

The PDC cycle 3.1

**A model for continuous collegial
development of pedagogical competence**

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Content

Purpose	3
Background	3
The DigCompEdu framework	4
Area 1 – Professional Engagement.....	5
Area 2 – Digital Resources	5
Area 3 – Teaching and Learning	5
Area 4 – Assessment.....	5
Area 5 – Empowering Learners	6
Area 6 – Facilitating Learners’ Digital Competence	6
Roles within the model	7
Work group	7
Leader.....	7
PDC facilitator	7
Coordinator for teaching and learning	7
Center for Teaching and Learning.....	7
Implementing the PDC cycle at an institution	8
The process	9
Before start – Anchoring process with the work group	9
Phase 1 – Follow up & map.....	10
Phase 2 – Analyze.....	11
Phase 3 – Plan.....	12
Phase 4 – Implement.....	12
Estimated time required	13
References	14

Purpose

The PDC cycle is a long-term and cyclical model for continuous collegial development of pedagogical (digital) competence. The purpose of the model can be described at different levels:

On the *individual level*, the purpose of the model is to create a framework and provide a support for a systematic ongoing review, reflection, and competence development in pedagogical digital competence (PDC) for teaching staff at the university. The target group for the model is mainly teaching staff, but also leaders with some form of pedagogical leadership responsibility.

For a *work group* the model aims at structures for continuous inventory of competences as well as development of the education. This is done both by creating a basis for joint discussions and a joint plan that is followed up on an ongoing basis.

For the *university* the model seeks to create a basis for joint educational reflections and actions, but also to support the work of the "learning organization" and the education quality. By using the model, a common basis is created for discussions within different professional networks, within and outside the university. This creates a base for strategies and leadership at different levels to be connected.

Background

The model has been developed at Mälardalen University (MDU) by the Center for Teaching and Learning at MDU (Lärum), in collaboration with pedagogical coordinators at the different schools within MDU. The cycle has been tested in a pilot project in the autumn of 2020 in collaboration with two departments at MDU.

The model is based on the EU framework DigCompEdu, see below. The framework is selected among several others because it is both research-based and provides proactive feedback. The framework is also created especially for higher education and offers both a self-assessment and in-depth reflection of pedagogical digital competence. After the self-assessment, the participant receives suggestions for their own development based on the framework and its various areas. The framework can also serve as a good basis for further pedagogical discussions.

