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Competence Handbook for Students

Student-run Interdisciplinary Allied Health Digital Practice Centre

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INTRODUCTION TO THE HANDBOOK

This Handbook is aimed to support students' competence development presenting findings from curricula development work carried out in an Erasmus+ Capacity Building Project, "Student-run Interdisciplinary Allied Health Digital Practice Centre" (SIAHDPC). Development work carried out in the Work Package (WP) 4 focuses on co-creating Continuing Professional Development Courses (CPDs) of Kosovar higher education institutions (HEIs) through competence-based education (CBE).

Project Handbook findings follow the objectives, timetables and guidelines of the project proposal, and the identified competences of the Kosovar higher education institutions. The presented findings of the Handbook were collected from the first and second semester of the project (12-months period). Kosovar higher education institutions carried out the development work supported and coached by the Work Package leader, JAMK University of Applied Sciences (JAMK). Due to the Covid-19 pandemic, partners carried out the work on-line, using Zoom platform for meetings and on-line study circles organised approximately once per month. Pedagogical on-line tools were integrated into the work, utilising, for instance, Jamboard and Padlet, while the outputs of the Work Package were stored in Google Drive and presented in joint meetings.

The Handbook is developed in cooperation with the Work Package (WP) 3, focusing on teachers' competence development. The aim of this Handbook is to offer insights into competence-based education, placing emphasis on the importance of competences and learning outcomes directing students' learning. In addition, the Handbook offers information for curricula developers on the transformation of pedagogy from teacher to student centered and introduces methods to support co-creation of interdisciplinary education using modern methods and tools.

Part A of the Handbook introduces competence-based education (CBE), its importance and practical orientation to curricula development. Part B of the Handbook discusses the co-creation method of Carpe Diem attached to the curricula development work. Part C of the Handbook offers practical orientation to e-pedagogy. Handbook content is enriched with tables and figures to enhance understanding of the key concepts.

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A. COMPETENCE-BASED EDUCATION

1. Introduction to competence-based education

The word “competence” discusses a quality or state of being of a person. Competence is a holistic term that refers to a person's overall capacity or ability to do something well. Competency characterises the combination of knowledge, skills, values, and attitudes. A competent person does not only have the required competences but can use competences and make proper decisions and judgements according to the context. Professional competence is developmental, impermanent, and context dependent. This means that competence develops constantly, and if being away from the context, competence development stops as a person can only be competent in their own competence area. For instance, a nurse who works in intensive care is competent in their area of specialty, not elsewhere, although they have a nursing degree. Competence-based education (CBE) refers to outcomes-based approach to the design, implementation, assessment, and evaluation of an educational programme. The core of competence-based education focuses on learner’s performance and learning outcomes in achieving specific objectives and curricular goals. Competence-based education requires the student to be active, responsible, and motivated towards learning (Figure 1). Competence-based strategies provide flexibility in the way that credit can be earned or awarded, providing students with personalised learning opportunities. (Pijl-Zieber, Barton, Konkin, Awosoga & Caine 2014.)



Figure 1: Defining attributes of competence-based learning – requirements for students (International federation of midwives 2012)

In competence-based education, learning is driven by competency outcomes. Competences are the first to be defined when creating or developing education. Once the competences have been defined, the learning outcomes and courses can be developed (figure 2).

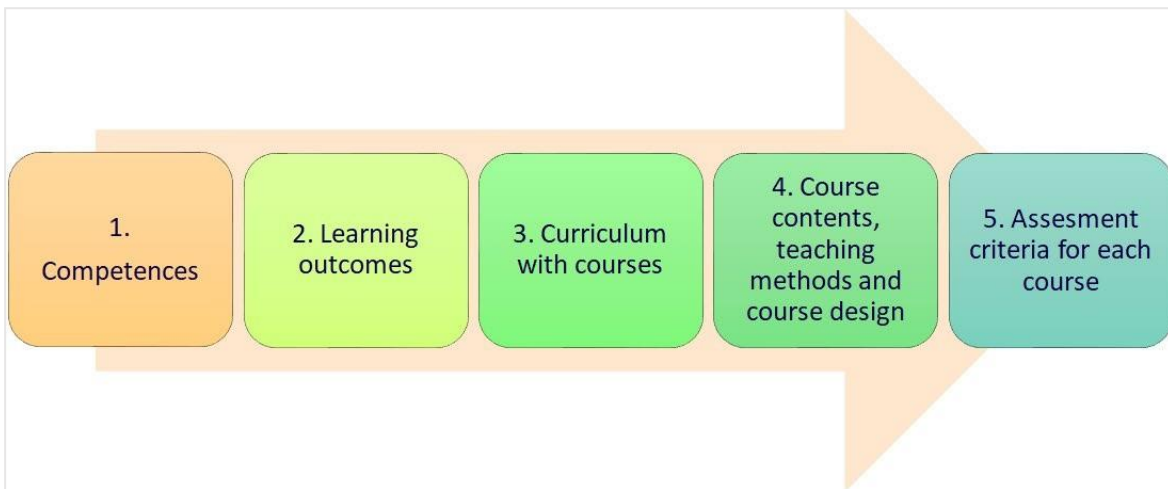


Figure 2: Process of developing competence-based education.

Learning outcomes focus on what the learner is expected to achieve during the learning process, rather than on the intentions of the teacher. Learning outcomes focus on what the learner can demonstrate at the end of the learning activity. They are statements of what the learner is expected to know, understand and/or able to demonstrate after the completion of a learning process. The development process must consider the competences: what competence will be attached to a particular course to ensure that all competencies are developed equally and constantly during the whole education (figure 3).

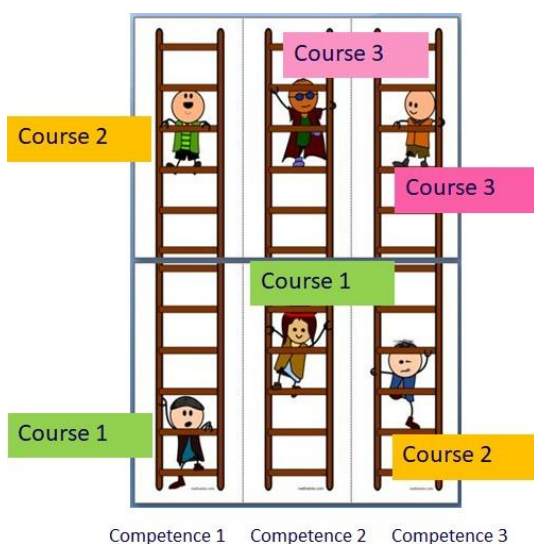


Figure 3: Development of competences during education.

