced tests are usually

standardized tests, whereas classroom tests are criterion-referenced. In such tests, the aim is to find out how well the student scored compared to standards and objectives according to the curriculum or teaching plan (Brown 2018, Brown and Abeywickrama 2018).

3.2. Informal vs. formal assessment

Informal assessment can take different forms, such as incidental, unplanned comments and responses, along with coaching and other impromptu feedback to the student. A good deal of a teacher's informal assessment is embedded in classroom tasks designed to elicit performance without recording results and making fixed conclusions about a student's competence (Brown and Abeywickrama 2018).

Informal assessment is always nonjudgmental – teachers are not making ultimate decisions about the student's performance but simply trying to be 'a good coach'. Examples at this end of the continuum include orally responding to performance or making marginal comments on papers ("Yes, well noted!" "I think you meant to say contrastive analysis, not comparative"), responding to a draft of an essay, offering advice about how to better use tools or methods, suggesting a strategy to compensate for a difficulty in understanding procedures, or showing a student how to modify their notetaking to better remember the content of a lecture.

Formal assessment, on the other hand, includes exercises or procedures specifically designed to tap into a storehouse of skills and knowledge. They are systematic, planned sampling techniques constructed to give a teacher and a student an appraisal of student achievement (Brown and Abeywickrama 2018: 7).

A typical example of formal assessment is testing. It can be said that all tests are formal assessments, but *not* all formal assessment is testing. For example, you might use a student's journal or portfolio of materials as a formal assessment of the attainment of certain course objectives but calling those two procedures "tests" is problematic (ibid.). Usually, tests are constrained by time and draw on a limited sample of behaviour.

3.3. Formative vs. summative assessment

Two functions of assessment are usually distinguished: formative and summative. The goal of **summative assessment** is to evaluate student learning at the end of an instructional unit by comparing it against some standard or benchmark, usually for the purposes of certifying or reporting learning. This contrasts **formative assessment,** where the purpose is to monitor student learning to provide feedback that can be used by instructors to improve their teaching and by students to improve their learning. In other words, formative assessment is the practice of using evidence of student learning to make adjustments that advance learning (Cedefop 2017: 23, Andrade and Heritage 2018: 3)

Most classroom assessment is formative: evaluating students in the process of "forming" their competencies and skills with the goal of helping them to continue that growth process. The

key to such formation is the delivery (by the teacher) and internalization (by the student) of appropriate feedback on performance, with an eye toward the future continuation (or formation) of learning (Brown and Abeywickrama 2018). For all practical purposes, all kinds of informal assessment are (or should be) formative. They have as their primary focus the ongoing development of the learner's knowledge and performance.

Formative assessment is one of the most powerful and effective tools that teachers have at their disposal. The elements of formative assessment include clear learning goals and criteria, evidence of learning as it unfolds, feedback, responsive action, and revision. Conversations with students, diagnostic tests, peer and self-assessment, new technologies, co-created rubrics and more can be used to provide feedback to students that informs next steps in their learning, and feedback to teachers that can inform adjustments to instruction. (Andrade and Heritage 2018: 121)

Summative assessment aims to measure, or summarize, what a student has grasped and typically occurs at the end of a course or unit of instruction. A summation of what a student has learned implies looking back and taking stock of how well that student has accomplished objectives, but it does not necessarily point to future progress (Brown and Abeywickrama 2018). Examples of summative assessment include midterm or final exams in a course and general proficiency exams.

Summative assessment often, but not always, involves **evaluation** (decision making). One of the problems with prevailing attitudes toward testing is the view that all tests (quizzes, periodic review tests, midterm exams, etc.) are summative. Student often think “Whew! I'm glad that’s over. Now I don’t have to remember that stuff anymore!” and teachers are faced with a challenge to change that attitude. Additionally, research shows that grades are negatively associated with performance, self-efficacy, and motivation, which implies that grading can trigger counterproductive learning processes (Andrade and Heritage 2018). While challenging and idealistic, teachers should ask themselves how they can apply more formative features to what students otherwise consider as summative (usually disliked) tests and transform them info engaging learning experiences. Teachers and curriculum designers should also consider what they can do to combine formative and summative assessment, to support the learning process and to clarify whether outcomes have been achieved.

