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**Quality criteria for online education**

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# Quality criteria for online education

## 1 Introduction

Already in the early 2000s, the British Journal of Educational Technology published a paper called "The ideal online course" (Carr-Chellman & Duchastel, 2002) in which the authors present a set of key components for creating a, what they call, ideal online course. As a result of the Covid-19 pandemic, we saw a sudden and universal shift towards online modes of education that many came to describe as "emergency remote teaching" (Rapanta et al., 2021), as opposed to thoughtfully planned online courses. Nevertheless, this introduced all students to the possibility of more flexible learning opportunities. Having experienced such flexibility, these students will likely put pressure on high education institutions to make such flexible options part of regular offerings (Ashour, El-Refae & Zaitoun, 2021; Clary et al., 2022, Lockee & Clark-Stallkamp, 2022).

As technology and the needs have changed, online offerings have evolved from online courses to a range of flexible alternatives for teaching and learning. Different types of communication can provide learners with the anytime, anywhere learning opportunities and flexibility they need as they participate in online learning. Asynchronous teaching is flexible for the learner, but also requires a high degree of self-regulation and motivation with the risk of procrastination and drop-out. Asynchronous settings also make it difficult to include collaborative efforts. Synchronicity can, on the other hand, be beneficial for building community and connectedness, but the time requirements to engage at a specific time can serve as a constraint.

In this report, we use online learning as an umbrella term covering all types of education where at least some part of the teaching and learning takes place online and off-campus. This includes both asynchronous and synchronous courses, blended learning, and MOOCs, as described by Martin and Oyarzun (2017). Blended learning (Anthony, Kamaludin, Romli et al., 2022), that is, a mix of face-to-face and online experiences has become increasingly popular, with various amounts taking place online and offline. The term is often used as a synonym for hybrid learning (Saichaie, 2020). Hybrid-flexible models (HyFlex) on the other hand characterize courses where the student can choose whether to attend on campus or online (Beatty, 2019). A more in-depth discussion on the various aspects and forms of hybrid learning is provided by Eyal and Gil (2022).

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When online experiences are offered, students deserve quality in terms of the courses, the instruction and the support processes and resources available. As students may have many options for how and where to pursue their learning goals, it becomes crucial for higher education to evaluate, verify and communicate their online quality. Designing and implementing online education is however not straightforward, and challenges exist at different levels, such as: (Rasheed, Kamsin & Abdullah, 2018; Martin, 2022)

- The student may struggle with, for instance, self-regulation and procrastination, feelings of isolation, lack of instructor presence and poorly designed courses with unclear expectations and instructions.
- Faculty may fear an increased workload and experience a lack of technological competence and sufficient training, incentives, and recognition for teaching online, as well as a lack of lead time, resources and support to design the courses. In addition, beliefs, such as scepticism towards the effectiveness of online courses and seeing technology as a barrier are common.
- The organization may struggle with getting buy-in from faculty to teach online, measuring effectiveness and providing faculty with sufficient and suitable technology as well as professional development opportunities.

As the interest in online teaching has grown, both practitioners and researchers have spent a considerable amount of time trying to formulate best practices and standards for online course design. Many of the strategies found to be successful online are, not surprisingly, the same ones considered effective when teaching face-to-face (Lockman & Schirmer, 2020). Nevertheless, the online environment offers both unique opportunities and challenges, and the pandemic has revealed a need to address these, for instance, by enhancing the organization's technological infrastructure, increasing teachers' pedagogical and technological competence as well as the students' opportunities to learn (Chiu, Lin & Lonka, 2021).

Anthony et al. (2022) list success factors for students and faculty with regard to blended learning, while Saichaie (2020) suggests a list of considerations for course design including components such as instructor and student readiness, learning objectives, time planning, interaction and inclusion, use of technology, assessment and evaluation. Ossiannilsson & Landgren (2012) present six dimensions of quality online education: programme design, course design, course delivery, support for students, support for faculty, as well as management. In a systematic review of previous literature, Lockman and Schirmer (2020) similarly identified five main themes: course design factors, student support, faculty pedagogy, student engagement and student success factors. Course design should also address questions of accessibility

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and inclusion, catering for diversity and cultural differences (Martin, 2022). Similarly, several criteria frameworks and rubrics have been developed and published to guide the design and implementation of successful online courses.

While international frameworks can be used as a base for national criteria, differences related to, for instance, culture, context and education system need to be considered when developing more local criteria. The Digivisio 2030-program aims at a joint study offering for all higher education institutions raising the need for a national quality criteria framework.

In this report, we summarize the current practices on the development of quality online courses in higher education. The report consists of three main parts. First, we review central aspects of quality online education based on related research. Next, we present a review of quality criteria used in Finland and abroad. Finally, based on these reviews we present proposals for the next step with regard to designing quality criteria to be used within Digivisio 2030.

## 2 Designing for quality

### 2.1 The student perspective

Martin (2022) argues that online courses need to be designed, developed, facilitated, and assessed based on learner needs, which commonly are different from the needs of on-campus learners in terms of learner characteristics, outcomes, and engagement. Ossianilsson & Landgren (2012) similarly describe student needs in terms of seven success factors: participation, flexibility, accessibility, transparency, interactivity, personalisation, productivity.

Flexibility is one of the most crucial aspects of online learning and can be related to place (where?), time (when?) and presentation (how?). An increase in flexibility can encourage a diverse audience to engage in online learning, by, for instance, making it easier to balance work and family (Yoo & Huang, 2013), which is an important aspect considering today's calls for lifelong and continuing education.

While the flexibility of online learning can reinforce a sense of autonomy, online learning requires students to make progress on their own by taking responsibility for their learning, communicating, and developing understanding by actively engaging with digital resources (Hartnett, 2016). Students' self-regulation and motivation are hence critical in online learning (Chiu & Hew, 2018; Rasheed et al, 2020). Students, however, commonly find it difficult to maintain attention in an online context, due to, for instance, boredom, time management issues, lack of interactivity, lack of

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adaptation of course material, privacy and security concerns, and lack of self-organizing capabilities (Liang et al., 2020; Mishra et al., 2020, Goopio and Cheung, 2020). Feelings of isolation are also a problem (Carolan et al., 2020). These challenges are reflected in attrition and dropout problems. For instance, students in blended courses had 1.2 to 1.6 times greater odds of continuing the course compared to students participating fully online (James, Swan & Daston, 2016). For face-to-face students the corresponding odds were 1.3 to 1.6 times greater. Similarly, despite a large number of MOOC enrollments, over 90 % never finish the course (Eriksson et al., 2017; Narayanasamy & Elçi, 2020), with retention rates commonly ranging between 3 and 15 % (Deshpande & Chukhlomin, 2017; Badali et al., 2022).

On the flip side of flexibility are therefore challenges related to motivation and engagement. Based on a review of engagement related research, Redmond and colleagues (2018) developed a framework consisting of five types of online engagement: social, cognitive, behavioural, collaborative and emotional.

Online Engagement Element	Indicators (illustrative only)
<b>Social engagement</b>	Building community Creating a sense of belonging Developing relationships Establishing trust
<b>Cognitive engagement</b>	Thinking critically Activating metacognition Integrating ideas Justifying decisions Developing deep discipline understandings Distributing expertise
<b>Behavioral engagement</b>	Developing academic skills Identifying opportunities and challenges Developing multidisciplinary skills Developing agency Upholding online learning norms Supporting and encouraging peers
<b>Collaborative engagement</b>	Learning with peers Relating to faculty members Connecting to institutional opportunities Developing professional networks
<b>Emotional engagement</b>	Managing expectations Articulating assumptions Recognising motivations Committing to learning

Figure 1: Engagement framework for online learning (Redmond et al., 2018).