The teaching methods of CBE are student centered (Pijl-Zieber, Barton, Konkin, Awosoga & Caine 2014, Grawina 2017). They rely on constructivism (Poikela 1998), and experimental (McLeod 2013) philosophies. In the methods, the learning process focuses on student's knowledge-construction in a cycle of experiment, reflection, conceptualisation, and action. Appropriate learning methods include, for instance, problem-based learning, flipped classroom, clinical practice, simulations, or dialogue training. (Lavoie, Michaud, Belisle, Boyer, Gosselin, Grondin, Larue, Lavoie. & Pepin 2018.) Learning includes independent study outside the contact hours, which can include, for example, preparing for the contact hours, writing/making/performing an assignment, or reading for an exam. Standardised hours for independent study can include, for example, indicators of how many pages the student reads in an hour (Figure 4). This is of assistance when measuring the independent workload of the student. One ECTS is usually between 25-30 hours of students work depending on the country using the ECTS system. As the CBE focuses on student's own responsibility to perform, there is no need to monitor the action. (Karjalainen, Alha & Jutila 2008.)

Table 1. Student workload recommendations, contact teaching and independent studying (Karjalainen, Alha & Jutila 2008).

Working method	Contact Hours	Independent Working Hours
Lecture	1	1-3
Passive demonstration	1	2
Activating lecture	1	2-4
Problem based learning	1	5
	Contents	Student's working hours
Assignment: written work	100 words/hour	includes both drafts and finished version
Artefact (design, drawing, software, object)	should be based on actual experience	
Live presentation	1 hour	3 hours
Authentic task	workload depends on whether the product is written work, artefact, or presentation	
Reading easy text for assignment or exam	100 pages	20 hours
Difficult or foreign language text	100 pages	30 hours
Home essay, report, learning diary, or equivalent written assignment	8-12 pages	40 hours

Blended learning approach is often used in competence-based education. It combines traditional face-to-face learning systems with educational and communication technology and creates new blended methods to deliver curricula. Blended learning is defined as any combination of face-to-face instruction with technology-mediated instruction, where the learners are occasionally separated by distance. This offers an opportunity to invite the students to a dialogue between theory and practice, and provides access to expert and professional knowledge, skills and attitudes in real-world problem solving. The blended learning approach enables the students to be exposed to a variety of learning experiences. A blended learning environment involves, for example, face-to-face and on-line lectures, simulations, workshops, independent learning, on-line discussions, and on-line learning. It uses new, interactive technological equipment, such as desktop videoconferencing systems, combined with the blended learning environment to promote students' social presence and interaction in learning.

CBE uses a criterion-based assessment. This method focuses on having the students to "show what they know" and applying the concepts learnt to evaluations that demonstrate that students have truly learnt the subject. (Grawina 2017.) The assessment of the intended competences requires multiple observations to understand if a student is competent, thus observations must include a variety of contexts and consider more than one perspective. A common assessment strategy in competence-based education is objective structured clinical examinations (OSCEs). (Pijl-Zieber, Barton, Konkin, Awosoga & Caine 2014.) Other assessment methods include, for instance reports, oral presentations, data analysis, diaries, or portfolios.

Assessment includes formative and summative assessment. Formative assessment is an assessment for learning, which is an ongoing process. This occurs at frequent intervals throughout the learning process for finding out what students have learned and understood. Methods for this can be, for example, quizzes, discussions, mind maps or essays written by students. Students need adequate time to revise their work based on feedback, producing multiple drafts of final products as they work towards excellence. Summative assessment is an assessment of learning taking place at the end of course. Summative assessment uses open and agreed criteria where the students have a clear understanding of how they will be assessed. Summative assessment is most often completed as an exam, assignment, or a report. Assessment should include individual and team/group assessment, self- and peer assessment. These different methods offer a multifaceted picture of students learning over time, where students act as active participants.

2. The European Qualification Framework

According to the European Qualification Framework (2017), students' competences and learning outcomes are specified at various levels depending on the degree programme studied. College level degrees are usually recognised as EQF level 4-5, bachelor's degrees as EQF level 6 and

master's degrees on EQF level 7. The Framework describes knowledge, skills, responsibility, and autonomy on each level (Table 2).

Table 2. The European Qualification Framework on levels 5, 6 and 7.

	Knowledge	Skills	Responsibility and autonomy
Level 5	Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge	A comprehensive range of cognitive and practical skills needed to develop creative solutions to abstract problems	Exercise management and supervision in contexts of work or study activities where there is unpredictable change; review and develop performance of self and others
Level 6	Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles	Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study	Manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts; take responsibility for managing professional development of individuals and groups
Level 7	Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research Critical awareness of knowledge issues in a field and at the interface between different fields	Specialised problem-solving skills required in research and/or innovation to develop new knowledge and procedures and to integrate knowledge from different fields	Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams

Students' workload in the ECTS system is calculated as 25 - 30h / 1 ECTS. In the SIAHDPC project, the competences were either co-created or updated as follows: 2 (1 co-created and 1 updated of EQF level 5 and 6, respectively) CPD (continuing professional development) course for Developing competence in Interdisciplinary collaboration; 2 updated CPD for Developing competence in ICT & Digital Competence (EQF 6 and 7); 1 updated CPD for Developing competence in Innovation and entrepreneurship (EQF 6); 2 (1 co-created and 1 updated of EQF level 5 and 6, respectively) CPD for Developing competence in Evidence-informed practice; 2 (1 co-created and 1 updated of EQF level 5 and 6, respectively) CPD for developing competence in user-involvement and person-

centeredness. The competences were initially written to match level 6 and then adjusted to fit both levels, 5 and 7 (Table 3.)

Table 3. Example of a competence, initial competence level 6.