3.4. Traditional and ‘alternative assessment’

Research and practice during the 1990s provided compelling arguments against the notion that all people and all skills could be measured by traditional tests. The result was the emergence of *alternative assessment* (Brown and Abeywickrama 2018). Namely, it was recognized that standardized testing has many shortcomings, which is why teachers and educators recommended an alternative to the dominance of quantitative, formal, and summative assessment strategies. Some examples include **portfolios**, **journals**, **observations**, **self-assessments**, **peer assessments**, and the like in an effort to triangulate data about students’ progress, knowledge, and overall performance. However, while beneficial for students’ deep learning, teachers should be aware that

there are also downsides to this type of assessment. Firstly, it can be rather unpractical and time-consuming for the teacher and if clear guidelines are not given to students, they may not take it too seriously.

TRADITIONAL ASSESSMENT	ALTERNATIVE ASSESSMENT
One-shot, standardized exams	Continuous, long-term assessment
Timed, multiple-choice format	Untimed, free-response format
Decontextualized test items	Contextualized tasks
Scores sufficient for feedback	Individualized feedback and washback
Norm-referenced scores	Criterion-referenced scores
Focus on discrete answers	Open-ended, creative answers
Summative	Formative
Oriented to product	Oriented to process
Noninteractive performance	Interactive performance
Fosters extrinsic motivation	Fosters intrinsic information

Table 1. Traditional and alternative assessment (Brown and Abeywickrama 2018: 17)

Table 1 summarizes the differences between the two approaches, even though it might be an overgeneralization in some respects. It should be added that many forms of assessment fall between the two approaches, and some combine the best of both worlds. As Brown and Abeywickrama (2018: 17) aptly point out, *considerably more time and higher institutional budgets are required to administer and score assessments that presuppose more subjective evaluation, more individualization, and more interaction in the process of offering feedback. The payoff for the latter, however, comes with more useful feedback to students, the potential for intrinsic motivation, and ultimately a more complete description of a student's ability*.

3.5.Performance-Based Assessment

During the past two decades, particularly in the context of language assessment, there has been a call for de-emphasizing large-scale standardized tests in favor of contextualized, communicative assessments that better facilitate learning, referred to as **performance-based assessment.** This type of assessment entails a more student-centered agenda. For example, instead of offering paper-and-pencil selective-response tests of a plethora of separate items, performance-based assessment of language typically involves oral production, written production, open-ended responses, integrated performance (across skill areas), group performance, and other interactive tasks (Brown and Abeywickrama 2018).

This description puts performance-based assessment on the 'alternative' side of the assessment continuum, which unfortunately makes it time-consuming and expensive. Still, performance assessments are key tools for linking classroom practices to real-world activities and is therefore considered ideal for formative assessment practices.

4. Assessment and learning outcomes

It goes without saying that the process of assessment should follow assessment criteria, i.e. descriptions of what a student is expected in order to do in order to demonstrate that a learning outcome has been achieved (Kennedy 2007: 78). According to Cedefop (2017: 55-59), adopting a learning-outcome based approach in curriculum design and teaching brings an added value to all the involved stakeholders.

This has an important effect on the assessment procedures and strategies as well, since:

- Learning outcomes help to orient the learning process and they clarify what to expect during assessment.
- Learning outcomes, through their focus on levels of, and requirements to learning are crucial for promoting a more systematic reflection on assessment criteria and methods, and how these interact with and support the learning process.
    - For the assessor, the learning outcomes approach supports assessment by clarifying the criteria for success/failure and performance. Even though most frequently linked to summative assessments, learning outcomes can and should help with formative assessment throughout the learning process.

Overall, it is important to remember that assessment is an ongoing process, inseparable from other aspects of the broader educational process, including curriculum design, teaching, and learning. This is best illustrated by a diagram below, proposed by Brown (2018).

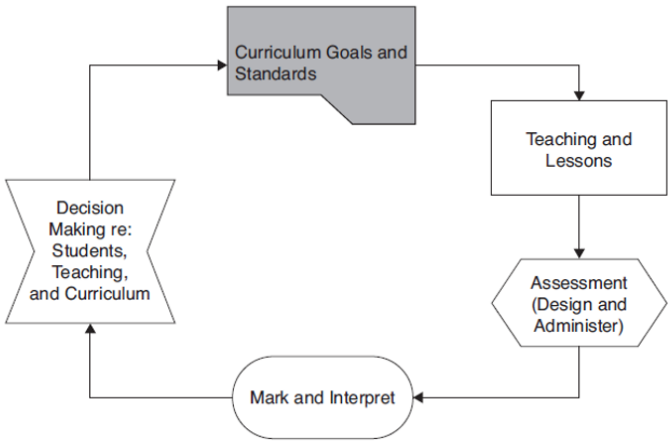

Figure 2. Relation between the curriculum, teaching, learning, and assessment (Brown 2018: 20)

5. Assessment for learning

Ideally, the teacher's observations feed into the way they provide instruction to each student. However, apart from providing information about the students' improvement in the curriculum, in recent years significant emphasis is being put on assessment as a practice that supports deeper learning and the development of learning competencies. Andrade and Heritage (2018) claim that if assessment is conducted as feedback that leads to responsive action, and not just as measurement, it will result in learning. They propose three assessment principles to enhance learning, achievement, and academic self-regulation:

- Principle 1: Assessment is integrated into the process of teaching and learning.
- Principle 2: Assessment evidence is used to move learning forward.
- Principle 3: Assessment supports student self-regulation.

