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Template 3: Developing Concepts

A concept to assess and acknowledge skills and competences which ensures the recognition and mobility of healthcare staff

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6 Concept for assessment of digital competences	Fejl! Bogmærke er ikke defineret.

1 1. Introduction to the concept

1.1 The aim of WP3 - A concept for assessment

The concept for assessment of digital/technological competences presented here, is developed within the framework of the DISH project. The aim of this part of the project was "... to develop, test and propose a concept to assess and acknowledge the triple helix skills within health care staff, which are obtained outside the official education and training system". The intention has been to develop a framework for assessment of competences, which can be adjusted to specific national and local contexts, to specific learning situations and to specific technologies.

The concept is developed in relation to the 'Learning Innovation Unit' concept and the 'On-the-job-training' concept also developed in the DISH-project. This means that assessment of competences is approached as an integral part of organising, training and implementation of health technologies or assistive technologies. The actual design of an assessment process should therefore, beside reflecting the content of the training, also take into account the organisational and professional context of the training.

The concept points towards different aspects of an assessment process that should be taken into account when planning and completing assessment of digital/technological competences in the health sector. A graphical presentation of the concept can be found on the following page.

The upper left corner points to the determination of which competences to assess, which is of course closely related to the planning and design of the training.

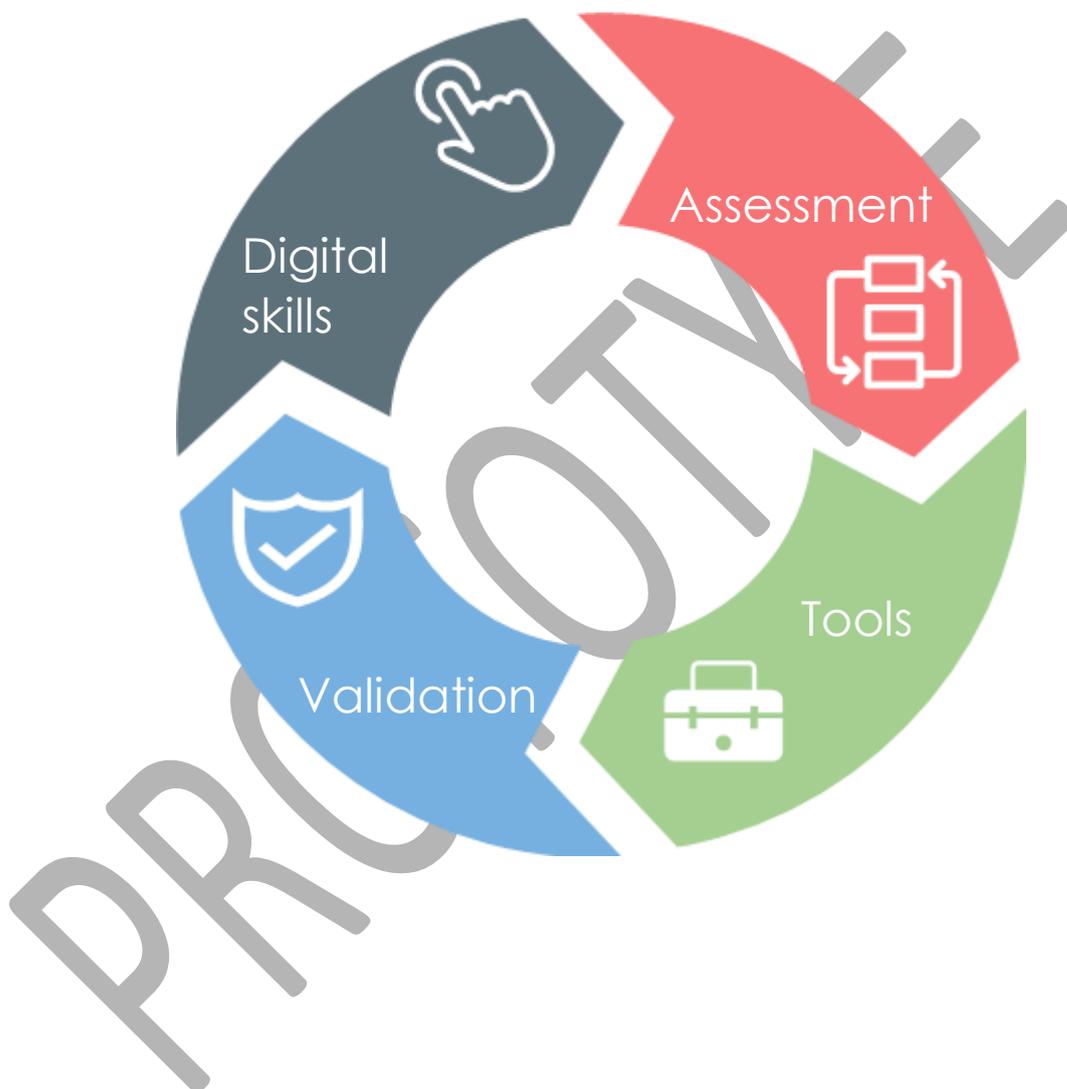
The upper right corner addresses the assessment process. As healthcare work refers to a wide range of professional work, involving various employment groups and takes place in a variety of organisational and institutional settings, considerations about contextual matters are crucial in designing training and assessment. One example is whether the assessment process takes place as part of daily work, or is something that is going on besides normal workhours.