Level 5	Level 6	Level 7
-	<p>Competence:</p> <p>The ICT and digital competences will empower the students to make them proficient in providing health services using different technologies and digital health products e.g., EHR and telemedicine to analyse, monitor and improve healthcare. At the same time, students will be proficient in creating/ incorporating digital health products in the existing clinical pathways and use participatory research methods to design user-centered technologies. Furthermore, these competences enable the students to assess the strengths and limitations of different digital health products as well as key opportunities and challenges to their use and the evidence of their effectiveness in the field of digital health in relation to public health and healthcare globally. Finally, students will be competent to manage and navigate data security solutions and concerns.</p> <p>Learning Outcomes:</p> <p>1: Co-design approaches for health IT including stakeholders' analysis, participatory methods, personas, requirements analysis, user journey analysis and empathy mapping.</p> <p>2: Demonstrate an excellent understanding of the principles of information governance, confidentiality & consent, interoperability and data sharing in Digital Health systems.</p> <p>3: Critical understanding of digital health implementation processes including strengths and limitations as well as the complex factors which can affect implementation success or failure.</p> <p>4: Evaluate of current issues, latest trends and emerging challenges in Digital Health.</p> <p>5: Demonstrate a broad understanding of the principles of evidence-based medicine, clinical outcomes and systems evaluation in Digital Health.</p> <p>6: Understand Health Data Analytics, Decision Support and Public Health Monitoring.</p>	-

3. Practical implementation: Defining students' competences and the development process

The development of competences in the SIAHDPC project started from the need to modernise higher education in the partner country, Kosovo, to reach the project aims. During the project, the Kosovar higher education institutions (HEIs) set up student-run centers enhancing learning and enabling authentic meeting points with the clients.

During the project, the curriculum of each degree programme selected at the proposal phase will be either developed or renewed through CBE. The process ensures that the new and updated courses develop the competences of students now, and in the future, fostering a change for pedagogies utilised in the practice centre. The following competences for students were selected to be integrated into the Continuing Professional Development courses (CPD):

1. Interdisciplinary collaboration
2. ICT & Digital competences
3. Innovation and entrepreneurship
4. Evidence-informed practice
5. User involvement and person-centeredness

3.1 European Framework for digital competences of educators (DigCompEdu) and the European Framework for entrepreneurship (EntreComp)

The SIAHDPC project curricula development process integrates the European Framework for Digital competences of educators (DigCompEdu, 2017) and the European Framework for Entrepreneurship (EntreComp, 2016). The DigCompEdu Framework, 2017 (figure 4) contains contents, such as learner's digital competences, information and media literacy, communication, content creation, responsible use and problem solving. All the competences are needed when students study using the CBE curriculum, using various environments, methods, and tools. In addition, the competences developed by students during education should give them skills to support the digital competences of citizens, such as clients and other stakeholders (DigComp 2.0).

The EntreComp Framework (2016) describes entrepreneurship as a transversal competence, which can be applied to education (figure 5). EntreComp (2016) can be used as a reference for the design of curricula for formal education and training. It aims to establish a bridge between the world of work and education focusing on entrepreneurship competence. Framework supports the development of entrepreneurship competence through value creation.

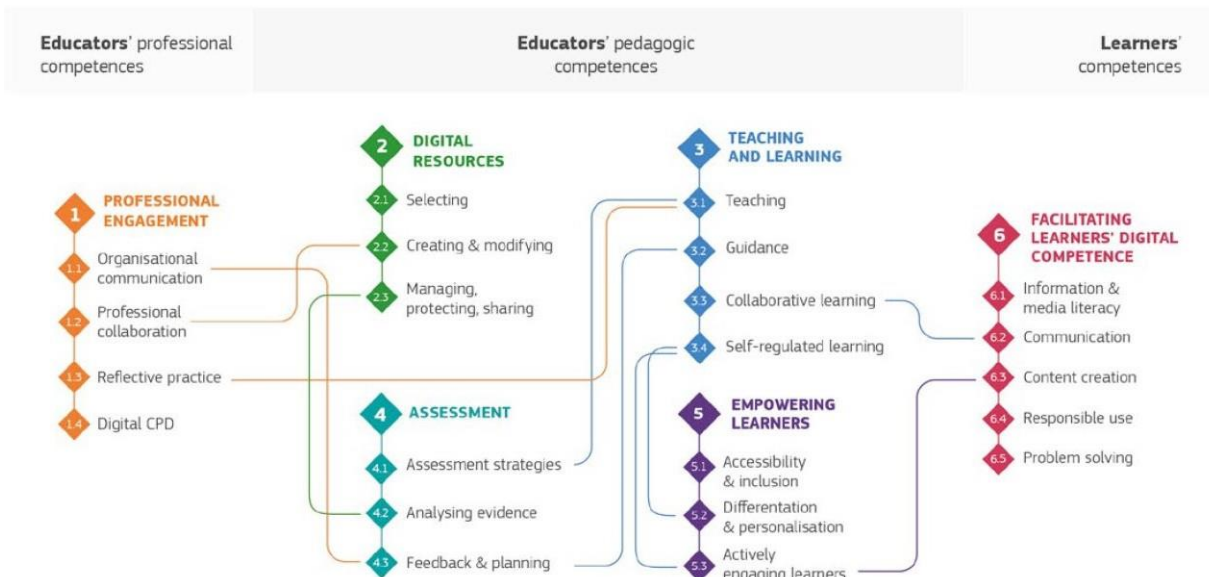


Figure 4. The European Framework for digital competences for educators (2017).



Figure 5. The European Framework for Entrepreneurship (2016).

In addition to developing or renewing curricula, the DigComp and EntreComp Frameworks can be utilised when developing cross-cutting learning strategies, where the core competences differ from the above two mentioned competences. In this, certain skills are integrated into the chosen course supporting working life needs, lifelong learning, and 21st century skills. Cross-cutting learning strategies focus on integration of required transferable skills across curricula and courses, which support discipline-based competences. Teachers and professionals developing curricula must consider learners' capacity for practical implementation, supporting professional development. Strategies also consider the global job market and interaction scenarios. Depending on the discipline, entrepreneurship, and digitalisation this way can be viewed as cross-learning strategies, in addition to, for instance, green skills and cultural awareness. (European Commission, 2021).

In the CPD course development process, the two Frameworks supported the work in identifying the contents for students' competence development: the DigCompEdu and EntreComp were used as tools to evaluate what the CPD courses should deliver. The competences were created through on-line study circles, in teacher teams, where the Kosovar HEIs professionals were supported by the Work Package leader. Teams were offered lectures on competence-based education followed by teamwork on the competence descriptions using on-line tools. The drafts of the competences were commented on by the Work Package leader in rounds of feedback before their finalisation. (Table 4).

Table 4. Comparison of the created competences via DigCompEdu and EntreComp Frameworks.