The DigCompEdu framework

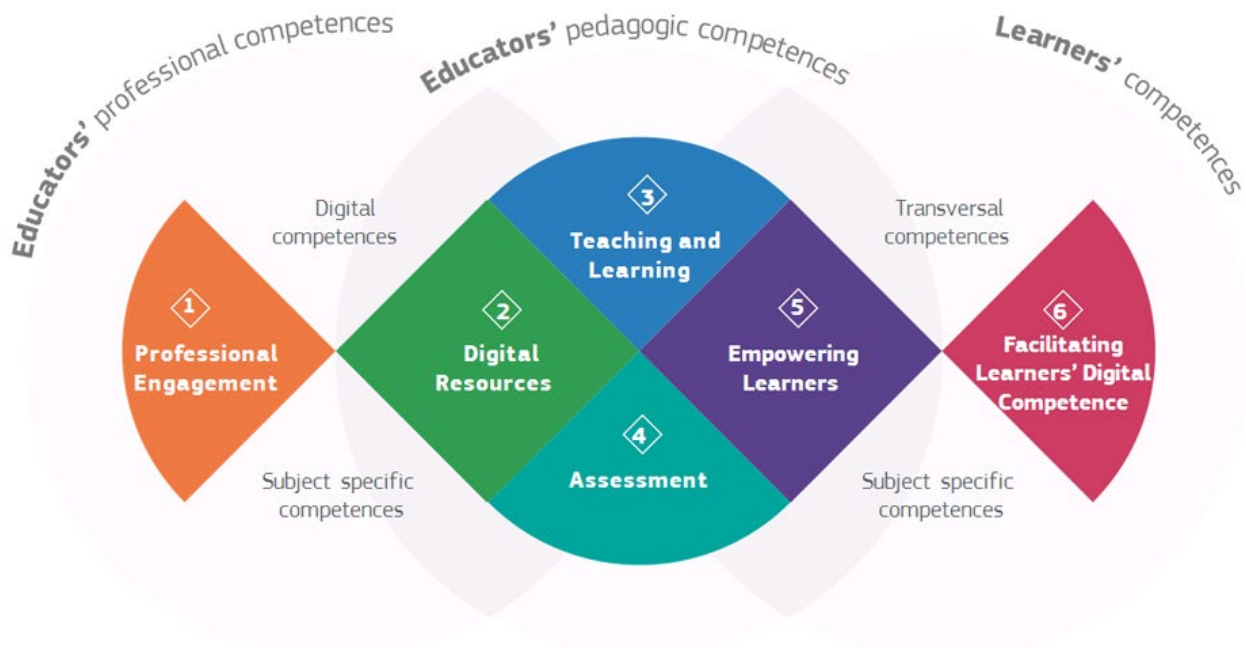


Figure 1. The DigCompEdu framework

The European framework for teachers' digital competence, DigCompEdu (Redecker, 2017), is a scientifically sound framework developed by the European Commission's Joint Research Center (JRC) and describes what it means for teachers to be digitally competent. DigCompEdu responds to the growing awareness among many European Member States that teachers need a set of professional digital competences in order to exploit the potential of digital technology to improve and renew their teaching. DigCompEdu is built for teachers at all levels of education. There are separate links to the check in tool depending on the level of education.

The framework consists of three parts divided into six different areas. The first part “Educators’ professional development”, area 1, is about teachers' collaboration and professional development. The second part “Educators’ pedagogical competence”, areas 2-5, is in our case about teaching and learning in higher education and the third part “Learners’ competences”, area 6, is about the students’ digital competences.

The framework deals with the combination of digital and pedagogical competencies and includes both generic and subject-specific competencies.

The self-assessment tool of the framework consists of 22 statements that are also connected to areas in the framework. The self-assessment is primarily for an individual analysis which provides a report including a result per area, as well as suggestions for personal development.

Below is a description of each area:

Area 1 – Professional Engagement

“Educators’ digital competence is expressed in their ability to use digital technologies not only to enhance teaching, but also for their professional interactions with colleagues, learners, parents and other interested parties, for their individual professional development and for the collective good and continuous innovation in the organization and the teaching profession” (Redecker, 2017, p. 19).

Area 2 – Digital Resources

“Educators are currently confronted with a wealth of digital (educational) resources they can use for teaching. One of the key competences any educator needs to develop is to come to terms with this variety, to effectively identify resources that best fit their learning objectives, learner group and teaching style, to structure the wealth of materials, establish connections and to modify, add on to and develop themselves digital resources to support their teaching. At the same time they need to be aware of how to responsibly use and manage digital content. They must respect copyright rules when using, modifying and sharing resources, and protect sensitive content and data, such as digital exams or students’ grades” (Redecker, 2017, p. 20).

Area 3 – Teaching and Learning

“Digital technologies can enhance and improve teaching and learning strategies in many different ways. However, whatever pedagogic strategy or approach is chosen, the educator’s specific digital competence lies in effectively orchestrating the use of digital technologies in the different phases and settings of the learning process. The fundamental competence in this area – and maybe of the whole framework - is Teaching. This competence refers to designing, planning and implementing the use of digital technologies in the different stages of the learning process.

Competences here also complement the teaching competence by emphasizing that the real potential of digital technologies lies in shifting the focus of the teaching process from teacher-led to learner-centred processes. Thus the role of a digitally-competent educator is to be a mentor and guide for learners in their progressively more autonomous learning endeavours. In this sense, digitally-competent educators need to be able to design new ways, supported by digital technologies, to provide guidance and support to learners, individually and collectively and to initiate, support and monitor both self-regulated and collaborative learning activities” (Redecker, 2017, p. 20).

Area 4 – Assessment

“Assessment can be a facilitator or bottleneck to innovation in education. When integrating digital technologies into learning and teaching, we must consider how digital technologies can enhance existing assessment strategies. At the same time, we must also consider how they can be used to create or to facilitate innovative assessment approaches. Digitally-competent educators should be able to use digital technologies within assessment with those two objectives in mind.

Furthermore, the use of digital technologies in education, whether for assessment, learning, administrative or other purposes, results in a wide range of data being available on each individual learner’s learning behaviour. Analysing and interpreting this data and using it to help make decisions is becoming more and more important – complemented by the analysis of conventional evidence on learner behaviour.

At the same time, digital technologies can contribute to directly monitoring learner progress, to facilitating feedback and to allowing educators to assess and adapt their teaching strategies” (Redecker, 2017, p. 21).

Area 5 – Empowering Learners

“One of the key strengths of digital technologies in education is their potential for supporting learner-centred pedagogic strategies and boosting the active involvement of learners in the learning process and their ownership of it. Thus, digital technologies can be used to facilitate learners’ active engagement, e.g. when exploring a topic, experimenting with different options or solutions, understanding connections, coming up with creative solutions or creating an artefact and reflecting on it.