Providing opportunities for and encouraging interaction, participation, community, collaboration, communication, involvement, and presence is key (Martin, 2022). Students need to be activated both at an individual and at a group level, and although technology makes it possible to combine collaborative and supportive social contexts with individualized and personalized practices, aligning these two pedagogical approaches when designing a course may prove difficult (Castro, 2019). Champaign et al. (2014) found that the more time students spend on using online learning resources, the better conceptual learning would be. In order to engage students with the material, Wu (2016) argues that design should strive to

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ensure that the content motivates the students and that the course continuously requires an effort from the students or engages them over an extended time.

## 2.2 The course perspective

### 2.2.1 Cognitive load

In addition to flexibility in terms of place and time, there is also a need for flexibility related to the presentation of the content (how?). This question becomes increasingly important as technology makes it possible for content to be presented in new ways. For instance, currently there are big expectations on learning analytics and its potential to create personalized and adaptive learning paths.

The presentation of content can, however, also be discussed and varied without the latest technology. For instance, common questions when designing online education are related to the length of videos and whether to present all material at once or in smaller chunks. These are less related to technology, but more so to pedagogical considerations and the so-called cognitive load, i.e., the amount of information a person's working memory can process, as an overloaded memory can lead to poor understanding, retention, and learning (Sweller, 2011).

Cognitive load theory can be used to support course design to reduce cognitive load for learners (Caskurlu et al, 2020). Below we review some of the cognitive load effects relevant to online education, derived from the work of Sweller (2020) and Caskurlu et al (2020):

- If several information sources need to be considered together, but cannot be presented as one source, the information should be offered using different modalities (e.g., some visually, some auditory). Working memory has both a visual and an auditory processor and using both can reduce the effects of cognitive overload (**modality effect**). Somewhat similarly, learners may need to integrate multiple sources of information in order for the material to be understood, thus requiring the learner to split their attention. Related information should therefore be placed close to each other in time or place (**split-attention effect**). This may be a particular problem on small screen devices and for mobile learning (Curum & Khedo, 2021). Any information not relevant to the learning should be avoided – focus should be on only providing material that is crucial for the learner (**redundancy effect**).

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- Novices should be guided when solving new problems, e.g., by providing them with working solutions to build their expertise (**worked examples effect**). As their expertise increases, the level of assistance provided should be reduced (**guidance fading effect**) and in time information that would be crucial for a novice instead becomes redundant and should be avoided (**expertise reversal effect**). Instruction thus needs to be adapted to the level of expertise. While this is difficult in traditional teaching, technology, such as learning analytics, can help create automatically personalized and adaptive learning paths.
- Lengthy and complex information may require learners to go back and forth, and it should be easy to access already processed information. Visual and permanent information may hence be better than auditory information, which is transient/not permanent (**transient information effect**). This has implications when designing online courses, as it, for instance, is easy to convert written information into transient audio or permanent diagrams into transient animations. If the information presented is lengthy and complex, the effect on learning can be negative. The effect also suggests that transient information should be presented in smaller chunks. In general, the learner should be able to work through a (complex) lesson in shorter and more manageable segments rather than as one continuous whole. These segments are then presented one at a time (**segmenting effect**). Similarly, learners should be allowed to start with simple tasks progressing towards more complex ones (**sequencing effect**).

While these ideas still hold, research has also challenged the idea that merely reducing distracting or irrelevant information would lead to better learning and even showed the opposite (Skulmowski & Xu, 2022). For instance, the use of rich learning material in online courses can increase cognitive load while also promoting motivation and learning. Research on interactive learning media synthesized by Skulmowski & Xu (2022) indicates that the most simplified and straightforward way of presenting information is not always the best approach, as interactivity can be used to create more engaging and motivating learning experiences. Similarly, immersive experiences can increase student enjoyment and motivation, while a high amount of detail can facilitate learning. Yet another example relates to the redundancy effect, where research, contradictory to the effect, has found that text and audio together leads to better recall compared to text and audio separately.

Another example is where redundant and even purely decorative elements can enhance performance through positive emotions. The motivational aspects seem to play an important role in this, as digital learning media are often aimed at offering motivational interfaces and having a positive effect on learners' engagement.

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Studies (e.g., Xu et al., 2020) imply that an increase in motivation can weigh up the cognitive load induced by such activities.

On a smaller screen, decorative and "unnecessary" elements can nevertheless make the content appear too crowded and have an opposite effect (Curum & Khedo, 2021). All in all, the discussion on cognitive load emphasizes the need for a learner-centred approach when designing materials and courses, considering the experience level of the learners, and stripping away information that does not add value to their learning.

### **2.2.2 Standardization, consistency and transparency**

Students place great value on course organization as contributing to their success in online courses (Fayer, 2014). Students also appreciate having a course overview and a consistent or common course structure from one course to the next (Young & Norgard, 2006; Lewis, 2021). Having a frustration-free, practical, logical flow in online course design helps influence learner retention, interaction, and persistence (Kamaruddin & Sulaiman, 2017; Stanford-Bowers, 2008). Ralston-Berg & Braatz (2021) compares this to the way in which we expect to find groceries in more or less the same places if we visit an unfamiliar grocery store belonging to the same brand as our normal store at home.

The increase in digitalization and available information also leads to new ethical questions regarding online security and rights to data privacy (Garcia-Morales, Garrido-Moren & Martín-Rojas, 2021). Higher education institutions must address these issues by developing codes of conduct to ensure transparency and create a safe, trustworthy environment for online learning (Jensen, 2019).

According to Ralston-Berg & Braatz (2021), standardization, transparency, consistency, and structure are beneficial not only for the learners but also for teachers and designers. Ralston-Berg and Braatz provide lists of key questions that should be addressed at different levels (program, course, module, sequence, page, items) when designing online education. By addressing design at each level, a cohesive online environment can be produced. For instance, they suggest using a course map to plan and organize content.

### 2.2.3 Accessibility, inclusion and equity

Graham (2016) lists three ways in which technology can promote inclusion and equality in education: 1) increasing the diversity of educational practices; 2) democratizing education and reducing barriers; and 3) enhancing the individual's control of one's own learning in terms of content, methods and pace.

The importance of considering diverse user groups is emphasized in, for instance, the Finnish Equality Act (1325/2014 § 6), which states that education providers must evaluate the equality of their offerings and develop it appropriately and efficiently. The Finnish Act on the Provision of Digital Services (Laki digitaalisten palvelujen tarjoamisesta (306/2019)), which is based on the EU accessibility directive, requires organizations to comply with given accessibility requirements and, for instance, define how accessibility is achieved in its operations, offer resources for its implementation, and organize support and guidance.

In practice, the law obliges education providers to comply with the criteria of the international WCAG guidelines at A and AA level. The goal of these guidelines is to ensure that 1) online content can be used with assistive technologies (e.g., screen readers), 2) different users can use content and functions despite possible restrictions, and 3) the content is correctly shown on different devices. However, the Regional Administration Agency (n.d) states that "[c] ompliance with the accessibility requirements of the Act does not guarantee that the digital service is accessible or easy to use for everyone. Compliance with the accessibility requirements laid down in the Digital Services Act can, in particular, improve the possibility of using a website or mobile application with different devices and assistive technologies."