ICT & Digital competences	DigCompEdu/EntreComp
<p>Competence: The ICT and digital competences will empower the students to make them proficient in providing health services using different technologies and digital health products e.g., EHR and telemedicine to analyse, monitor and improve healthcare. Students will be proficient in creating/ incorporating digital health products in the existing clinical pathways and use participatory research methods to design user-centered technologies. These competences enable the students to assess the strengths and limitations of different digital health products as well as key opportunities and challenges to their use and the evidence of their effectiveness in the field of digital health in relation to public health and healthcare globally. Students will be competent to manage and navigate data security solutions and concerns.</p> <p>Learning Outcomes: Co-design approaches for health IT including stakeholders' analysis, participatory methods, personas, requirements analysis, user journey analysis and empathy mapping.</p> <p>Demonstrate an excellent understanding of the principles of information governance, confidentiality & consent, interoperability and data sharing in Digital Health systems.</p> <p>Critical understanding of digital health implementation processes including strengths and limitations as well as the complex factors which can affect implementation success or failure.</p> <p>Evaluate of current issues, latest trends, and emerging challenges in Digital Health:</p> <p>Show a broad understanding of the principles of evidence-based medicine, clinical outcomes and systems evaluation in Digital Health:</p> <p>Understand Health Data Analytics, Decision Support and Public Health Monitoring.</p>	<p>DigCompEdu:</p> <p>Information and media literacy: To incorporate learning activities, assignments, and assessments. which require learners to articulate information needs, to find information and resources in digital environments, to organise, process, analyse and interpret information, to compare and critically evaluate the credibility and reliability of information and its sources.</p> <p>Digital communication and collaboration: To incorporate learning activities, assignments, and assessments, which require learners to use digital technologies effectively and responsibly for communication, collaboration, and civic participation.</p> <p>Digital content creation: To incorporate learning activities, assignments, and assessments. which require learners to express themselves through digital means, and to modify and create digital content in different formats. To teach learners how copyright and licenses apply to digital content, how to reference sources and attribute licenses.</p> <p>Responsible use: To take measures to ensure learners' physical, psychological, and social wellbeing while using digital technologies. To empower learners to manage risks and use digital technologies safely and responsibly.</p> <p>Digital problem solving: To incorporate learning activities, assignments and assessments which require learners to identify and solve technical problems, or to transfer technological knowledge creatively to new situations.</p> <p>EntreComp:</p> <p>1.4 Valuing ideas: Make the most of ideas and opportunities. Recognise the potential an idea has for creating value and identify suitable ways of making the most out of it.</p> <p>2.3 Mobilising resources: Get and manage the material, non-material and digital resources needed to turn ideas into action.</p> <p>3.1 Taking the initiative - Go for it: Initiate processes that create value; Take up challenges. Act and work independently to achieve goals, stick to intentions, and carry out planned tasks.</p>

3.2 Linking the competences into Continuing Professional Development (CPD) courses:

After the competence development process, the developed competences were linked to the course to be created/co-created. According to the competence-based education, it is recommended that one course has a maximum of three (3) competences attached to it. This

ensures that the courses contain the competences created, and that the competences are continuously developed during education.

The courses studied need to fulfil the content of the competences: once the courses have been studied, the competences have been fulfilled (Table 5).

Table 5. Attaching the competences into new or updated CPD courses.

Course	Interdisciplinary collaboration	ICT & Digital Competence	Innovation and entrepreneurship	Evidence-informed practice	User involvement and person-centeredness
Course 1 New					
Course 2 New					
Course 3 New					
Course 4					
Course 5					
Course 6					
Course 7					
Course 8					
Course 9					

Once the competences have been attached to the courses, the learning outcomes are created. As the learning outcomes state the results of students' learning during a course, learning outcomes must be created to be observable and measurable according to the learning experience of students. After this, the course contents and learning methods can be planned. The assessment criteria should be carefully created to assess the learning outcomes set for each course. Finally, learning outcomes are included to the course curriculum, which are presented to students at the beginning of each course.

B. CARPE DIEM AS A TOOL FOR DEVELOPING ONLINE TEACHING AND LEARNING

1. Introduction to the Carpe Diem method

1.1 Background

The project uses the Carpe Diem method as a theoretical framework for the CPD course development through co-creation. The Carpe Diem method, created by Professor Gilly Salmon in 2013, is a team-based approach for designing learning and teaching. The Carpe Diem is an agile method that can be used for any purpose across education when transforming traditional pedagogy, teaching, and learning. The method is used when re-designing courses or curricula from face-to-face teaching for on-line or hybrid teaching. The method can also be used when implementing and testing new on-line pedagogy, including methods and tools (e.g., flipped classroom approach, project-based learning, or innovative on-line activities). The Carpe Diem method places the participant (learner) in the center of the learning process who is considered as an active constructor of knowledge. (Salmon, 2013).

Carpe Diem encourages co-creation of learning, which means that participants (learners) demonstrate an increased ownership, engagement, and empowerment in the learning process. Shared commitment in the learning process is important to facilitate deep learning and to reach the learning outcomes (Kaminskiene, Žydžiunaite, Jurgile, 2020). The method also stresses the importance of facilitator's competences and innovativeness, as transferring traditional classroom teaching into on-line does not work in practice. The method follows a six-step process for designing curricula, modules, or courses through co-creation, which are: 1) *Write a blueprint*, 2) *Make a storyboard*, 3) *Build your prototype online*, 4) *Check reality*, 5) *Review and adjust*, 6) *Planning your next steps*. The Carpe Diem method is often carried out face-to-face by teams of experts who co-design courses through interaction. The process using the steps of the Carpe Diem method can be completed through a workshop using pens, papers, whiteboards and post-it notes. The co-creation process places importance on the versatility of the participants (including e.g., teachers, administrators, librarians) and on-going communication, interaction, and feedback within each step of the process. (Salmon, 2013).

1.2 Justification for selecting the Carpe Diem Method for the project

The method was chosen for the SIAHDPC project Work Package 4 for several reasons: The Carpe Diem method has been used by various higher education institutions around the world in curricula development, thus the evidence showed suitability of the method for the project where the aim is to renew and develop on-line and hybrid courses across different fields. As Carpe Diem enables smooth interaction between participant experts and specialists, including on-going feedback and reflection, the method was considered suitable when working on-line: online tools enable on-time communication and feedback through various channels, enhancing interaction

between the participants. The method also offers a step-by-step guide through clear examples guiding the development process in a visual way. The step-by-step guidance with visual presentations (e.g., pictures, example templates) makes the method suitable for the agile development aimed by the project (Salmon, 2013).