The lower right corner addresses methods and tools available to assess competences. The choice of method assemblage is closely linked to both the understanding and description of competences to assess, and to the actual context of learning.

The lower left corner is about validation and certification of competences. Validation of competences is based on the documentation provided in the assessment process. Validation of competences takes place differently from country to country. In some countries educational institutions have the legitimate right to validate competences against formal learning criteria and in other countries this task is assigned to independent bodies. As formal validation is often associated with costs on behalf of the learner, a less formal way to go is to let the educator/trainer validate the learning.

The concept does not imply a linear assessment process. This is partly due to the assessment process as part of the learning, which is necessary to uphold and sustain training, and partly because assessment in principle can be undertaken before, during and after training. The concept thus points towards aspects of the assessment process, which should be taken in consideration when planning the assessment – along with planning training.

Concept for assessment of digital/technological competences
(not clickable in this document)



2 Assessing digital/technological competences

In the DISH project, digital/technological competences refer to:

Digital competences in health: skills allowing healthcare professionals to adopt and work with new technologies.

Innovation readiness or innovation skills: refers to a skill that allows the healthcare professionals to adopt: 1. new ways of working in both known and new areas, 2. new technologies, 3. ways of implementing new technologies in their everyday work

Implementation and change management: refers to skills that can help the healthcare professionals to ensure better uptake of new technologies and eHealth solutions in healthcare.

The competences to be assessed should reflect the aim of competence development as described in the LIU and the learning goals according to the on-the-job training concept. The design of the assessment process should take into account the defined competences to be assessed, the learning context, the learner's educational level/employment and the specific technology of the on-the-job training.

2.1 Learning contexts

The context of learning affects how digital and technological competences can be taught and evaluated. In different countries/regions healthcare as well as competence development of healthcare professionals are organised differently. In some settings competence development is an integrated part of work-life and technological skills and competences might be highly prioritized. In some settings the development of skills is more regarded as a responsibility of the individual healthcare professional. Accordingly, competence development can be approached as an organisational or individual task, which should be reflected in the design of training as well as assessment.

2.2 Employment categories

Within a specific learning context (a department in a municipality, a hospital ward, a private care company) different categories of employees will have different needs in terms of digital/technological competences.

Examples of employment categories in the healthcare sector could be (but will of course differ from learning situation to learning situation):

- Care workers
- Psychologists
- Nurses
- Physiotherapists
- Occupational Therapists
- Midwives
- Medical doctors
- Health or service managers

It is important to recognize that within a specific organisational context, the need for competence development varies for different employment categories and thus the need to investigate varying needs in actual situations.