The requirements also apply to educational organizations. Considering, for instance, that many students use mobile devices, those providing online education should ensure that the content is accessible, usable and looks good also on mobile devices (Curum & Khedo, 2021). Mobile learning is student-driven (Attenborough and Abbott, 2018), and educational institutions, course designers and teachers must consider and support the use of mobile devices. Encouraging teachers to examine the usability of courses also on mobile devices from the perspective of compatibility, content readability, format optimization and navigation can improve students' perception of online teaching and increase their satisfaction (Baldwin & Ching, 2020).

Another example is video and audio content, which by law must also be provided in text format, as not everyone can see or hear video or audio files. When used for teaching purposes and within a limited group, however, content may be used

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temporarily even if it does not meet the accessibility requirements<sup>1</sup>. This enables the use of video and other formats for teaching and learning purposes, as well as the trial of new services and content. However, the temporary status cannot continue for years. Similä (2021) states that universities need concise, systematic and targeted information and training, clear guidelines and concrete instructions.

Accessibility is not only needed with regard to technology use. UDL (Universal design for learning) is a reference framework for education design that focuses especially on inclusion, accessibility and equality (Rose et al., 2006). The goal of UDL is to consider the needs of different people and remove obstacles already in the design phase, instead of having to correct the challenges later through individual adaptations. UDL recognizes that students have different skills, experiences and approaches and therefore emphasizes flexible and adaptable content that can be presented in many ways. Technology-based environments are hence well suited for this purpose. UDL focuses on providing multiple means of 1) representation, 2) action and expression and 3) engagement. For some students some forms of presentation are completely inaccessible due to a disability, while for others for instance personal preferences, culture or language render some formats more accessible than others. Similarly, some students can express themselves better in one medium than another and benefit from different types of support, feedback or scaffolding. Finally, all students are not engaged by the same extrinsic rewards and do not develop intrinsic motivation along the same path. Some students are engaged by collaboration, risk, spontaneity or challenge, while such elements can be frightening to others.

As online courses can attract people with different backgrounds, cultures and experiences, course design needs to address this diversity for all students to feel included. For instance, Lewis (2021) emphasizes the need for curating culturally inclusive materials, images, and other resources designed to support the learning needs of diverse learners. As an example, she suggests that the teacher provides images of people who resemble the students' community and others with whom they will interact, for instance, in the workplace. Such a simple approach gives students from diverse backgrounds a sense of belonging. Similarly, if a course is marketed as suitable for anyone without any prerequisites, this should also be the case in practice. Lewis (2021) suggests that professional development programs and courses should be provided to help faculty acquire the competencies required to curate and design culturally inclusive course content.

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<sup>1</sup> <https://www.webaccessibility.fi/requirements-of-the-act-on-the-provision-of-digital-services/what-services-and-contents-are-covered-by-the-act/>

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Finally, different modes of education can give rise to accessibility and inclusion challenges. For instance, in hybrid modes of education, special care needs to be taken to design and implement appropriate pedagogical strategies and technology to make the learning experiences comparable for students online and on-campus (Cain, Bell & Cheng, 2016). While a slower pace and lots of repetition may be beneficial for remote students, this could lead to a negative experience for students on-site (Bower et al., 2015). In online meetings sound is particularly important – all students should be able to hear each other and the teacher well regardless of where they attend. With small groups of students on-site this can be organized quite easily with a single omnidirectional speakerphone, but with larger groups other solutions are needed (Zydney, McKimm, Lindberg & Schmidt, 2019). Remote students can feel excluded, particularly when encountering technical difficulties without immediate support, while students on-site can feel neglected if the teacher spends much time solving such problems (Huang, Shu, Zhao & Huang, 2017). In a research review, Raes, Detienne, Windey and Depaepe (2018) found that it is, in general, more difficult to engage and activate remote students to the same degree as students attending face-to-face. Remote students need more encouragement, while also establishing some sort of connectedness between remote students, the teachers, on-site students and the organization (Ramsey, Evans & Levy, 2016).

## 2.3 The teacher perspective

### 2.3.1 Video use in education

Much of the communication in online courses is text-based through, e.g., email and asynchronous discussion forums. Despite the benefits of text-based asynchronous communication (e.g., time for reflection, inherent transcription, clarity), it can also be challenging due to, for instance, unambiguity, lack of visual cues, and the time it takes for conversations to develop. Video is therefore often used for "lectures" online, either pre-recorded or in real-time, as they have been argued to enhance learner attention, recall, perceived learning, and satisfaction (Wang & Antonenko, 2017).

Belt and Lowenthal (2021) have reviewed the research on video use in online and blended courses. Pre-recorded, asynchronous video lectures give students more control on how and when they view the lecture and let them replay parts of it as many times as they like. Such videos can also be used for flipped classroom activities. Creating pre-recorded videos requires quite a lot of time and resources and makes it more difficult to follow student engagement (Beale et al, 2014), while they also may encourage students to put off watching the lectures (Geri et al, 2014). The optimal length of the videos has been a popular research topic, yet still the ideal length is unclear. In general, however, students tend to prefer shorter videos (Beale et al.,

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2014; Murphy & Stewart, 2015), being under 10 minutes (Ozan & Ozarslan, 2016; Manasrah et al., 2021). Adding interactivity, such as quizzes or polls, to asynchronous video lectures can increase student retention and engagement (Fleischmann, 2020) and is also appreciated by the students (Valenti et al., 2019). Too many on-screen interactions can, however, have a negative effect (Fish et al, 2016).

Synchronous video lectures make online teaching more closely resemble face-to-face, in-person teaching (Wang & Huang, 2018) as well as promote interactivity and develop community (Martin & Parker, 2014). Studies (Olson and McCracken, 2015) have, however, also found the associated costs of adding synchronous video lectures to asynchronous online courses to be an unnecessary investment relative to student achievement and community building. The time requirements of synchronous lectures may also be problematic, as are still occurring technical problems (unstable internet connection, delayed video, unclear audio (Dahlstrom-Hakki, Alstad & Banerjee, 2020). For instance, Olson and McCracken (2015) found that muting students' microphones upon entry can reduce common technical difficulties in videoconferencing (e.g., background noise and competing voices) but may also reduce impromptu conversation.

Text-based chatting during synchronous lectures gets mixed signals. For some teachers it is a nice and even helpful addition (Hoffman, 2019), while others find it distracting or even overwhelming (Cooner, 2010). The latter suggests having a teaching assistant, colleague or student manage the chats. Students like the ability to chat during a lecture as it may improve student-instructor and student-student communication, and provide a mechanism for immediate feedback (Martin, Parker & Deale, 2012).

Researchers have also studied the format of the video. For instance, findings suggest that video lectures with an instructor's presence (regardless of position) motivated students more than video lectures without an instructor presence, and that performance and satisfaction are highest when the instructor appeared on the right side of the screen (Zhang et al, 2021). Teacher presence in videos can also increase academic achievements (Yu, 2021). This does, however, not require the instructor to be visible throughout the video. Rather, continuous presence may make students tired of seeing the face with time passing, while intermittent presence of teachers in the video could have relaxed students and prolonged students' attention. The location in which a video is set may also have different effects on student perceptions and subsequent performance, specifically how students connect or develop a relationship with their instructor. Little research has been done on the use

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of virtual backgrounds (Belt & Lowenthal, 2021), which are expected to either create disconnect as the setting is unnatural or create connection by exhibiting personality.