As the aim of the Carpe Diem is the continuous design of curricula or courses that can be placed into immediate use for learning and teaching, the method was seen as the most suitable to be utilised in international research and development work with set deadlines, outputs, and deliverables (Salmon, van der Merwe, Schoonwinkel, 2020). The Carpe Diem method supports the European Framework for the Digital Competence of Educators (DigCompEdu, 2017), and the Entrepreneurship Competence Framework (EntreComp, 2016), both used as theoretical Frameworks for the project. The DigCompEdu (2017) pays special attention to the digital competence development of teachers, to the importance of enhancing teaching and learning through the skills developed while facilitating learners' digital skills. In turn, the EntreComp (2016) offers an understanding of developing entrepreneurial capacity of teachers and students through the recognised competences.

2. Implementation Process

CPD course development started with developing a mutual understanding of the competence-based curricula, defining competences, and linking the competences into the CPD courses. As students' competences develop during the whole education, holistic understanding of the development process and competence definitions are crucial before entering the co-creation process through the Carpe Diem method. Therefore, the competence development work continued at the beginning of the course development in cycles. As the co-creation work was mainly carried out on-line, some of the contents of the Carpe Diem method (Steps 1-6) were modified for the co-creation process carried out through Zoom workshops and on-line study circles. The process of CPD course development is described in figure 6.

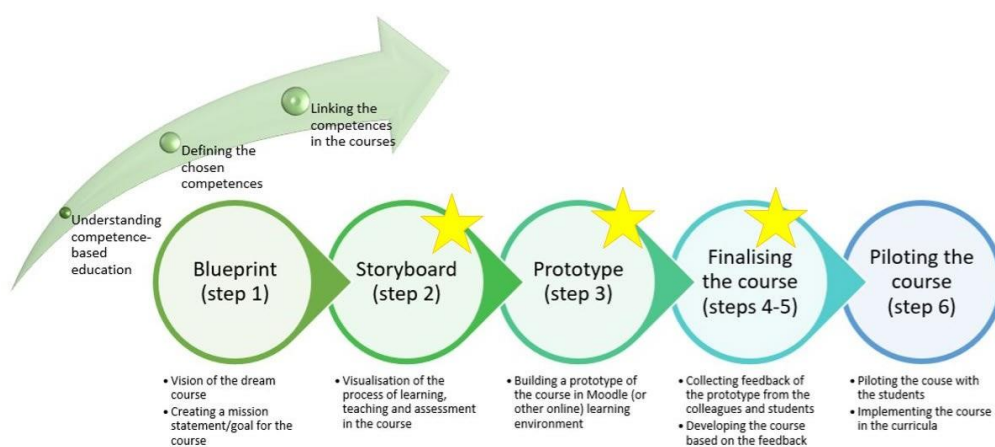


Figure 6. Carpe Diem process for CPD course development.

The Carpe Diem process started with an orientation through the introduction of the method to the participants and agreeing on the schedule for the development process. CPD course development was completed in local teams of experts from Kosovar HEIs. The co-creation teams were formed at the beginning of the process. The professor in charge of the development process was chosen as the team leader, who was responsible for leading the work in local teams. Other team members were colleagues (other teachers), supportive personnel such as assistants, ICT personnel, and the students. Student representatives bring in valuable insights into the curricula development work, as understanding student orientation, their attitudes, learning styles and values may be crucial for the outcome of the course. The Work Package leader supported the development process by facilitating the Carpe Diem process, commenting on the outputs, providing information and individual counselling for e-learning design. Peer support and evaluation was provided through on-line study circles and workshops.

Step 1) Writing a blueprint

Step 1 focused on developing a mission statement through co-creation. In this, the teams of experts idealise their dream course starting from the aims of the course, their own wishes and what they hope to achieve through the course. Facilitators of the course needed to consider their own competences, resources, existing curricula, including students' competences when starting the process. At the start, the team members answered questions for their dream course: *What adjectives describe the course? How do I want students to view the course? Who are the participants (learners) of the course? How is the course implemented (contact teaching, online teaching, or hybrid teaching)? What are the learning outcomes and competences?*

From the development process and answers generated, the teams created a poster of the course. The outcome of step 1 is a blueprint, a visualisation of the course to be developed (figure 7).