While both summative and formative assessment are important for enhancing student learning, research suggests that formative assessment is especially effective. This also includes all types of performance-based assessment strategies. For example, **peer- and self-assessment** promote learning as they require the active engagement of students. The core function of self- and peer assessment is for students to learn to be judges of their work as well as that of others. Through this process, there is a promotion of lifelong learning. These abilities allow students to make judgments and decisions during situations they may encounter in the future. Additionally, these methods promote independence, personal responsibility, critical thinking, and teach learners how to handle criticism and be responsible when judging others' work (Miller, Imrie and Cox 1998)

6. Rubrics

The use of rubrics in assessment is considered as an indispensable tool for effective, responsible, performance-based assessment. A rubric is a coherent set of criteria for students' work that includes descriptions of levels of performance quality on each criterion (Andrade and Heritage 2018: 53). Rubrics are useful because they clearly indicate achievement criteria across all the components of any kind of student work, from written to oral to visual. They can be used for marking assignments, class participation, or overall grades (University of Waterloo).

High-quality rubrics are closely aligned with performance criteria and learning outcomes. There are two main types of rubrics: *holistic* and *analytical*.

Holistic rubrics group several different assessment criteria and classify them together under grade headings or achievement levels. For example, the terms and grades commonly used at university (i.e., Excellent = A, Good = B, Average = C, Poor = D, and Weak = E or F) usually express an assessor's overall rating of a piece of work, taking all things into account simultaneously (Brown 2018: 31).

Analytic rubrics, on the other hand, separate different assessment criteria and address them comprehensively. The same rating scale labels may be used as in holistic rubrics, but they are applied to various key dimensions or aspects separately rather than as an integrated overall

judgement. This separate specification means that on one dimension the work could be excellent, but on one or more other dimensions the work might be poor to average (ibid.).

Perhaps the most recognizable example of rubrics is the complex (self-)assessment grid devised by the Common European Framework of Reference for Languages (CEFRL). It consists of global scales for all proficiency levels (A1-C2) in a form of a holistic rubric, while language skills and performance are organized in detailed analytic rubrics (Council of Europe 2001, 2018). Simpler illustrative examples of a classroom-assessment rubrics are provided below in tables 2 and 3.

Exceeds Expectations	Student accurately and compellingly articulates the needs of his/her character and responds meaningfully to others' comments using well-connected sentences. Student uses a variety of sentence structures and grammatical forms that allow discourse to flow. Vocabulary is specific and appropriate, and there are minimal errors in grammar and word choice that do not impact comprehension.
Meets Expectations - Strong	Student accurately articulates the needs of his/her character and responds to others' comments with complex sentences. Student uses a variety of sentence structures and grammatical forms that allow discourse to flow most of the time. Vocabulary is mostly appropriate, and several minor errors in grammar and word choice may have a slight impact on comprehension.
Meets Expectations - Weak	Student articulates most of the needs of his/her character and responds to 1-2 comments with complete sentences. Student uses at least 3 different sentence structures and several grammatical forms that allow discourse to flow most of the time. Available vocabulary somewhat limits conversation; circumlocution or other strategies may be used. Errors in grammar and word choice lead to some errors in comprehension that are clarified in the target language.
Does Not Meet Expectations	Student fails to articulate his/her character's needs and/or doesn't respond to other comments. Speech consists mostly of short sentences and uses limited sentence structures. Many errors in grammar and vocabulary lead to significant errors in comprehension.