Questions remain as to how “produced” a video recording needs to be to sustain student interest and attention. There are technological hurdles to overcome to produce high-quality videos, which may be an unnecessary investment. At the same time, teachers should be cautious about attempting to entertain vs. educate using this medium (Mayer, Fiorella & Stull, 2020).

### 2.3.2 Facilitation

Facilitation is a crucial part of the teachers' role during an online course and the importance of timely response and feedback, continuous availability and presence as well as regular communication (such as periodic announcements) should not be underestimated. Martin, Wang and Sadaf (2018) describe 12 facilitation strategies categorized according to four types: social, managerial, pedagogical and technological (Figure 2).

<b>Facilitation Strategies</b>	
<b>Social</b>	Video-based instructor introduction Instructor being present in the discussion forums Able to contact the instructor in multiple ways
<b>Managerial</b>	Video-based course orientation Instructors timely response to questions Instructors weekly announcements to the class
<b>Pedagogical</b>	Instructors timely feedback on assignments/projects Instructor's feedback using various modalities Instructors personal response to student reflections
<b>Technical</b>	Instructors use of various features in synchronous sessions to interact with students Interactive visual syllabi of the course Instructor created content in the form of short videos/multimedia

Figure 2: Facilitation strategies in online courses (Martin, Wang & Sadaf, 2018)

For instance, timely response and feedback as well as group work appear more influential than for instance synchronous learning sessions or interactive visuals (Martin, Wang, & Sadaf, 2020). Students also find regular announcements/reminders important for their learning (Martin & Bolliger, 2018).

Video, and specifically the ability to see and hear others, can in general help establish and improve social presence in both asynchronous and synchronous uses of video. Research suggests that informal instructor-created videos can create a casual

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and welcoming atmosphere for conversation. The relaxed, possibly impromptu, nature of these recordings may engender similarly styled responses from students in either text or video forms. Further, videos like these can set the tone of a discussion by modelling intended behaviours in their videos (see Clark et al., 2015). Pre-recorded videos can be used to prompt discussions in online and blended courses, whereas videoconferencing provides opportunities to host discussions in real-time. Regardless of the discussion mode, the teacher's social and teaching presence is essential to academic discourse. Typical types of teacher presence are (Tyrväinen, Uotinen & Valkonen, 2021): "addressing students by name, encouraging them, expressing gratitude for and acknowledging their contributions, describing actions on the dashboard, clarifying and summarizing content, and responding to technical concerns".

Synchronous discussions in online courses provide students the opportunity to connect in real-time but reduce student choice by requiring a set time and place. Nevertheless, students prefer synchronous communication for e.g., group work, as the conversations are more personal and natural for building community (Rockinson-Szapkiw & Wendt, 2015), and can increase student ownership of the learning environment (Zydney, McKimm, Lindberg & Schmidt, 2019). In hybrid contexts, Bower et al. (2015) reported that co-presence increases when the two cohorts of students are mixed during small group work or breakout sessions. Early studies suggested that such discussions tend to benefit online learners more than on-campus students (Macharaschwili & Skidmore, 2013).

Facilitation can also benefit from virtual office hours and impromptu meetings allowing for casual conversations. These can create a more relaxed environment and have the potential to help instructors and students build relationships in casual and beneficial ways in online courses. Students are, however, less likely to attend when such meetings are optional (Lowenthal, Dunlop & Snelson, 2017).

### 2.3.3 Assessment and evaluation

In line with the principles of UDL, researchers recommend using a variety of assignments (e.g., individual, group) and assessment methods (e.g., portfolio, project, self-assessment, peer feedback) to cater for diverse learners (Gaytan & McEwen, 2017). Clarity is key also when it comes to assignments, and the instructions should include the purpose, tasks, and criteria for the assessment.

Assessment should be aligned with the learning objectives, which in turn should be clearly stated and measurable (Lewis, 2021). Rubrics and assessment criteria can both aid the teacher in evaluating how well a student has mastered a given

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competence and saving grading time, while also giving the students an overview of the expectations and requirements for completing a given assignment. The rubrics/criteria need to clearly show the alignment between the learning objectives and the assignment requirements in order not to confuse the student with regard to the expectations. Lewis suggests that faculty should be provided examples of possible criteria/rubrics that align with learning objectives.

Assessment and feedback in higher education primarily rely on text-based communication (e.g., writing essays and taking tests) more than other forms of communication. Asynchronous video affords students and instructors opportunities to demonstrate and guide understanding in different ways. For instance, video is a common media for expression for many students in their spare time, and they may perceive recording video entries positively (O'Connor, 2018; Shih, 2010). This can also have a positive impact on, for instance, public speaking skills, such as enunciation, articulation, facial expressions, posture, and gestures (Shih, 2010). The process of students recording video reflections "can encourage more personal ownership and responsibility, thereby supporting deeper learning and more honest communication" (O'Connor, 2018, p. 359).

There is also a growing body of research on teacher's video feedback in online and blended courses, indicating that video feedback can be welcoming and affective (Borup, West & Thomas, 2015) and help establish social presence (Izmirli & Izmirli, 2019; Thomas et al., 2017). This does not require spending a huge amount of time preparing lengthy videos for each individual student, but instead presenting shorter (roughly 3 minute) recaps of main themes for assignment feedback and post the video to the entire class (Bialowas & Steimel, 2019).

Formative assessment, such as short quizzes, check-ins or discussion posts, aids in continuously tracking the learning process and makes it possible to make just-in-time interventions or adjustments to the course to better meet learners' needs. While small enhancements can be made during the course, bigger changes may need to wait until the course has ended. Ralston-Berg and Braatz (2021) emphasize that educators continuously learn new practices and ways to implement online learning, and time should be set aside to refine the course after each run based on feedback from students and/or colleagues, as "[a] course is never 'done', only somewhere on the spectrum of functional to fantastic". Planning for iterative improvement is hence important, and the authors argue that this should be a collegial effort; by sharing strategies for how courses are developed and improved, program-wide improvements that could benefit many courses can be identified. "Sharing is caring" is also important when considering the aspects of standardization and consistency.

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Rubrics, criteria lists, and evaluation frameworks are useful when evaluating a course. For instance, Martin and colleagues (2021) have created and validated the OCDE-instrument for online course design elements (OCDE), consisting of 38 Likert-scale type questions.

## 2.4 The organizational perspective

Faculty that designs courses to meet quality standards meet these standards at a higher rate in external quality reviews compared to faculty who did not design their courses to meet the quality standards (Zimmermann, Altman, Simunich, Shattuck & Burch, 2020). Having quality standards is hence a good starting place for high quality online education. Merely having and disseminating online course quality standards does, however, not ensure implementation of those standards and quality assurance processes. Challenges with faculty buy-in are common and have traditionally reflected tension between the faculty and the administration (Britto et al, 2013). For quality improvement projects to succeed, faculty has to be involved in the process and given an opportunity to help shape it. Buy-in is not only important among faculty, but also among students. For online and hybrid learning to become mainstream, both students and faculty must believe in and commit to these modes of education (Educause, 2022). As such, students and faculty must be invited to give input into institutions' decisions, knowing that their needs and concerns are being heard and understood.