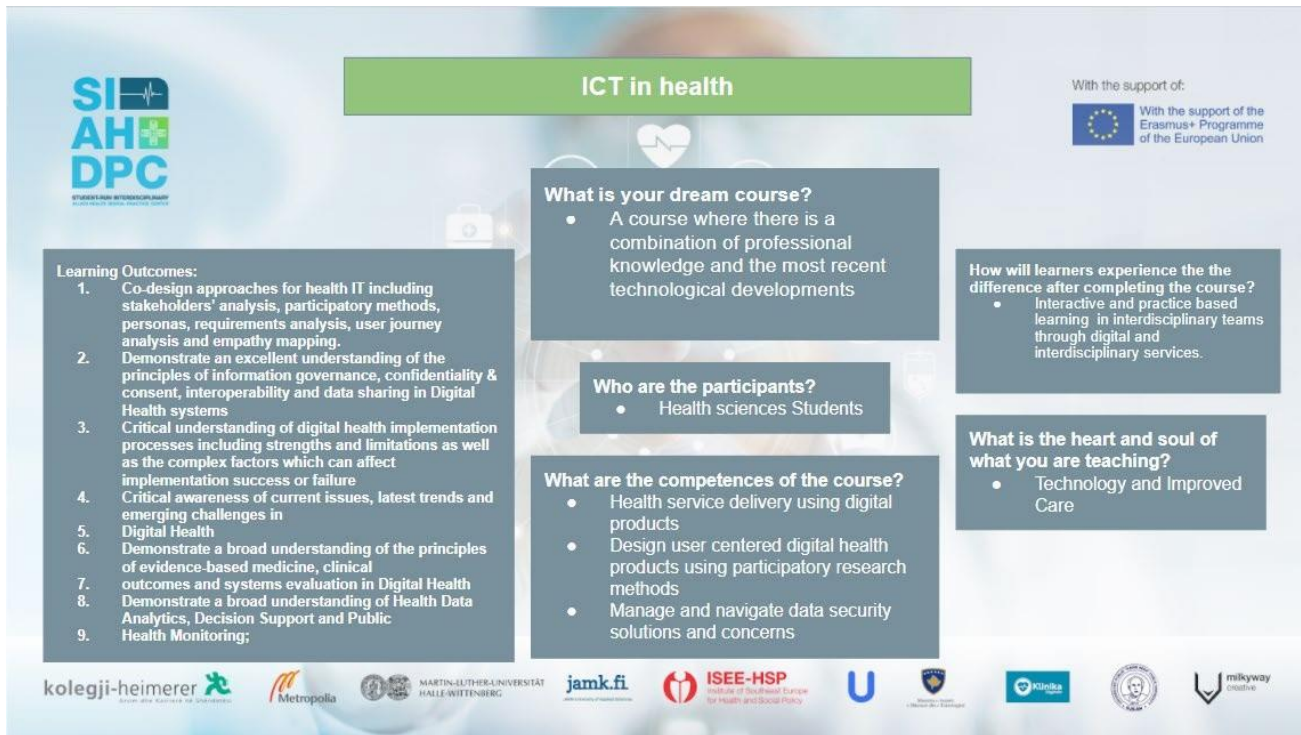


Figure 7: Example of the blueprint created for the course “ICT in Health” in step 1.

Step 2) Making a storyboard

Step 2 focused on developing a concrete plan, a storyboard, based on the blueprint. Storyboard creates the basis of the course to be developed. It works as a roadmap guiding the course development process, enhancing the impact of the course to be developed. This step requires careful management of the content, and teamwork to ensure quality implementation. Teams defined detailed content of the course, timing of the various activities for course implementation (online or hybrid teaching) assignments, learning outcomes and evaluation of the course. Teams also planned the teaching and learning strategies: *How is the teaching and learning taking place? What is the teacher’s role and how teaching is implemented? What is the student’s role and how is the learning process implemented?* Student’s competences attached to each course guide the planning process.

The outcome of step 2 is a storyboard, a plan of the course to be developed (figure 8).

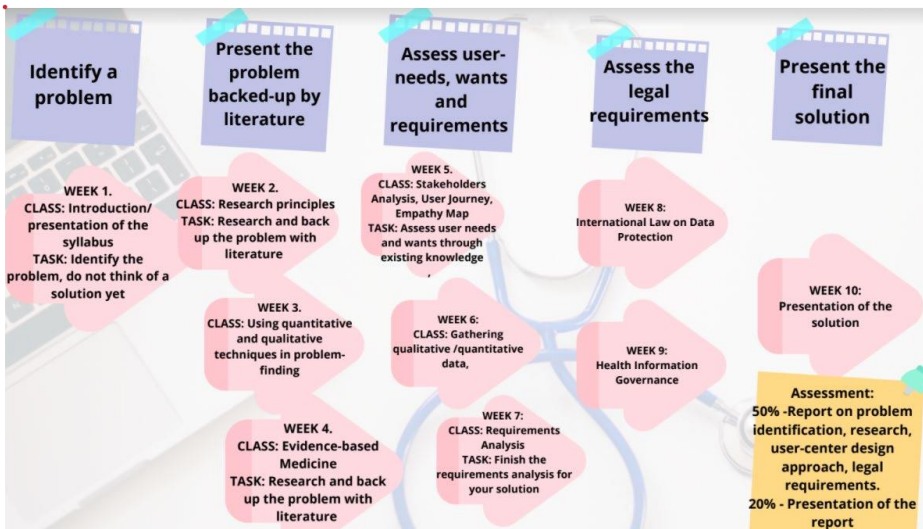


Figure 8: Example of the storyboard created for the course “ICT in Health” in step 2.

Step 3) Building your prototype online

In step 3, the teams of experts developed a prototype based on the storyboard. In this step, teams planned the course and its contents into the on-line environment (Moodle platform) to be used in teaching and learning.

Table 6: Building a prototype for a course.

1: NAME OF THE COURSE TO BE DEVELOPED			
2: FORMULATE THE COURSE DESCRIPTION	Purpose of the course and content	Competencies and learning outcomes	Workload of the course (ECTS Credits) and assessment
3: FORMULATE COURSE SCHEDULE AND IMPLEMENTATION	When is the course taking place? What is the timetable?	Where is the course taking place?	Make a clear timetable for teaching and learning.
4: FORMULATE THE LEARNING ASSIGNMENTS (E-TIVITIES)	Learning assignments need to link to the learning outcomes.	Make a spark and interesting content. What tools are used to enhance learning?	How is learning constructed through assignments? What is student workload?
5: INDIVIDUAL CONTRIBUTION	What do you want the participants to achieve and how is this achieved?	How individual contribution supports group learning?	How group work supports individual learning?
6: FORMULATE DIALOGUE	Invite students to discuss and specify when, how and how long. Make deadlines.	Activate students to a dialogue: on-line discussions, feedback, reflection.	Participate in students’ dialogue and give feedback: set an example.
7: FORMULATE FACILITATOR INTERVENTION	Set your responsibility: what will you do, when and how? Through which channels?	Clarify when you carry out the assessment, give feedback, close assignments etc.	Make sure that students know your role.
8: FORMULATE SUPPORT	Think about alternatives to support learning.	Create support materials, resources, tools.	Teachers' notifications, availability for support.

During the planning process, facilitators need to keep in mind the course competences and outcomes, including the assessment that leads the formulation of the course contents to the platform. In addition, teams planned the e-tivities (on-line activities) for the course, and focused on learner activation, interaction, communication, and visual outlook of the course to make learning interesting (Table 6). An e-learning specialist supported the teams in planning and implementing the course into the on-line platform.

The outcome of step 3 is a prototype of the course in an online learning environment.

Step 4) Checking reality

Step 4 includes testing the prototype. Teams of experts presented the prototypes developed (renewed or created courses) to the other experts. Each team presented their prototype (outcome, course), gaining feedback from the other participants. In this step, feedback can be given through reflective discussions or in a written format. During the process, participants taking part in the co-creation work gave structured peer feedback on the following:

- *What is the first impression of the course and the online learning environment?*
- *Is it easy to use? Is the environment student centered?*
- *Do the learning outcomes, content and assignments support the development of the chosen competences?*
- *Are there any contents, which are unclear or difficult to understand?*

The outcome of step 4 includes feedback collected from the developed course from colleague teachers, other professionals (e.g., technicians, administrators), and students.

Step 5) Reviewing and adjusting

Step 5 includes developing a prototype. Teams of experts fine-tuned their work based on the collected feedback and reflection in Step 4. Adjustments and changes were made accordingly, keeping in mind the course competences, and learning outcomes. In this phase, the teams of experts looked back and reflected the components of the blueprint and storyboard: *Is the course navigation logical and easy to use for the students? How are the timings of the course? Do the e-tivities (on-line activities), assignments and study materials support students accurately to reach the learning outcomes and the competences of the course?* The emphasis, content, and depth of the e-tivities depend on the course implementation (on-line teaching versus hybrid teaching).

