WORKPACKAGE 5

EVALUATIVE TOOLS AND TESTING INSTRUMENTS

Work package 5- Evaluative Tools and Testing Instruments

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All contributors held regular internal meetings during the project (minutes of these meetings are available on Trello)

Objectives

This work package was developed to create tools and instruments that allow the evaluation of skills the learners/students acquired during the course. Additionally, these tools will support a Life Long Learning. Some of the instruments produced will evaluate the content/knowledge of the framework of the Dietetic Care Process (DCP) and dietetic aspects of the clinical cases developed by self-evaluation of the content of the Massive Open Online Course (MOOC) (O1).

Description of work (broken down into activities)

- ■ O5/A1   Analysis for the development of evaluative tools
- ■ O5/A2   Development of evaluative tools
- ■ O5/A3   Implement evaluative tools on the MOOC
- ■ O5-A4   Evaluation of evaluative tools

Milestones: are displayed with planned date (application) and end date/ status

Nr.	Milestone	planned	expected	status
5a	Results of good practises on evaluation of skills	1/2016	1/2016	Finished
5b	Test results of software for e-learning available	3/2016	5/2016	Finished
5c	Final templates / methodology for evaluation / peer assessment available	6/2016 7/2017 5/2018	6/2016	Finished
5d	Evaluative tools implemented	3/2017 4/2018	3/2017	Finished
5e	Results of evaluation available	6/2016 7/2017 4/2018	6/2016	Finished
7	Evaluative tools and testing instruments for all clinical cases and the unified framework DCP are available and implemented	5/2018		

Table 1/WP05: Overview of Milestones and intermediate steps in Work package 5.

■   All initially planned deliverables and milestones for the time of reporting have been reached.

O5/5a & 5b Results of good practises on evaluation of skills and Test results of software for e-learning available

Milestone 5a and 5b have been delivered on time. For an overview of software and good practices on the evaluation of skills (5a) a literature search has been conducted. This survey focused on Moodle, since this is the platform we considered to be most suitable for our purposes (see WP01 for this). The created documents provided a solid basis for evaluation and technological options; however, as the consortium decided to use Moodle, the analysis for testing instruments targeted Moodle and its evaluation options. An overview of good practices on the assessment of tools was posted on Trello (5/2016).

Multiple choices, Multiple answers, and right or wrong questions were used to assess the knowledge of the users. The case developers learned to work with Moodle so that they could either implement them themselves (for batch 2) or adapt them if they have already been employed

before. All the cases were created in a Word- document (so they can be quickly forwarded and feedbacked) and then implemented in Moodle, instead of turning it into a SCORM-file. The advantage is that the cases can also be adapted directly in Moodle in the following years. This future editing was essential since guidelines referred to in the case, are potentially changing.

O5/5c (Final templates / methodology for evaluation / peer assessment available)

This milestone provides a framework for evaluation methods and showed examples and tools to the partners. The uploaded documents served as a useful overview. They described the concept of learning outcomes and were categorized in three levels of Miller's pyramid (knows, knows how and shows) within the MOOC. Partners received guidelines for evaluation questions and learning outcomes; including examples. This ensured that all cases shared the same concept. Every case included at least 15 evaluation questions. Each evaluation question was linked to a learning outcome on each level of the taxonomy of Bloom. In O5 we collected all MOOC outcomes, levels of evaluation questions and IMPECD competences through the construction of a matrix. We checked if all areas were covered and provided feedback to partner on the evaluation aspect in their case.
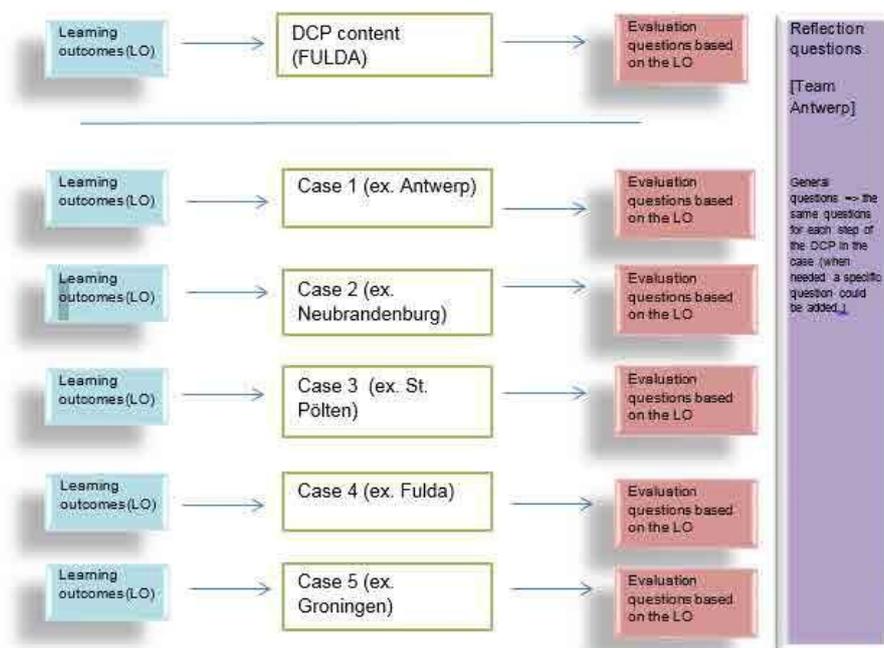