Simunich and colleagues (2022) discuss a "culture of quality" in terms of having a "significant percentage of institutional faculty, staff, and administration collaboratively work to create guidelines and engage in practices to achieve quality assurance goals, as well as demonstrate and communicate a collective commitment to continuous improvement". Designing online education includes "aligned, accessible materials and activities, embedded student support, elevated social, cognitive, and teaching presence, good organization and navigation, and design facets that promote engaged learning and online student success". To facilitate this transformation students, faculty, and administrators must collaborate to support and explore the implemented changes (Carolan et al., 2020). Simunich et al. (2022) found several factors that can have a positive impact, starting with the people involved:

- having an experienced and passionate person coordinate the implementation efforts
- choosing an inclusive, flexible and collaborative implementation approach, instead of a top-down one

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In addition to the importance of people when beginning a transformation, they also highlight the need for an institutional culture shift, such as:

- defining quality, creating shared goals, and recognizing the effort it takes to achieve those goals.
- creating faculty buy-in with a suitable pace of change (incremental change leads to less resistance)
- highlighting that quality is what we do, not in addition to what we do
- making concepts/terms used in the criteria part of the daily language

Policies and practices are also important:

- institutionally supported goals for course design, focusing the implementation process on gaining buy-in, celebrating and rewarding efforts. Creating shared expectations and a common vision seems more fruitful than compulsory training or reviews.
- sufficient support, e.g., in the form of clear design and approval processes, templates and reviews, checklists, short training modules, individual consultations
- having quality as an expectation, not a requirement, as this can increase faculty buy-in
- friendly competition, celebration of successes, awards and badges, showcasing good models and examples on social media and websites
- processes and resources to ease the burden of teachers
- dedicated resources for quality assurance (planning, budgets, accreditation)

## 2.5 Current and future trends

As technology evolves, new opportunities arise for education. In this section, we briefly review some current and future trends that will affect – or already affects – higher education.

### 2.5.1 Gamification

Gamification is nothing new but has been found to have potential to improve student attitude, engagement, and performance (Subhash & Cudney, 2018). Several gamification elements, such as points, badges, leader boards, levels, challenges, feedback and freedom to fail, are suitable for use in online education (Strmecki, Bernik & Radošević, 2015). These, however, need to be well-designed and integrated as poor game mechanics can have an opposite effect. For instance, this was identified as the reason for most MOOCs failing to achieve their learning objectives (Chang & Wei, 2016).

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### 2.5.2 Learning analytics

Learning analytics is based on the use of "automated tools, technologies, and processes for data collection, analysis, and reporting to improve the design and implementation of learning and teaching activities" (Castro, 2019). Systems are constantly collecting data about our usage, and data on current students' behavior combined with historical data can be used to, for instance, identify students at risk, provide appropriate feedback, personalize the learning experience, and make improvements to the course (Stone, 2017). As a Finnish example, one can mention the VILLE-environment developed at the University of Turku<sup>2</sup>. When using automatically collected raw data for decision making, contextual data also needs to be considered in order for the raw data not to be misinterpreted (Zilinskiene, 2022). Furthermore, ethical considerations are important when dealing with student data.

### 2.5.3 XR

XR (extended reality) is an umbrella term for virtual reality (VR), augmented reality (AR), and mixed reality, technologies that provide a sense of experiencing alternative realities by mixing aspects from the physical and the digital world. XR can, for instance, enhance collaboration, motivation and engagement or make it possible to experience things that would be expensive, difficult, or even impossible to accomplish in the physical world. While XR technologies have been around for quite a few years, their uptake in education has been somewhat slow due to lack of suitable technology and learning material. These immersive technologies are, nevertheless, expected to revolutionize higher education (Pomerantz and Rode, 2020) and many promising examples already exist. For instance, virtual reality is used in healthcare education at several universities of applied sciences in Finland. EduXR<sup>3</sup> is a Finnish network, with the goal of bringing together those interested in XR and promote discussion about its use in education. CHEX (Champions in Higher Education of XR) is a corresponding international consortium<sup>4</sup>

### 2.5.4 Hybrid learning spaces

Most universities are expected to opt for a hybrid system in the near future, combining small face-to-face groups with online sessions, and the 2022 Horizon report (Educause, 2022) lists "hybrid and online learning" as one of the main trends for the coming years. A hybrid learning space combines pedagogy, technology and space design, both physical and virtual (Gil, Mor, Dimitriadis & Köppe, 2022), and requires well-designed technology in order to facilitate high-quality interaction (microphones,

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<sup>2</sup> <https://www.oppimisanalytiikka.fi>

<sup>3</sup> <https://eduxr.fi>

<sup>4</sup> <https://immersiveln.org>

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two-way cameras, video screens, ...). As always, technology in itself is not enough, but faculty needs ample support in using it both from a technological and pedagogical perspective. Further, Nørgård & Hilli (2022) argue that "multiple hybrid dimensions are engaged and hybridized at the same time", thus demanding that we "rethink and hybridize time, space, and structures so they become neither time-bound nor space-bound" (p. 8). Students will also need training and support in making the most of these new learning environments, with a "particular focus on the needs of nontraditional students and enabling easier access to education for 'anyone anywhere'" (Educause, 2022). As students become more used to online education, their expectations grow with regard to the quality of the learning experiences they are offered. Professional development should therefore be considered a high priority in the long-term.

## 2.6 Summary

The quality of online education can be reviewed from different perspectives: student, course, teacher, and organization. Table 1 presents a summary of relevant factors, based on the research review above. These perspectives and factors should be considered when planning and designing the national criteria set.

Table 1: Relevant factors when designing online education.

Student	Course	Teacher	Organisation
<ul style="list-style-type: none"> <li>• Need for flexibility</li> <li>• Challenges related to self-regulation and time management</li> <li>• Importance of inclusion, interaction and community</li> </ul>	<ul style="list-style-type: none"> <li>• Student and goal centred</li> <li>• Clear expectations and learning objectives</li> <li>• Regular requirements on student activity</li> <li>• Standardization, clarity and transparency</li> <li>• Accessibility and diversity</li> <li>• Use of versatile material</li> <li>• Continuous evaluation and development</li> </ul>	<ul style="list-style-type: none"> <li>• Importance of continuous interaction and presence</li> <li>• Quick feedback</li> <li>• Versatile continuous assessment</li> <li>• Developing technological and pedagogical competence</li> <li>• Importance of attitudes</li> </ul>	<ul style="list-style-type: none"> <li>• Student and faculty buy-in and support</li> <li>• Fostering a culture of quality</li> <li>• Processes and resources to facilitate the teachers' work</li> <li>• Monitoring trends as well as the development in the areas of technology and pedagogy</li> </ul>

### 3 Quality criteria for higher education

In Finland, criteria for online learning have been developed in projects, networks and as internal development initiatives within higher education institutions. In this section, we review three Finnish criteria sets: eAMK, Recommendations on open education, and the quality criteria for online learning material published by the National Agency for Education. In addition, we chose to include a selection of international criteria for our review and comparison reasons: EADTU E-xcellence, the quality criteria of the EOCCS-certificate as well as DigCompOrg and DigCompEdu. There are a multitude of international criteria, and we present a list of other such documents that may be of interest. Finally, we discuss the views on quality criteria and their development held by faculty involved in online teaching in Finnish higher education.