The outcome of step 5 is a fine-tuned prototype of the course in an online learning environment.

Step 6) Planning your next steps

In step 6, the teams are ready to build the action plan. In this phase, the teams of experts draw the timeline for actions needed after completing the Carpe Diem process and before starting the first pilot of the course. In this, the timetable, preparations needed (for example making a video content) and responsibilities of the participants (teachers, assistants) are concretely defined. Teams of experts critically review the course content to confirm that the finalised prototype is logical, and properly focused on the content. Irrelevant and less critical contents are excluded from the course. Teams of experts decide the necessary actions and contents for students'

learning and competence development (course *must have*), the actions and contents necessary (course *should have*), and those contents desirable, if time allows (course *could have*). In addition, the non-critical actions and contents that can be transferred (to another course) or removed (course *would have*) are evaluated. Once the final tuning work is completed with a clear timetable, the course is ready for piloting.

C. E-PEDAGOGY

E-pedagogy can be described as an approach or a set of solutions to support and enable teaching and learning in online learning environments. The Covid-19 pandemic has challenged and changed teaching and learning by accelerating a transition to online environments. The situation has forced educators and students to learn new knowledge and skills to adapt to the change. Some individuals and organisations have been better prepared for the change than others. As the quality of teaching is paramount, continuous efforts from institutions, educators, and the students are needed.

From the students' perspective, e-learning challenges learners to reflect their personal ways of studying and learning. The ways and means by which learning works, for example, in the classroom, may no longer be effective and efficient. Technical requirements have also increased, which means that students may be expected to have a laptop, an adequate internet connection, headphones, and a microphone. Studying from home can also raise various challenges as students' learning environments vary.

Usually, classroom-based teaching is more strictly scheduled, enabling students to keep up with the processes of teaching and learning during a course. Online learning demands more independent actions from the learners, including careful time management. In online learning, the risk of failure or dropping out increases. Teachers also have an increased role and responsibility to facilitate learning. Although online and distance learning offers flexibility, giving students more time for family or work, it also adds individual responsibility for course completion.

Studying online includes the use of online devices and technology. While some students are skillful in using technology, others demand more support. To some, technology can even be unfamiliar and difficult to use, requiring hands-on practice with online learning environments and office tools. These situations also challenge evaluation: how to carry out the course assessment process correctly focusing on the competences and learning outcomes, not in the use of technology? Fortunately, these skills can, and must be practiced through formal and informal learning, training, and education.

As learning occurs in different forms and through various methods, traditional methods cannot be transferred to online environments. Some subjects are practical and studying online needs extra efforts from both, teachers, and students. In addition, the process of social interaction demands further efforts: although web cameras, and discussion forums create a new, different environment for interaction, teachers must create a plan for facilitating communication to enhance learning. Although online learning creates new challenges, it also solves a lot of problems. The increase of online learning is inevitable, thus, with the right attitude and necessary skills, individuals will overcome the upcoming challenges, making teaching and learning even more interesting.

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Appendix

Appendix 1: Visualisation of the Carpe Diem Process in SIAHDPC project

Visualisation of the Carpe diem process used for co-creation and updating the courses offer a practical example on applying the method in CPD course development. Phases and the main contents of each phase of the Carpe Diem process is described in figure 9.



Figure 9: Carpe Diem process of CPD development, SIAHDPC project

Step 1) Writing a blueprint

Step 1 starts with the idealisation of the dream course: What kind of course does the team want to create? What is the course like from the students' point of view? Questions helping in creating the blueprint are found from figure 10.

Output: A blueprint of the dream CPD course.

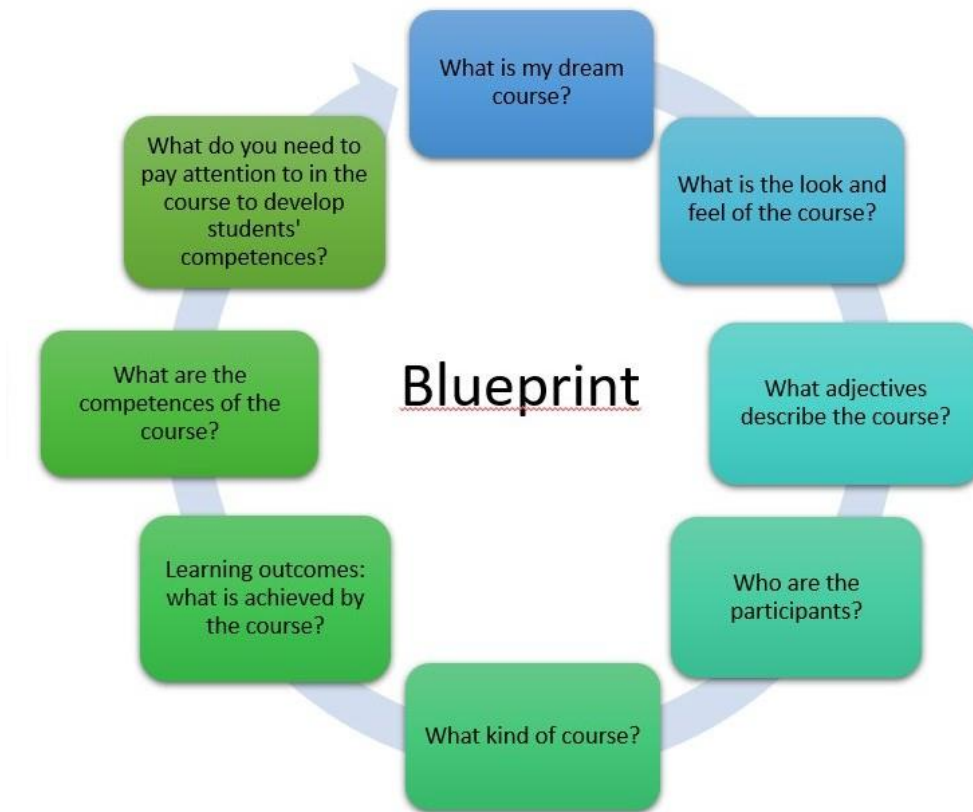


Figure 10: Content of the Blueprint

Step 2) Make a storyboard

Step 2 focuses on creating the visualisation, a storyboard, of the competences achieved in the course, learning outcomes, course content, timeline, assessment and evaluation. Questions helping in creating the storyboard are found in figure 11.