Digital technologies can furthermore contribute to supporting classroom differentiation and personalised education by offering learning activities adapted to each individual learner’s level of competence, interests and learning needs. At the same time, however, care must be taken not to exacerbate existing inequalities (e.g. in access to digital technologies or digital skills) and to ensure accessibility for all learners, including those with special educational needs” (Redecker, 2017, p. 22).

Area 6 – Facilitating Learners’ Digital Competence

“Digital competence is one of the transversal competences educators need to instil in learners. Whereas fostering other transversal competences is only part of educators’ digital competence in as far as digital technologies are used to do so, the ability to facilitate learners’ digital competence is an integral part of educators’ digital competence. Because of this, this ability merits a dedicated area in the DigCompEdu framework

Learners’ digital competence is captured by the European Digital Competence Framework for Citizens (DigComp). Thus, the DigCompEdu area follows the same logic and details five competences aligned in content and description with DigComp. The headlines, however, have been adapted to emphasize the pedagogical dimension and focus within this framework” (Redecker, 2017, p. 23).

Roles within the model

Work group

The work group is the focus of this cyclical model. A work group can be constituted in many ways, for example a department, a subject college, or a program college. If the cycle is adopted as practice within an existing department as a work group, longer-term support for professional development could be achieved by including all colleagues. Many researchers indicate (Voogt et al. 2015; Newell & Bain 2020; Cordingley et al. 2003) that pedagogical development best takes place together with colleagues. Therefore, this model has elements of both individual personal analysis and reflection but also emphasizes the joint analysis and discussion within a work group. By working long-term with this kind of process within a given group, a positive “Community of Practice” (Wenger, 2010) could also be formed.

The group size can of course vary between separate groups, and this could affect the number of meetings, hours spent and so on. It is important that the work group is given the opportunity to schedule joint meetings required for the process.

Leader

If the selected work group is a department, the "leader" naturally becomes the head of the department. With a different type of grouping, the leader of the process with the PDC cycle should be identified.

The leader is responsible to allocate time and set other pre-requisites so that this work of development can be executed. The leader is also responsible for the creation of plans, and that the follow-up is planned and executed, both at group and individual level.

PDC facilitator

The model is based on a role, called *PDC facilitator*. This is a person with special interest in educational development and who might already have some form of responsibility for this within the work group. This can be an excellent or qualified teacher, a department - manager, a designated educational developer, or a program- or subject- coordinator. A PDC facilitator should show high level of interest in pedagogical development and a relevant education in teaching and learning in higher education. The position that should have this role could vary depending on the group. In most work units, there will be someone with a duty to oversee professional development for instructors. However, there may be cases where this person is not readily identifiable. In that event an external PDC facilitator may be appointed. In that case, it is especially important that the facilitator is responsive to the needs and wishes of the group. The PDC facilitator could be assisted by an excellent or qualified teacher within the work group, especially with analysis and planning.

The PDC facilitator's task is to plan the process, explain it to the work group, lead the group through the process, guide discussions, compile and analyze the results, follow up plans, and so on. The role also includes updating the Center for Teaching and Learning about the group's needs and collaborating with other PDC facilitators. The Center for Teaching and Learning is also responsible for coordinating training and support of PDC facilitators.

Coordinator for teaching and learning

If there are persons in some way responsible for the teaching at learning at different departments or divisions within the institution, they need to be included within the circular PDC process.

Center for Teaching and Learning

At a university there is usually a center that focuses on academic development and teaching and learning within the university. At Mälardalen University this unit is called Lärum and focuses on academic development for the whole university. This means that the unit has individual pedagogical support, individual supervision as well as courses in teaching and learning in higher education. The department of Lärum are also included in the universities processes to develop

further within these areas. This could be different at different institutions, but for the PDC cycle it is useful to have some top supervision for the whole PDC cycle at the university. These persons help PDC facilitators, initiate the collaboration between PDC facilitators and help establish how the PDC cycle will be used at the institution.

Implementing the PDC cycle at an institution

This is a model and a process that strives for long-term collegial development, with work groups as the main resource. Because of this, it is important that the implementation of the process is adapted to requirements from both the management and the work groups. Steering documents needs to be analyzed and persons central for the process needs to be identified. Anchoring processes are very important for the cycle to be well accepted. Mälardalen University conducted a pilot project in the autumn 2020 to test the model (Mälardalens högskola, 2021). During the project a lot of experiences were collected.