#### 3.1 Finnish quality criteria

##### 3.1.1 eAMK

In the eAMK project (2017-2020) cross-learning and digital pedagogy was developed while also strengthening the work life connection. The project resulted in, for instance, quality criteria for online implementations and digital guidance, a digital pedagogical training program and eAMK competence badges. (eAMK, n.d.) In the following, we will focus on the quality criteria.

The quality criteria for online implementations comprise of 11 areas: 1) target group and users, 2) learning objectives, learning process and pedagogical solutions, 3) assignments, 4) contents and materials, 5) tools, 6) interaction, 7) guidance and feedback, 8) evaluation, 9) development, 10) usability and visuals, and 11) support services. For each area there is a checklist, which can be used to review and evaluate the planning and implementation of online courses. The quality criteria are suitable for evaluating online or blended synchronous courses and their workspaces, as they include criteria for teacher and student interaction and feedback. (eAMK, 2021a)

The quality criteria for digital guidance are designed to improve and develop the guidance quality. The criteria are structured as a checklist, just like the quality criteria for online implementations. The criteria include four areas: 1) digital guidance service package, 2) digital guidance as activities – process and event, 2) the digital tutor's competence, guidance methods and environments, and 4) data protection, data security and ethics. (eAMK, 2021b)

The eAMK criteria are relatively widely used as a quality development tool in universities of applied sciences in Finland (see chapter 3.3). In the final report of the

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eAMK project, all universities of applied sciences stated that they had implemented the criteria in some way.

### 3.1.2 Recommendations on open education

In 2021, the Open Science Coordination in Finland together with the Federation of Finnish Learned Societies presented four recommendations for open education (OSCif & FoFLS, 2021): 1) Quality criteria for open education. Part 1. Quality criteria for open educational resources 2) Guidelines on the accessibility of open educational resources, 3) Recommendation for gaining merit in open education and open educational resources, and 4) Competence requirements for open education.

The recommendations define five quality criteria for open educational resources including more detailed dimensions for each of them:

- *Content*: The content of high-quality open educational resources is reliable.
- *Learning and teaching methods*: High-quality open educational resources enable the use of diverse ways to learn and teach.
- *Usability and accessibility*: High-quality open educational resources are as easy to use as possible for everyone and in any situation.
- *Findability and sharing*: High-quality open educational resources are easy to find, and the users know under which terms and conditions they can share them.
- *Lifecycle and adaptability*: High-quality open educational resources are maintained and updated on a regular basis. In addition, other open resources and co-development practices are used in the production of the materials.

Each criterion is described on three levels. The first, basic, level describes characteristics that all open educational resources should have. The second level describes more advanced open educational resources in terms of quality, while the third level applies to highly advanced open educational resources.

The second recommendation, Guidelines on the accessibility of open educational resources, is a good reference material when developing new quality criteria within Digivisio 2030, as accessibility is not included in, for instance, the eAMK criteria. For instance, the guide gives examples on how accessibility can be considered and improved.

### 3.1.3 Criteria for online material by the National Agency for Education

The National Agency for Education has published a collection of articles about the quality of online learning in 2012. The report does not include specific quality criteria, but online resources are defined and classified while also discussing the concept of

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good online learning (Ilomäki, 2012). In the abstract of the publication, the pedagogical quality of online educational resources is defined as follows (translated from Finnish):

*Pedagogical quality of online educational resources implies that the resources are suitable for teaching and learning purposes, support teaching and learning and provide pedagogical value. The pedagogical value can, for instance, entail new ways of using and developing information, new practices for collaborating and sharing, or more versatile opportunities to work on an assignment. Pedagogical quality is represented by learning resources that promote learning according to the newest research and teachers that are supported to develop their teaching. (Opetushallitus, n.d.)*

Characteristics considered important in online educational resources are:

- promoting community and collaboration
- promoting skills to learn
- promoting student activity
- the challenge, openness and authenticity of the learning tasks.

## 3.2 International quality criteria

### 3.2.1 EADTU E-xcellence

EADTU (The European Association of Distance Teaching Universities) is a European network for higher education, which focuses on studying and developing online and blended learning as well as open distance education in higher education (EADTU, n.d.). During 2005–2012 models for assessing and evaluating the quality of online and blended learning have been studied and developed as part of projects administered by EADTU. As a result, the E-xcellence handbook was published in 2012. The third edition of the handbook was published in 2016, presenting a model that has been updated based on experiences and feedback from the network, while also considering the recent development in online education (EADTU, 2016).

The purpose of the E-xcellence handbook is to provide analysis material, criteria and guidelines for evaluating the quality of online and blended education and their support systems in higher education. The handbook is intended for teachers and other faculty who plan, develop, teach and evaluate online and blended learning. The handbook contains quality criteria for the following areas:

- strategic management: the institution's strategy for online learning, support and training for the personnel, networking, common practices for different departments, resources, technologies

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- instructional design: modularity of degree programs, assessment methods for online learning, building an academic community online, integration of the development of knowledge level and skills, and consideration of individual needs and goals
- course design: course context, material, learning objectives, assessment, course description, interactivity, feedback
- course implementation: virtual learning environment, technical implementation
- faculty support: technical support, resources
- student support: clarity and accessibility of course descriptions, accessibility of technical and pedagogical instructions, technical support, guidance.

Criteria have been defined for two levels: normal and excellent (EADTU, 2016).

### 3.2.2 DigCompOrg and DigCompEdu

The frameworks DigCompOrg ja DigCompEdu have been developed by the European Commission's science and knowledge service, Joint Research Centre (JRC). The frameworks are based on research and provide a wide range of criteria for evaluating the quality of different areas of online education.

DigCompOrg focuses on digital pedagogy and the use of learning technologies and is intended for self-evaluation and guidance purposes for organizations. The educational institution's digital competence and operational areas are addressed from seven perspectives (Kampylis, Punie & Devine, 2015):

- leadership and governance practices
- teaching and learning practices
- professional development
- assessment practices
- content and curricula
- collaboration and networking
- infrastructure

Figure 3 shows the sub-areas of the DigCompOrg framework in more detail. The framework provides a checklist for evaluating the quality of all aspects.

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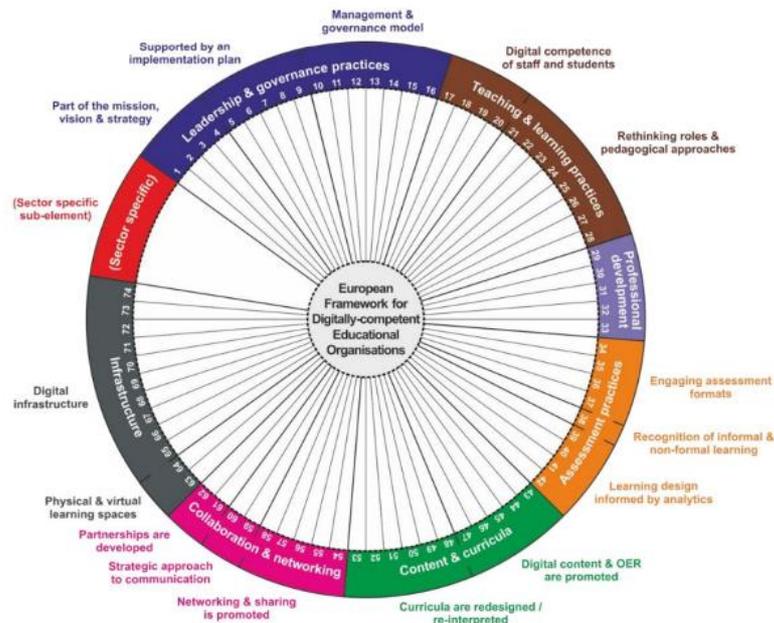


Figure 3: The DigCompOrg framework (Kampylis, Punie & Devine, 2015)

The DigCompEdu framework is intended to be used as a support for developing teachers' digital competences and educational programs. It describes a teacher's digital competence, which is divided into six areas (Punie & Redecker, 2017):

- professional engagement
- digital resources
- teaching and learning
- assessment
- empowering learners
- facilitating learners' digital competence.