Output: A storyboard of the CPD course

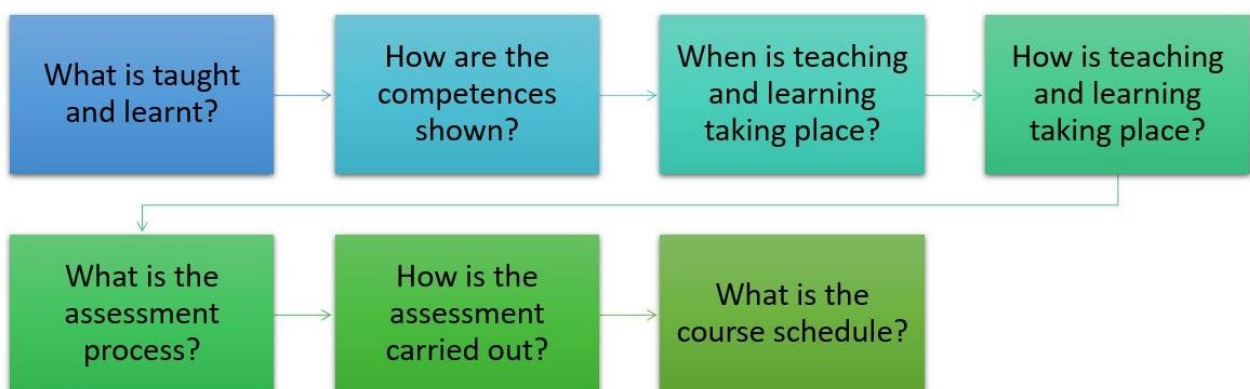


Figure 11: Content of the Storyboard

Step 3) Building your prototype online

In step 3, the team of experts create a prototype of the course to an on-line environment (e.g., Moodle platform). The course content with selected on-line activities (e-tivities) are provided to the environment. Tools and practical examples for planning the prototype and e-tivities can be found in part C of this Handbook.

Output: Prototype of the CPD course.



Figure 12: Example of a prototype of a course (JAMK, Moodle platform)

Step 4) Checking reality

After completing the prototype, step 4 focuses on testing it with colleagues and students. Feedback is collected for the future development of the prototype. Content of the feedback is described in figure 13.

Output: Feedback from the prototype

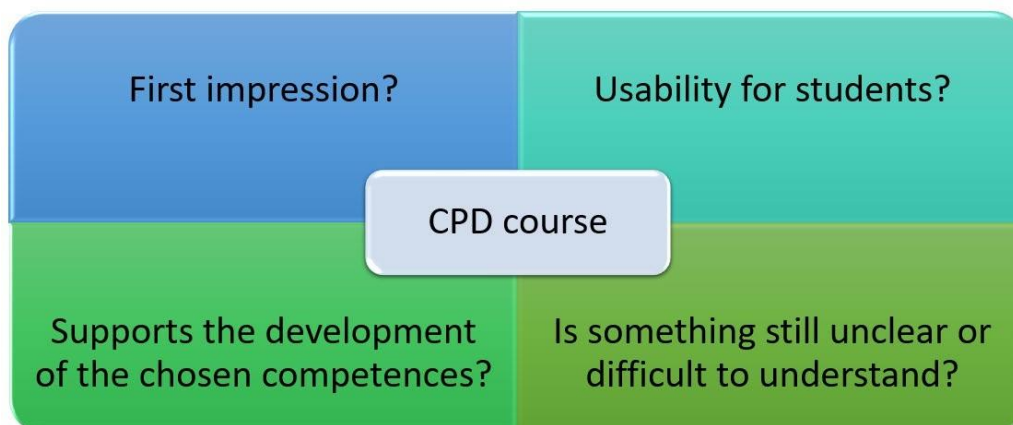


Figure 13: Example questions for feedback collection

Step 5) Reviewing and adjusting

Step 5 focuses on finetuning based on the feedback. When adjusting the prototype, experts reflect the blueprint and the storyboard to ensure that the content of the prototype answers the development needs (figure 14). Decision on further development and changing any of the e-tivities are made, with next steps planned.

Output: Finetuned prototype of the CPD course.

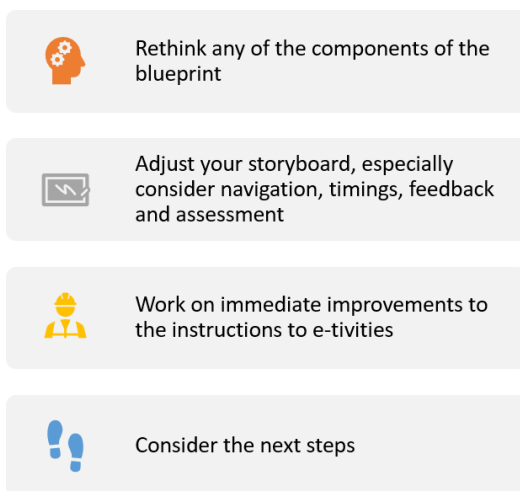


Figure 14: Adjusting the course design

Step 6) Planning your next steps

The final step of the process is to draw the timeline for actions needed after completing the Carpe Diem process and before starting the first piloting of the developed course. Careful planning of the activities and preparations, and the responsible persons needed supports successful implementation of the course. The team finishes the course preparations before piloting the course by agreeing the responsibilities of the participants (teachers, assistants) (figure 15).

Teams of experts critically analyse the course contents to ensure that the finalised prototype is logical, and properly focused on the content. Figure 16 presents the MSCW model of recognising the critical and non-critical content of the CPD course (Salmon 2020). After the critical review and final adjusting of the prototype, the course is ready for piloting.

Output: CPD course.



Figure 15: Drawing a timeline for the course design, an example (Salmon 2020)

Letter	Meaning	Priority
M	MUST (also MINIMUM)	An action or achievement that you are <i>dependent</i> on for success of implementation of your storyboard
S	SHOULD	High priority, important, but some flexibility
C	COULD	Desirable, if time and resources permit. Include one or two to increase likelihood of learner satisfaction if possible.
W	WOULD	Success is not dependent on this item; it could be transferred to the future or cut or substituted. These might be the less critical or lower pay-back items.

Figure 16: Pinpointing the critical/necessary course actions and content (Salmon 2020)

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