ARTICLE

Quality Models for Open, Flexible, and Online Learning

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ABSTRACT

This article is based on research conducted for the European Commission Education & Training 2020 working group on digital and online learning (ET2020 WG-DOL) specifically regarding policy challenges, such as the following: 1) *Targeted policy guidance on innovative and open learning environments* under outcome; 2) *Proposal for a quality assurance model for open and innovative learning environments, its impact on specific assessment frameworks and its implication for EU recognition and transparency instruments*. The article aims to define quality in open, flexible, and online learning, particularly in open education, open educational resources (OER), and massive open online courses (MOOC). Hence, quality domains, characteristics, and criteria are outlined and discussed, as well as how they contribute to quality and personal learning so that learners can orchestrate and take responsibility for their own learning pathways. An additional goal is to identify the major stakeholders directly involved in open online education and to describe their visions, communalities, and conflicts regarding quality in open, flexible, and online learning. The article also focuses on quality in periods of crisis, such as during the pandemic in 2020. Finally, the article discusses the rationale and need for a model of quality in open, flexible, and online learning based on three major criteria for quality: excellence, impact, and implementation from the learner's perspective.

1. Introduction

This conceptual article is based on work done for the European Commission Education & Training 2020 working group on digital and online learning (ET2020 WG-DOL), specifically regarding policy challenges such as the following: (1) *Targeted policy guidance on innovative and open learning environments*, and (2) *Proposal for a quality assurance model for open and innovative learning environments, its impact on specific assessment frameworks and its implication for EU recognition and transparency instruments* [1]. The article aims to define quality in open, flexible, and online learning (OOL), particularly open education, open educational resources (OER), and massive open online courses (MOOC). Hence, quality domains, characteristics and criteria are defined and discussed, as well as how they contribute to quality and to personal learning so that learners can orchestrate and take responsibility for their own learning pathways. An additional goal is to identify the major stakeholders directly involved in open online education and to describe their visions, communalities,

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and conflicts regarding quality in open, flexible, and online learning. Finally, this article discusses the rationale and need for a model of quality in open, flexible, and online learning based on three major criteria for quality: excellence, impact, and implementation from the learner's perspective.

Following this short introduction and description of the methodology, the subsequent section focuses on identifying the major stakeholders and their visions of quality. In the next section, open education is defined, and quality in open, flexible and online learning is described. Next, the concept of quality in open and flexible online learning, open educational resources (OER) and massive open online courses (MOOC) are elaborated. The final section discusses common and conflicting areas in quality dimensions in open and flexible online learning in OER and MOOC from the learners' perspectives. A model of quality dimensions in OOL, OER, and MOOC is presented. Also presented is a quality model of the three areas from the organizational perspective through the learner's lens, including the impacts on the organizational level, such as quality and excellence. The organizational and social perspectives on quality are not discussed in detail because they are beyond the scope of this article. The article concludes with recommendations for further research.

2. Methodology

This conceptual article is based on the findings of desktop research on the current discourse of quality models for open, flexible, distance, and online learning, as well as the future of education. In addition, quality-related approaches in times of crisis, such as the pandemic in the spring of 2020, are proposed. The content of this conceptual article is based on research by the author during the last two years, including work for the European Commission ET2020 WG-DOL. The article's focus is based on the author's research and perspectives during that period. The author has provided examples of the ongoing debate, which, however, do not always represent official perspectives. Moreover, the article does not provide a comprehensive review of developments in the field or events across the globe.

3. Results

In this section, the results of the author's research are presented. First, the stakeholders' interests in quality-related approaches and dimensions in open, flexible, and online education are explored, followed by a definition of open education. Descriptions of quality models in OOL, OER,

and MOOC are then provided.

3.1 Stakeholders' Interests in Quality in Open Education, OER, and MOOC

Quality is related to the domains of economics, culture, and politics. Quality is also related to compliance, consumer protection, reputation, quality enhancement, and process improvements. Practical experience and academic research have shown that quality in open education is complex and is viewed from multifaceted perspectives that reflect the visions of those who consider the issue of quality [2]. It is obvious that "one size does not fit all." An aphorism that best describes this aspect is "*Quality is in the eyes of the beholder.*"

Ossiannilsson, Williams, Camilleri, and Brown [2] identified three major groups of stakeholders who play roles in the definition and review of quality in open education, OER, and MOOC: learners, educational organizations, and society. The latter is concerned at regional, national, and international levels. Each stakeholder reviews quality from a unique perspective, which sometimes leads to dissonance among the various concepts of quality in open online learning, OER, and MOOC. This dissonance might lead to conflicts of interest with subsequent repercussions in the achievement of OFOL as well as in establishing a quality model that satisfies all stakeholders.