DigCompEdu offers a self-assessment tool, which is currently, however, only available at K-12 level (European Commission, n.d.). A teacher's digital competence is assessed using the six professional levels described in the material, from beginner (A2) to pioneer (C2). (Punie & Redecker, 2017)

### 3.2.4 EOCCS: Online Course Certification System

EFMD (European Foundation for Management Development) is a global organization that operates in 90 countries and includes 972 institutions. EFMD develops the accreditation of business schools and universities and has also created an online course certification system (EOCCS). (EFMD Global, n.d.) The certification system is intended for improving and developing the quality of online and blended learning. (EOCCS, 2021)

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The quality criteria are divided into four areas:

- Institutional context: institutional environment, strategy planning, resources, facilities and services, faculty responsible for course design
- Course composition: target group (e.g., accessibility), learning design, layout design, content design, implementation design, technology to be used, course completion
- Course delivery and operations: participants (e.g., registering to the course), implementation (e.g., guidance methods), work life connection
- Quality assurance processes: institutional system, course evaluation, participant evaluation, teaching quality monitoring.

The criteria are not shared openly. Instead, questions are shared, with which the above aspects can be evaluated and clarified. (EOCCS, 2021)

### 3.2.5 Additional criteria sets

Many other criteria frameworks exist in addition to the ones mentioned above. While there are some differences, the basics are quite similar in all of them. Below, we list some of the frameworks available:

- Quality Reference Framework for the Quality of MOOCs  
<http://mooc-quality.eu/qr>
- Quality Learning and Teaching (QLT) instrument  
<https://www.csuchico.edu/qlt/qlt-instrument.shtml>
- Association of Educational Communications and Technology (AECT) Instructional Design Standards for Distance Learning  
[https://aect.org/instructional\\_design\\_standards.php](https://aect.org/instructional_design_standards.php)
- Online Learning Consortium (OLC) Scorecard Suite  
<https://onlinelearningconsortium.org/consult/olc-quality-scorecard-suite/>
- Open SUNY Center Course Quality Review Rubric (OSCQR)  
<https://oscqr.suny.edu>
- QualityMatters (QM) Rubrics  
<https://qualitymatters.org/qa-resources/rubric-standards/higher-ed-rubric>
- CI QUALITY ONLINE LEARNING AND TEACHING (QOLT) RUBRIC:  
<https://www.csun.edu/sites/default/files/qolt-rubric.pdf>
- NSQL: THE National Standards for Quality Online Learning  
<https://www.nsqol.org>

In addition, many digital platforms for learning and teaching provide their own quality checklists, e.g., the following one by Canvas:

<https://canvas.instructure.com/courses/1045977/files/62552543/>

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### 3.2.6 Summary of the reviewed quality criteria sets

In Table 2, the criteria and recommendations presented above are compared. The eAMK- and the EADTU E-xcellence-frameworks are the most comprehensive ones. The EADTU E-xcellence framework is based on long-term network collaboration and the eAMK criteria are currently widely used in universities of applied sciences. Hence, it would be appropriate to utilize these criteria sets in the planned national Digivisio 2030-criteria. The recommendations for the openness of education take a stand mainly on the quality of the learning materials, but it could be used when developing the new criteria, in particular in terms of accessibility.

Table 2: Comparison of quality criteria sets

	eAMK	Recommendations for open education	Criteria for online material (National Agency for Education)	EADTU E-xcellence	DigCompOrg DigCompEdu	EOCCS certification
Online education strategy at an organizational level	x			x	x	x
Degree program and curriculum	x			x	x	x
Course design	x	x	x	x		x
Course implementation	x	x	x	x		x
Faculty support	x			x	x	
Student support	x			x	x	
Teacher competence	x*				x	

\* Competence badges (eAMK, n.d.)

### 3.3 Criteria used in higher education in Finland

In addition to reviewing official criteria documents, we also wanted to bring light on the guidelines and recommendations in use at higher education institutions in Finland. To do so, we organized a workshop during a joint Digivisio 2030 project day on 19 May 2022. We also distributed a small-scale questionnaire to teachers in higher education.

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### 3.3.1 Digivisio 2030 project day workshop

Around 60 persons from higher education institutions in Finland participated in the Digivisio 2030- project day workshop. During the workshop there was a vivid discussion on the quality criteria in use, tools and guidelines, as well as the experienced positive aspects and needs for improvement.

According to the workshop participants, some higher education institutions do use quality criteria for online learning, while others did not. The eAMK-criteria were the most commonly used framework. The Col Framework (Col, n.d.), Recommendations for open education (AVOTT and TSV, 2021) and Quality criteria for language and communication teaching in Universities of Applied Sciences (Ammattikorkeakoulujen kielten ja viestinnän opetuksen laatukriteerit; Kieliverkosto, 2010) were mentioned as examples of other criteria in use. Many educational institutions have their own sets of criteria and instructions, some of which are based on eAMK. During the workshop, the following were mentioned:

- Guidelines for digital pedagogy at the Teaching and Learning Centre of Tampere University and Tampere University<sup>5</sup>
- Online and blended learning pedagogy at the University of Eastern Finland<sup>6</sup>
- Quality criteria for Laurea's online studies<sup>7</sup> as well as daytime studies and blended learning<sup>8</sup>

Among the good aspects of the quality criteria in use, the participants highlighted that the criteria guarantee a common minimum level of quality and help frame the work. The tools used are checked from a data security perspective and support is organized for how to use them. Quality criteria are also considered to increase transparency. The participants felt that the criteria used consider the teachers' own teaching scenario and convey that everything does not have to be ready right away – rather teaching can be developed in smaller steps. The eAMK criteria were found to be very comprehensive, which on the other hand also makes their use more burdensome.

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<sup>5</sup> <https://www.tuni.fi/tlc/en/planning-and-implementation-of-teaching/digital-pedagogy/>

<sup>6</sup> <https://moodle.uef.fi/course/view.php?id=30783> (Haka-login), <https://sites.uef.fi/verkko-ja-monimuotopedagogiikka/?lang=en>

<sup>7</sup> <https://www.laurea.fi/globalassets/laurea/documents/quality-criteria-for-laureas-online-studies.pdf>

<sup>8</sup> <https://www.laurea.fi/globalassets/laurea/documents/quality-criteria-for-laureas-daytime-studies-and-blended-learning---brochure.pdf>

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The discussion brought up the following issues to be considered when developing new criteria:

- The eAMK-assessment tool needs to be updated, a digital or automatic review tool was suggested.
- The list of eAMK-criteria is too long.
- The criteria should be considered in course templates used at higher education institutions. The templates could, in addition to the checklist, guide the creation of high-quality course implementations.
- Accessibility, mobile usability, and tips for course design, e.g., high-quality module implementation.
- Student-centeredness and students' own responsibility. Guidance for the students on how to dimension their studies, for instance, with regard to how long it takes to go through the material or complete an assignment.
- A clear process for how to promote faculty buy-in, that is, get them to use the criteria, and support them in how to use the criteria.
- Peer assessment, increased sense of community and collaboration. Tools to support these activities.
- Multiculturalism (designing a course for a multicultural group), anti-racist teaching methods and diversity.
- A joint, national criteria framework is needed, without a given project name. The framework needs to be maintained after the project ends.