Figure 1/WP05: Three steps for developing evaluation questions

O5/5d Evaluative tools implementation

This milestone was due in March 2017. During the case development, team Antwerp provided feedback for all partners on the evaluation aspects used in the cases three times. Before the ISP, a template was developed for self- and peer assessment. During the first ISP (Antwerp) this form was completed by the students. During the 2nd ISP week (Neubrandenburg) the template was available for the organizers to use as well. The document was uploaded on Trello on 25/09/2017 (Antwerp ISP). Students worked in groups and a digital co-assessment was developed especially for this ISP.

The expert check used in the formative development of the cases, and not during the ISP. This means that each partner is responsible for the accuracy of their case and consult experts where needed.

Evaluation of evaluative tools: (O4+O5)

Because the implementation of the IMPECD MOOC was not finished at the moment of writing this report, we are not able to give results of user statistics. The MOOC was tested during the ISP's and the batch 1 and 2 cases were implemented before the second ISP batch. However, we were able to complete a qualitative evaluation of the IMPECD MOOC but could not conduct a quantitative analysis yet.
Users statistics are easily downloadable from the MOOC for every lesson (so for the DCP course and for each case) but since the MOOC is not yet publicly available, we could not access these reports.

O5/5e

The most preferred methods were practical issues tests, whole case study tests and general theoretic principles.

Evaluation tests after each step in the case study	28	(35,4%)
Evaluation test after completing the whole case study	35	(44,3%)
Testing of general theoretic principles	33	(41,8%)
Testing of practical issues regarding a case study	44	(55,7%)
Decision tree based testing (= the participant decides on a certain action to be taken in the dietetic care process which could lead to a positive or negative outcome for the	32	(40,5%)
Multiple choice quiz	29	(36,7%)
Online live quiz with other participants (= webinar)	21	(26,6%)
Other:	4	(5,1%)

Table 2/WP05: What evaluation methods would you like to use in an online course, where virtual case studies can be trained by dietitians?

Challenges in work package 5:

- Check if all partners implement the evaluation method in the same way, and support them where needed
- Test if learners/students understand the aim and understand the difference between a formative step (progress questions) and an evaluative step (evaluation questions)
- Technological aspects:
    - Evaluate learning outcomes by using the question types available in Moodle, with extension of the whole grading system. It is not possible as a case developer to adjust.
    - Provide a private area for evaluation results, and identify reflection vs. progress vs. evaluation question (see discussion and minutes during 4th transnational meeting in St. Pölten, February 2017)
    - Check if the selected cut-off (75% correct of first attempts) is well chosen for receiving grades/certificate
    - Get the assessment between the different HEI's on the same level (5 ECTS points or grading within the exams)

What was the project's impact on the participants and participating organisations involved in the project?

Teachers and students of AP benefitted from and increased their competence in

- International collaboration skills by working and spending time together during the ISPs and transnational meetings
- The participation in this Erasmus+ project has increased the desire to participate in other international projects in the future because of the experience we build up.
- Knowledge about the different cultures of the consortium
- Understanding of and empathy for other systems of education and methods of teaching. Searching for consensus during consortium discussions
- Organizing international exchanges with students and teachers (e.g., ISP1, where students were involved in the organization, besides the five participating students)
- Presentations, posters, articles and other publications in English
- Language skills (English) in general
- Sound and sustainable personal and professional connections with our partners
- New didactic methods for learning – the digital environment of Moodle is the same as we use in our university (since 2017); the project increased the familiarity with that environment and resulted in ideas how we will incorporate the new   curriculum development