When implementing the cycle at an institution, parallel processes need to be identified. This could be:

- Long-term plans for the institution?
- Time allocations?
- Structures for performance reviews?
- Templates for individual competence development plans?
- Career ladders? Connected to pedagogical merits?
- Quality cycles?

The process

The model consists of four phases, see below. The model is also long-term and cyclical and can therefore be connected to any cyclical processes at the institution, for example the quality cycle.

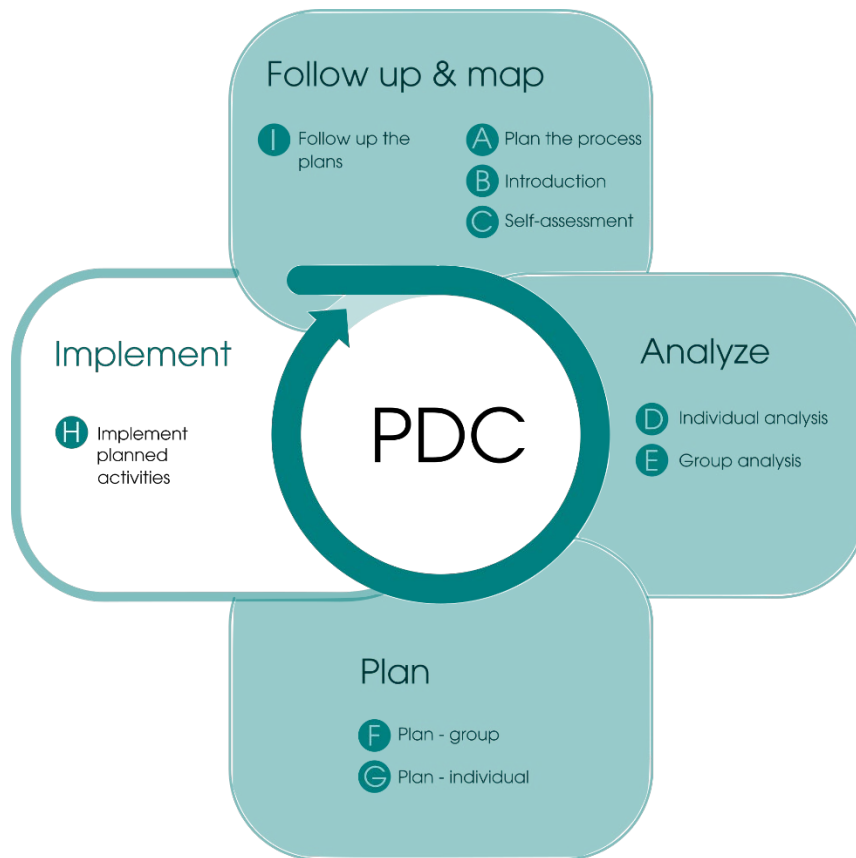


Figure 2. The PDC cycle 3.0

The model is divided into different phases and steps. The series of phases and steps should be repeated, for example annually, the circle should be closed. An anchoring process should be done before starting the process, see below. After that is done, the cyclical process is usually started with step A. The implementation phase is very much based on the previous analysis and plan and could therefore vary very much in time allocation and so on. No time suggestions can be set from the model.

Before start – Anchoring process with the work group

Since the PDC cycle continuously will be used by the work group for development, the implementation before start is very important. The anchoring process could start by discussing following questions:

- Why should the group use this process for development? What gains do we see?
- What risks or challenges can we identify for the implementation?
- Is the process anchored in institutional policies and procedures? If not, what is needed to ensure institutional support for the process?

It is also important to discuss at what time the group should start the process and how this process can be connected to other processes of development.

The PDC cycle should be introduced to the group by a person that has very good insight in the model.

Phase 1 – Follow up & map

I. Follow up previous plans – Group

Previous plans are analyzed, both individual and group plans:

What is the result?

How far have we come? How much has been achieved?

-Time for celebration?



What's left to achieve?

What needs to be the focus of the next iteration of the cycle?

The individual plans are followed up on the performance review.

Meeting 2h.

A. Planning process – Leader & PDC facilitator

A joint plan that fits the work group is created. Dates are set for all meetings, as well as deadlines for self-assessment and analysis, for reminders and for the important follow-up: The plan on how to use the personal “result” of the personal analysis, is also set. Should this for example be included in personal competence development plans?

Meeting: 1h.