An example is the Danish project [digis](#) (in Danish)¹ where the need for competence development has been identified for the above-mentioned categories on the basis of the following dimensions:

- dissemination and communication
- usage and understanding of possibilities and consequences of technology
- implementation of technology and development of criteria for Identifying the situations where technology can be used
- ethical and critical reflection on dilemmas, which arise when using technology
- digital curiosity
- cooperation and organisational learning

Just as various categories of employees in the healthcare sector have different educational levels and different preferred learning styles, choice of assessment approach should reflect this diversity. Test-like assessment tools might not be the best choice for employees with shorter educations, as it might resemble exam situations.

2.3 Specific Technology

The design of the assessment process should take into account the specific technology or kind of technology, which is at stake in the actual on-the-job training programme. Using video conversations involves other competences than supporting a citizen in using an automatic wash toilet, for example. As different technologies have different effects in the actual arrangements they play part in, critical and ethical reflections should reflect this variety.

¹ See Annex 2 for an example from digis.

3 The assessment process

Validation refers to a process where non-formal and informal competences are

- identified
- documented
- assessed
- acknowledged and blue-stamped in a certificate

In the DISH project, the concept for assessment addressees *documentation, assessment and acknowledgement* of technological digital competences, taught as part of the project. The process of assessment thus encompasses how to provide documentation for competences, which can form basis for an assessment that leads (hopefully) to an acknowledgement of competences and a certificate.

Various methodological approaches are used in validation work, e.g. interviews, surveys, tests, self-evaluation (like the competence wheel), group evaluation, portfolios, debate/discussion, etc. Some assessment tools are on-line, some are not; some involve an external evaluator or assessor, some are based on self-evaluation. The ideal assessment makes use, according to literature on validation, of various methods that supplement each other and provides different opportunities for the person to demonstrate competences/skills.

No matter which methodological approaches are involved, literature on validation points to the importance of ownership to the process for the person whose competences are assessed.

Requirements of assessment tools/approach:

- Closely linked to concrete on-the-job training courses
- At least partly digital (e.g. involve the use of technology. An example could be to use a phone to make a video that demonstrate the use of a technology. Another example could be to use an on-line assessment tool)
- Makes sense for the trainee/person
- Makes sense for the actual employee category
- Provides a valid foundation for assessment
- Transparency
- Encouraged but voluntary
- Mode-neutral (be accessed from phone, Ipad, computer, 'paper-version')

3.1 Portfolio as the basis of the assessment process

The basis of the assessment process is a mode-neutral portfolio, created by the student (it can be a folder on their computer). The portfolio relates not only to one specific on-the-job training and the corresponding assessment, it is dynamic and encompasses documentation and certifications from various trainings, and thus builds up over time.

Students are required, in a portfolio format, to reflect on their circumstances (role, etc.) and organisational and personal values and beliefs towards to implementation of technology and make a plan for their own learning.

For every training event, the student adds documentation and certification of their learning to the portfolio. When she or he has completed a training session, she writes up another action plan, which has two functions. Firstly, it is a plan for continued learning. Secondly, the plan will help motivate to ongoing reflections on the use of technology in their workplace and to introduce innovative practices. A template for a portfolio can be accessed **here**.

3.2 Self-assessment or teacher/group assessment

The choice of assessment tool implies choosing whether assessment should take place individually or within a peer-group.

Assessment can be approached as an interrelated part of the learning process, and should preferably take place in a peer group and closely related to the training. If this is not an option, digital skills can be assessed by means of on-line assessment tools. Below are listed some on-line tools which are available in the partner countries/EU. Pay attention to the language – i.e. the Danish tool The Competence wheel is also available in English.

3.3 On-line tools for assessment of digital/technological competences

Here you will find links to different on-line tools for assessment of digital/technological competences.