### 3.3.2 Teacher questionnaire

Despite a tight schedule, we wanted to get more information about teaching faculty's thoughts on the quality criteria of online education. A survey was therefore distributed to teachers at higher education institutions in May 2022. Responses were collected by publishing the survey link on social media and on the intranet of some Finnish higher education institutions. We received 15 survey responses, out of which three were from university teachers and 12 from teachers at universities of applied sciences. The questions were the same as in the workshop presented in the previous section.

When asked about the quality criteria in use, seven (7) respondents mentioned the eAMK criteria. Other responses included DigCompEdu and DigCompOrg, eOppiva's canvas and Fitech's canvas, as well as the assessment framework "Quality teaching in web-based environments"<sup>9</sup>. Other options mentioned were the educational

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<sup>9</sup> [https://helda.helsinki.fi/bitstream/handle/10138/23916/hallinnon\\_julkaisu\\_73\\_2010.pdf](https://helda.helsinki.fi/bitstream/handle/10138/23916/hallinnon_julkaisu_73_2010.pdf)

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institutions' own criteria, for instance Pedagogical choices at Diak<sup>10</sup>. Five (5) respondents did not answer or understand the question.

Pedagogy-orientation, an extensive scope, comprehensiveness and taking the teacher's own pedagogical solutions into account were mentioned as positive aspects of the quality criteria in use. The criteria were also found to make it possible to develop high quality learning and teaching, as they serve as a checklist for course design. The criteria also highlight basic important issues and can therefore be particularly helpful for teachers at the beginning of their careers.

The teachers raised the need for a joint criteria framework and coordinated professional development initiatives. The joint criteria should be based on research and be piloted by teachers and students before implementation on a larger scale. The survey respondents hoped for the criteria to be more clearly used by all teaching faculty, with sufficient support and training. Another wish was for the criteria to more concretely support, for instance, the choice of different teaching methods: when is it good to organize a course online, when face-to-face, which technology should be used in which situation, and so on. The workload of both the teacher and the students should also be considered in the criteria. The respondents stated that using criteria frameworks takes time, as suitable resources are not available. The criteria should therefore be clear and user friendly, supported by technology. Finally, the framework needs to be updated as technology develops.

## 4 Proposals and implementation plan

The proposed measures and plan presented next are based on:

- the research review and existing national and international criteria sets
- meetings and joint development workshops with the Digivision2030 contact persons and the ideas and needs that arose during these events
- needs and wishes brought forward in the authors' networks and the small-scale questionnaire distributed to teachers in higher education institutions.

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<sup>10</sup> <https://www.diak.fi/en/studying/study-path/studies/pedagogic-approach/>

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#### 4.1 Proposal 1: Buy-in

- Involving faculty (and students) in the design and development of the national criteria, for instance through questionnaires, workshops, piloting and feedback.
- Marketing the final criteria set to faculty.
- Emphasizing that using the criteria is an expectation/obligation to use criteria.
- Providing training and support for using the criteria in all higher education institutions. The criteria needs to be easy to use.
- Emphasizing that the criteria set is intended to support the teacher/organization in producing high-quality online education, not serve as a tool for criticism.

#### 4.2 Proposal 2: Usability and technical implementation

- The criteria framework should be easy to use and the technical implementation flexible, so that the criteria can become a natural part of the teachers' work.
- The framework should be accompanied by a digital tool, which can help the teacher design and evaluate courses from a quality perspective. The tool could also be used to collect data for, e.g., further development and planning of teacher training activities.
- The criteria set should be automatically created by the tool based on the teacher's choices, with regard to, for instance, the type and level of the course, as well as particular aspects that need to be taken into account (e.g., a multicultural group).
- If the criteria set is supposed to also cover, for instance, organizational and degree planning (similarly to several of the above-mentioned criteria frameworks), the tool could also include a choice on whether to create criteria for teaching purposes or an administration point of view.

#### 4.3 Proposal 3: Based on science and good practices

- The national criteria should be based on current research. Relevant research areas should also be regularly monitored, and the criteria updated accordingly.
- The work should build on previous national and international criteria sets. In particular, the EADTU E-xcellence criteria is a useful reference due to its extensive network, coverage and research basis. When considering the national criteria frameworks, eAMK is the most comprehensive and widely used one, while Recommendations on open education consider accessibility aspects.

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#### 4.4 Proposal 4: Exit plan

When the project ends, a network is needed to ensure the continuous development of the criteria framework. The network should continue to follow the scientific, technological and pedagogical development relevant to online education. Based on this the network should maintain and update the criteria accordingly on a regular basis, similarly to the EADTU E-xcellence framework.

#### 4.5 Plan

The following timeline (Figure 4) shows an iterative plan for designing, building and maintaining the national criteria set. The plan has taken into account the four proposals above, for example, engaging teachers in the criteria process by involving them already in the planning phase. For instance, the teaching faculty's wishes and experiences, as well as feedback from pilots, could be collected during professional development events organized within the Digivision 2030 project.

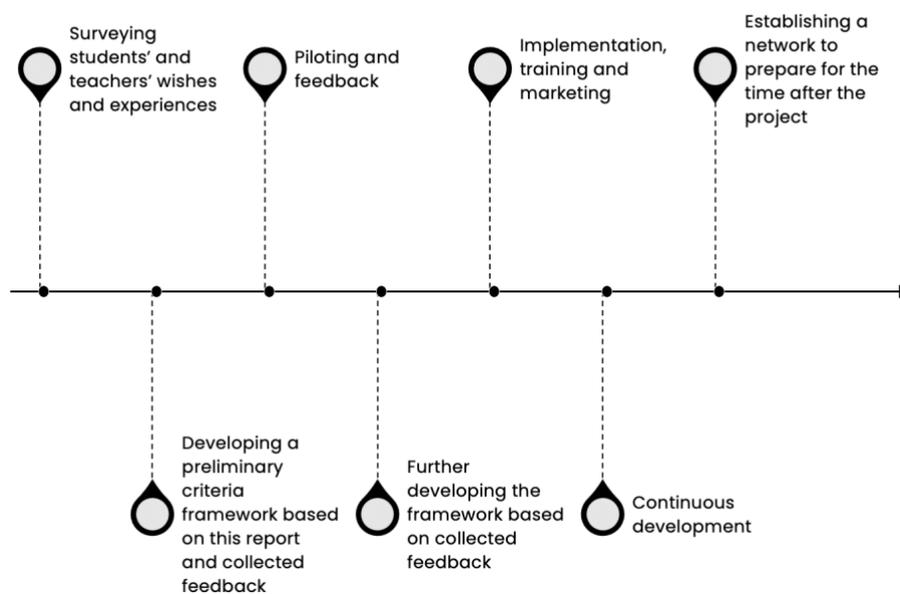


Figure 4: Plan for iterative design and implementation

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