B. Introduction – The group

In the introductory meeting with the work group, the background and goals of the process are presented. The meeting starts with a discussion: What does a teacher of today need to know, with starting points in relevant rules and guidelines. Issues that can be discussed:

- What is PDC and how can it be developed?
- What can you do to develop your PDC as an individual?
- What can you do to develop your PDC as a group?

The PDC facilitator also presents DigCompEdu and the plan for how the process will be implemented. This is preferably done at a joint meeting where issues can be investigated.

Meeting: 2h.

C. Self-assessment – The group

The participants conduct the individual self-assessment according to DigCompEdu. Everyone enters, anonymously, their results in a form in order to get a compilation at group level.

All: 30 minutes.

Phase 2 – Analyze

D. Individual analysis – The group

The participants individually analyze their answers, and the given feedback from DigCompEdu, based on following questions:

- What strengths and what development opportunities do you see, based on *separate statements*?
- What strengths and what development opportunities do you see, based on the different *areas* in which the framework is divided?
- What do you want to develop and in what way?
- Do you have any further reflections that you have noted?
- What is the significance of your reflections above for the work group?
- More questions or reflections?

All: 1h.

E. Analysis at group level

The group's results are analyzed

The group's results are analyzed at group level, mainly by the PDC facilitator. First a compilation of the individual's result is done, followed by an analysis of the compilation. Issues to analyze:

- What is the group average for the group per area in DigCompEdu?
- Are there areas in which the group is particularly strong or weak?
- What does the distribution look like within different areas?
- Are there strengths within the group that can help the development of the group?
Is there a good mix of difference competence areas in the group?

The analysis is discussed with the leader and the next meeting with the whole group is planned.

Analysis: 16h + 30 minutes leader

Group analysis – The group

The group analyze the joint result. Results are only presented at group level. Discussion and analysis are based on the previous compilation, by following questions:

- What are the group's strengths and challenges?
- What does these strengths and challenges mean to us?
- Are there areas that needs to be developed within the group?
- Are there strengths to use in that development?
- What goals do we want to set?

After the meeting, the PDC facilitator will contact the Center for Teaching and Learning to discuss the goals for the group, and to plan for step F.

Meeting: 3h.

Phase 3 – Plan

F. Plan group – The group + The Center for Teaching and Learning

Based on the goals above, the development plan for the coming period is discussed. It is appropriate for the Center for Teaching and Learning to participate and present offers matched to the work group's goals:

- What pedagogical digital competence development is needed? Do we need to deepen our knowledge in some selected area?
- In what way should development take place?
- What competences are there within the group that we can use? How?
- Do we need a lecturer about something?
- Are there other resources that can help us: Literature/articles? Films? Open courses (MOOCs)? Other resources?
- What competence development is there that can match these needs? From the Center?
- Should there be sub-goals? If so; What? How and when should they be followed-up?

A specific plan for the group is established, setting dates for milestones, designating responsibilities amongst the group, and agreeing on a plan for midway evaluation of the process by group members and management.

This meeting is concluded by a midway evaluation of the process: How has the model worked? Experiences are summarized.

Meeting: 2h.

- G. **Plan individual** - The individual self-assessment and the personal analysis form the basis for the individual competence development plan.

Phase 4 – Implement

H. Carry out planned activities

In accordance with the plans created for the group (step F) and the individual (step G) the activities are implemented. This phase is entirely planned by the group and individuals in the previous steps, so no time suggestions here would be relevant.

Estimated time required

Phases 1-3 should be completed within about two to three months, not to lose context and power in the process.

Estimated time required for one cycle of the model given here for phase 1 to 3. The amount of time needed to manage these phases could also depend on the number of participants in each phase. No time is here suggested for phase 4, the implementation phase. We encourage groups to consider the time and resources needed for the planned development activities, both for groups and individuals, in the implementing phase.

Phase	Step	PDC facilitator	Leader	Work group
1	A - Planning	1	1	-
	B - Introduction	2+2 (Planning)	-	2
	C – Self assessment	-	-	0,5
2	D – Individual analysis	-	-	1
	E – Analysis group	3+5 (Analysis of the result)	0,5	3
3	F – Plan group	2+2 (Planning)	-	2
	G – Plan individual	-	?	?
4	H - Implementation	?	?	?
1	I – Follow-up group	2+2 (Planning)	2+2 (Planning)	2
Total		21	5,5	10,5

Tabel 1. Estimated time consumption per step

In addition to the time above for phases 1-3, there is time needed for the PDC facilitator for collaborate and coordinate with other PDC facilitators with approximately 4 hours per academic year.

Start-up of a new PDC facilitator is estimated to take about 8 hours.

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