3.3.1 Spain

1. Digital Skill Accelerator Project: → Online self-assessment tool designed within an European project addressed to define the digital skills that should be prioritized by current and future cohorts of Higher Education students.
2. <https://blog.strategyzer.com/posts/innovation-readiness-assessment-tool> → it assesses innovation readiness.
3. <http://grupomenarini.smartlearning.global/encuesta/>. It is a national survey for healthcare staff based on the eHealth Literacy Scale.
4. <https://www.farmaciahospitalariadigital.com/recursos/test-competencias-digitales-salud/> → This website (created by a nurse) addresses the same topics we are scoping in the DISH project.

3.3.2 Denmark

The Digital Competence Wheel: The national association of the Danish Municipalities has developed an assessment tool to assess digital competences of the future.

3.4 The in-situ assessment tool

This assessment tool is developed as part of the DISH-project, and should be adjusted to the actual learning situation. The mentioned reflective questions are suggestions. Adding, removing or changing the questions will be possible when relevant in the local training situation and the actual formulation of learning outcomes.

A web 2.0 Platform can be used for documentation: for example Padle' or some kind of Learning Management System.

During simulation/training session, the trainee goes through the following steps (these can be adjusted to the local learning situation):

1. Write in your own words what the aim of the training is and how it relates to your individual action plan
2. In pairs, make a 2-minute video where you demonstrate the use of the technology
3. Upload 3 pictures that demonstrate the strengths of the technology, discuss those in group/pairs
4. In pairs, interview each other about the challenges that you see – for example regarding implementation
5. In groups, reflect on how this technology affects citizens/patients
6. In pairs, reflect on how this technology will affect your workflow
7. Discuss ethical / critical issues regarding the technology and write up a small summary in up to 10 sentences
8. Reflect on how this training has affected your own technological/digital competences – and how it eventually changes your individual action plan
9. In group/pairs, discuss about possible improvements you would include to the technology, or alternatives tools.

4 Validation and certificate

4.1 Validation

Validation of competences obtained outside the formal educational system is undertaken by different bodies in different countries. In Denmark and Norway, for example, documented competences are measured against the national qualification frameworks and validated in educational institutions. There are also examples of hospital based validation systems, i.e. Clinical ladder Programs. In Spain, at regional level, the Valencian School of Health Studies is a public institution that validates all activities of continuous training (courses, seminars, conferences, etc.) addressed to healthcare professionals. This validation has recognition throughout the National Health System.

In case of on-the-job training courses, it might be convenient that the actual educators are *assessing* the training based on 1) participation in on-the-job training and 2) the documentation of competences produced in relation to or during training or simulation.

The learner should keep all certificates and documentation in order to go through a validation process – after training or later in her/his career. (Validation usually takes place if you want to change career/start education - and not in relation to every single training).

4.2 Certificate

The assessment process should result in a certificate that displays the following information:

- Title of training / date(s) of training
- Who offers the training / training institution
- Overall aim of the training
- Expected learning outcome
- Description of the training
- Description of the assessment process
- Participants name /id
- Signature from training institution

5 Check-lists

TEACHER/TRAINER

During planning of the training (before training)

- Describe competences to be assessed (according to the training aims)
- Discuss with potential learners/staff/managers which assessment approach will fit in the learning context
- Assess if the training aims and thus assessment would differ for different employment categories. Adapt the assessment process to the professional profile.
- Choice of methodology: in situ or on-line assessment tools
- In case of in situ: Define reflective questions
- Construct a questionnaire (use the In-situ questions as inspiration)
- Choose a platform
- Establishment of validation and certification

TEACHER/TRAINER

During the training

- Introduce the assessment process
- Make room for reflection and adaption/tasks during training

TEACHER/TRAINER

After the training

- Assess the documents produced through the assessment process
- Issue certificates on training and assessment
- Evaluation of training

STUDENT/TRAINEE

Before training

- Create a portfolio/folder and an individual action plan

STUDENT/TRAINEE

During training

- Go through the reflective questions / tasks

STUDENT/TRAINEE

After training

- Evaluation, feed-back and suggestions/alterations
- Upload assessment documents to the portfolio
- Upload certificate to portfolio