Table 2. Advanced Holistic Rubric - Role Play (University of Minnesota)

	Exceeds Expectations	Meets Expectations	Approaching Expectations
Negotiating meaning and participation in conversation:	Communicates successfully with partner/group using formulaic responses and memorized language. Attempts to create with language to express own meaning.	Communicates successfully with partner/group using formulaic responses and memorized language.	Communicates with partner/group on a limited basis using formulaic responses and very familiar memorized language.
Vocabulary:	Uses a broad range of familiar and recently learned vocabulary appropriately.	Uses familiar and some recently learned vocabulary appropriately.	Uses mostly familiar and a few recently learned vocabulary; may use some vocabulary incorrectly.
Accuracy: (Use of basic language structures)	Speech is accurate when using memorized phrases. Some errors may occur when expressing own meaning.	Speech is generally accurate when using memorized phrases. Errors are more frequent when trying to express own meaning.	May resort to English when unable to express own meaning.
Comprehensibility: (How well can students be understood)	Student's speech can be understood by those accustomed to speech of language learners.	Most of student's speech can understood by those accustomed to speech of language earners.	Student's speech can be understood only with effort.

Table 3. All Levels Generic Rubric - Interpersonal Communication *(University of Minnesota)*

7. Feedback

Feedback is the core element of formative assessment and a powerful way to enhance learning. It is important to bear in mind that giving students grades is not formative feedback. Andrade and Heritage (2018) state that for feedback to be formative, it should occur while students are in the process of learning. Grades, on the other hand, are a summative judgement of what has been achieved and do not tell students what they need to do to close the gap between their current

learning status and desired goals. In other words, grades and scores stop the action in a classroom: Feedback keeps it moving forward (ibid: 3).

Feedback should be seen as a process, rather than just a one-way transmission from teacher to student and effective feedback could only occur when both teacher and student are committed to the process (Miller, Imrie, and Cox 1998). In order to be most effective, feedback must be related to learning goals and focused on the process of learning, not the learner. Feedback is formative (not graded), descriptive rather than evaluative, at the right level of specificity (e.g., detailed and narrative), and aimed at or just above the student's level of functioning (Andrade and Heritage 2018: 10). Additionally, feedback is most useful when it is followed by an opportunity for the teacher to make adjustments to instruction and/or for students to revise and improve their work.

Tables 4 and 5 below describe types of feedback and illustrate examples of effective and ineffective feedback statements.

TASK LEVEL	**PROCESS LEVEL**	**SELF-REGULATION LEVEL**	**SELF LEVEL**
Feedback about how well tasks are understood and performed.	Feedback about the main processes needed to understand and perform tasks.	Feedback about students' self-monitoring, regulating, and directing of actions.	Personal evaluations of the learner.
powerful when the task information subsequently is useful for improving strategy processing or enhancing self-regulation	*powerful in terms of deep processing and mastery of tasks*		*Least effective*

Table 4. Types of feedback (adapted from Andrade and Heritage 2018: 10-11)

Effective feedback	**Ineffective feedback**
You are asked to compare these ideas. For example, you could try to see how they are similar, how they are different—how do they relate together?	*You're a good counter.* (Too evaluative and focused on the student rather than the learning)
I see that you have included ideas about the causes for the redevelopment. To strengthen your	*Great work on the essay.* (Too general)

analysis, think about including more related to the consequences.	
I see all the combos that have a chocolate chip cookie nicely organized to support the 6 in your fraction. How can you use one of the strategies we discussed to further support the 12 in your fraction?	*You caught the ball; you deserve a star.* (Too reward focused)
One of the axes on your graph is much better than the other. Which one is it, and why is it better?	*You are a good student. I am very pleased with you.* (Too focused on the student instead of the learning)

Table 5. Effective and ineffective feedback (from Andrade and Heritage 2018: 12)

8. Summary

Assessment and evaluation are interconnected concepts, both integrative parts of a broader context of educational process. Assessment encompasses all strategies and procedures that teachers implement to collect information about students' knowledge and performances. Evaluation is one possible type of assessment, which involves determining the value and worth of a performance, usually through a numerical grade, percentage, etc.

There are different ways to categorize assessment strategies, but most common are divisions into qualitative vs. quantitative, informal vs. formal, formative vs. summative, and traditional vs. 'alternative' assessment. Procedures that can foster a more effective and responsible assessment process are rubrics and continuous feedback.

The aim of the educational process, whether it is a course unit or a learning programme as a whole, is to foster deep learning, and assessment strategies, formative assessment in particular, play an important role in that. Teachers need substantive insights about students' learning during the course of its development so their pedagogy can be consistently matched to their immediate learning needs and the achievement of planned learning outcomes. Formative assessment seems to be superior to summative assessment as it helps students identify their strengths and weaknesses and helps teachers and trainers support students' progress by providing individualized crucial information. This is why teachers and curriculum designers should aim to formulate learning outcomes in ways which also support formative assessment (Cefedop: 23, see more in Chapter 6).

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