- Promoting the dietetic profession in general
- Supporting our universities as innovative and internationally focused institutions
- Knowledge and understanding of the dietetic care process
- Teachers involved in the IMPECD project learned to work with Moodle and how to create a lesson within this online tool. For each case another lesson is created. We learned that Moodle has advantages (the student can learn whenever he wants, it is easy to create a lesson in Moodle, you can evaluate how the students answer the question, you can add feedback, there are different types of asking questions,…) but also disadvantages (e.g. working and link competencies in the lesson, using colours, they're not a lot options for the layout, it is a linear path, the learner gets only a score for his first attempt, it is not possible to upload a PDF-file in the lesson: this has to be at the beginning of the case …).
- Three team members didn't work with European partners before. It was a challenge for the team members to communicate in English and to learn the differences and similarities between the different education institutes, the education program, the responsibilities of a dietitian, names of medication and foods are also different (for example: minarine is unknown in Germany).
- We experienced to think 'out of the box' in visualising learning outcomes linked to competences by creating the metaphor of a flower.
- For our own institute, it was an excellent opportunity to work on the IMPECD project. Artesis Plantijn Hogeschool Antwerp published this project on their website.

Besides the aspects mentioned above, students specially benefited from and increased their competence in

- Students were involved in IMPECD for project work, bachelor theses and internal placement (e.g. co-organizing the ISP, social events, workshops etc.)
- Dietetic knowledge by using cases and European guidelines
- Professional development through Life Long Learning
- Using scientific literature and guidelines to solve a case
- Enhancing reflection skills
- Students are also more open to international exchange. In this way (ISP or at home) they get the chance to work on their dietary knowledge and they can improve their English language.

How did the project partners contribute to the project? Please detail specific competencies brought in by the partner organisations.

Teachers from AP lead WP4, 5 and 6. We contributed through:
- Sharing/implementing our experience and knowledge on reflection and portfolio that we gained after 15 years of competence-based education

- Sharing/implementing our experience and knowledge of evaluation methods, based on our experiences with e-learning, competencies and learning outcomes and validity of testing methods
- Sharing/implementing our experience in organizing international weeks
- Based on previous project experiences we collaborated and co-managed the work packages
- Due to the high workload and highest number of work packages, AP university provided extra working hours to achieve all our outcomes. AP also contributed during the ISP 1 by financing events and catering.
- Our contacts with the hospital were vital in the development of realistic cases
- During the application stage, we provided the lead university with sufficient input and contributed constructively during partner meetings
- We disseminated the project and its outcomes through internal, national and international channels
- Our connections with the students network ENDietS made it possible to hold four EFAD/ENDietS webinars related to IMPECD

The contribution of team Antwerp to the project was grounded on teamwork.

The advantage of our team is that we worked together, but also each team member took his/her responsibility of subtasks and monitored the deadlines individually. Team Antwerp was very interested in digitalization; it was often testing and trying to gain new insights into the online learning tool.

The dietitians of the team worked hard on developing the cases and supervised students during the 2 ISP's. This engagement was possible because of their competencies as a dietitian but also because of their tutor experiences in student projects. In developing the cases they stayed in contact with the non-university experts, they discussed a lot, brainstormed to improve the cases, divided the work but always asked each other for feedback. This method allowed us to take our action to a higher level and proved that the teamwork improved the final output.

Team Antwerp was responsible for Output 4 and 5. The didactics of the IMPECD MOOC implies that each lesson (each case) has learning outcomes which are based on three different levels (Taxonomy of Bloom). The elaboration of this started already at the very begin of the project (sep '15). Literature was used to create a framework assuring uniformity in the IMPECD MOOC. The necessary steps were explained to the partners. Team Antwerp gave feedback about evaluation questions, learning outcomes and reflection questions. Later in the project, the development of the IMPECD competencies were created. We then linked the different competencies to the learning outcomes of all the cases assure that every competency is net when the learner finishes the IMPECD MOOC. As a result, the IMPECD competence flower was created.

The idea of a student portfolio within the IMPECD project was ours. We have a lot of experience in reflection (in our curriculum students have to reflect in every course) and in student portfolio, in which we control the learning goals of the students and provide feedback on how to achieve them.

The fact that in 2017 our HEI integrated an own kind of Moodle system, resulted in an intense learning and working process with this tool on our side. The Moodle system at AP is very similar to the method

used for the IMPECD MOOC. As a result, we could quickly work with the IMPECD MOOC system, bring in our cases, upgrade them, give feedback on the reflection questions in other cases, etc.

In our curriculum, the ICF model (International Classification of Functioning, Disability and Health) is of great importance. Students learn to work with it when solving clinical case studies during their education. Because our teachers are knowledgeable and experienced with the ICF they provided valuable feedback for other HEI's who weren't familiar with ICF.