PROTOTYPE

6 TEMPLATE PORTFOLIO

NAME

PROFESSION

DATE

HOW ARE TECHNOLOGIES USED IN MY UNIT

WHAT VALUES DO TECHNOLOGY HAVE FOR MY UNIT/ORGANISATION

WHAT VALUES DO TECHNOLOGY HAVE FOR ME

WHAT IS MY ROLE IN IMPLEMENTATION OF NEW TECHNOLOGY

WHAT DO I NEED AND WANT TO LEARN REGARDING TECHNOLOGY AND HOW DO I ACCOMPLISH THIS

TRAINING

DATE

INSERT DOCUMENTATION/CERTIFICATE

WHAT DO I NEED AND WANT TO LEARN REGARDING TECHNOLOGY AND HOW DO I ACCOMPLISH THIS

TRAINING

DATE

INSERT DOCUMENTATION/CERTIFICATE

WHAT DO I NEED AND WANT TO LEARN REGARDING TECHNOLOGY AND HOW DO I ACCOMPLISH THIS

TRAINING

DATE

INSERT DOCUMENTATION/CERTIFICATE

WHAT DO I NEED AND WANT TO LEARN REGARDING TECHNOLOGY AND HOW DO I ACCOMPLISH THIS

7 TEMPLATE CERTIFICATE

THIS IS TO CERTIFY THAT

NAME

HAS ACCOMPLISHED

TITLE OF TRAINING

ISSUED BY

TRAINING INSTITUTION

DESCRIPTION OF TRAINING IN TERMS OF OVERALL AIM AND EXPECTED LEARNING OUTCOME

DESCRIPTION OF ASSESSMENT PROCESS

DATE & SIGNATURE

Annex 1: Details on on-line tools for assessment of digital/technological competences

Digital Skill Accelerator Project

<https://www.digitalskillsaccelerator.eu/learning-portal/online-self-assessment-tool/>

→ Online self-assessment tool designed within an European project addressed to define the digital skills that should be prioritized by current and future cohorts of Higher Education students, and create a self-directed multi-media learning system that students can access to bolster their skills in specific areas.

<https://blog.strategyzer.com/posts/innovation-readiness-assessment-tool>

→ it assesses innovation readiness focusing in three areas: 1) Leadership Support, 2) organization design, and 3) innovation practice.

<http://grupomenarini.smartlearning.global/encuesta/>.

→ It is a national survey for healthcare staff based on the eHealth Literacy Scale that evaluate communication and collaboration, content creation, security, solving problems, and information and data analysis.

<https://www.farmaciahospitalariadigital.com/recursos/test-competencias-digitales-salud/>

→ This website (created by a nurse) addresses the same topics we are scoping in the DISH project. Through this link you can access a self-assessment online test to measure the level of (general) digitalization of healthcare professionals. At the end, you obtain a score (Likert response scale, 100 points max) and a very brief feedback on your level of digital competences. It is available only in the Spanish language.

Digital Competence Wheel

www.kompetencehjulet.dk

→ Digital competence is a combination of knowledge, skills and attitudes with regards to the use of technology to perform tasks, solve problems, communicate, manage information, collaborate, as well as to create and share content effectively, appropriately, securely, critically, creatively, independently and ethically.

Annex 2:

As an example, the digiS project has (through workshops and interviews) identified the following needs with regard to **dissemination and communication** for respectively care workers and managers:

Care workers	<ul style="list-style-type: none"> Can instruct and teach citizens/patients Can motivate citizens and co-workers to use health technologies Can communicate advances regarding health technology Are able to increase confidence in health technology Can make a citizen secure when he/she feels insecure in using a technology Can create a safe room and a nice atmosphere in video conversations Can communicate clearly and pose focused questions Can observe and act on deviant measures Can show empathy during video-conversations
Managers	<ul style="list-style-type: none"> Are able to improve confidence in health technology for both citizens and employees Can communicate effectively with system suppliers Can motivate and support employees in using health technologies Create possibility for citizen/patient to play an active role in their own treatment