Stakeholders' interests in the quality of open education, OER and MOOC are related to their roles as leading partners, contributors, or participants. Hence, it is important to consider all three groups of stakeholder roles and to search for coinciding or conflicting views of quality among them. Traditionally, educational organizations may have a larger interest in purposes, such as branding, business models, security, marketing, competition, and goodwill. Society may be more interested in political aims such as democracy and policy issues such as equity, inclusion, relevance, sustainability, capacity building, and gender dimensions, as well as economic dimensions and consequences. Finally, learners may be more interested in their own motivations, *just-for-me learning*, their needs, autonomy, self-directed learning, lifelong learning, recognition, satisfaction, possibilities for employment, self-esteem, and self-realization [1]. Hence, it is expected that stakeholders define quality according to their needs. It is important to underline that sector-specific needs are focus in the research study by Ossiannilsson et al. Brown [2]. Figure 1 illustrates the main interests of the stakeholders in open online education.

Figure 1. Stakeholders and their main interests in open online learning, OOL, OER, and MOOC

In addition to identifying the three major groups of stakeholders who play roles in the definition and review of quality in open education, OER, and MOOC, it is crucial to define the macro, meso, micro, and nano levels and how they are connected to and aligned with each other [2].

In the next section, a general definition of open education will be provided as a preface to the subsequent definition of quality. A discussion on opening up and open education will include OER and MOOC.

3.2 Definitions of Open Education

Education is viewed as a catalyst for the development of, societies and hence a key contributor to increasing universal access, democracy, and equality, which is stated in the United Nations (UN) Educational Scientific and Cultural Organization's (UNESCO) Sustainability Goal number four (SDG4). Education is also an essential condition in accelerating progress toward the achievement of global sustainability [3].

A general definition of open education encompasses resources, tools, and practices that employ a framework of open sharing to improve educational access and effectiveness worldwide. Open education combines knowledge sharing with 21st-century technology and competences to create a vast pool of openly shared educational resources, while harnessing today's collaborative spirit to enhance and facilitate educational approaches that are more responsive to learners' needs [1]. UNESCO has stated that open education contributes to the building of open and inclusive knowledge societies and to the achievement of the UN's Sustainable Development Goals [3-6]. The Commonwealth of Learning's approach to open education is to empower people through learning that leads to economic growth, social inclusion, and environmental conservation [7].

It is commonly accepted that open education includes resources, tools, and practices that operate within a framework of open sharing and aim to improve educational access and effectiveness worldwide. Open education com-

bines knowledge sharing with 21st-century information and communication technology (ICT) to create a vast pool of openly shared educational resources, while harnessing today's collaborative spirit to enhance and facilitate educational approaches that are more responsive to learners' needs. The qualifier "open" in the term open education refers to the elimination of barriers (e.g., physical, mental, and organizational) that can preclude access, opportunities, and recognition of participation in institution-based learning. Open education has been defined by the Open Education Consortium [8] as:

"*…resources, tools and practices that employ a framework of open sharing to improve educational access and effectiveness worldwide.*"

Through open education, learning and educational opportunities can be scalable by taking advantage of the power of the Internet, allowing rapid and essentially free dissemination, and enabling people around the world to access knowledge, connect, and collaborate. The traditional provision of education is limited by the capacity of educational institutions; consequently, this resource has been available to the few, not the many. Increased digitalization and digital transformation offer potential solutions to these limitations by giving a global audience access to free, open, and high-quality educational resources. By providing free and open access to education and knowledge, people can fulfill their desire to learn. Through open education, learners gain access to information, knowledge, and materials to help them succeed in their learning and study processes. Faculties and researchers can exchange materials, share data, develop networks, and draw on international resources. Employees can learn at their workplaces, supporting them in their work. People can connect with others with whom they otherwise would not meet to share information and ideas.

The wide interpretation of open includes not only access but also the ability to modify and use materials, information, and networks, which enables individuals to personalize their education and even use or reuse it in new ways. New audiences can be reached, and resources can be used in new contexts. In opening up education, learning can be available, accessible, modifiable, and free for anyone, everywhere, and at any time. Open education is now seen as a catalyst for the development and a key contributor to democracy, equality, and access for all. Education is also an essential condition in accelerating progress toward the achievement of global sustainability. In "opening up" education, openness embraces development and adoption. OER represent one of the main pillars of open education.

In their support framework for higher education institutions (HEI), Inamorato dos Santos, Punie, and Castaño

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Muñoz [9] proposed a wide definition of the term "open education." Their framework includes a wide definition of the term, which accommodates different uses to promote transparency and a holistic approach to practice. The framework goes beyond OER, MOOC, and open access to embrace 10 dimensions of open education. The framework can be used as a tool by HEI staff to help them make strategic decisions regarding pedagogical approaches, collaboration between individuals and institutions, recognition of non-formal learning, and different ways of making content available. Because contemporary open education is enabled mainly by ICTs, there is great potential for innovation and access, which will contribute to the modernization of higher education in Europe and globally. The framework encompasses 10 dimensions, four transversals (i.e., leadership, strategy, quality and technology), and six core dimensions (i.e., content, pedagogy, recognition, collaboration, research, and access) (see Figure 2).
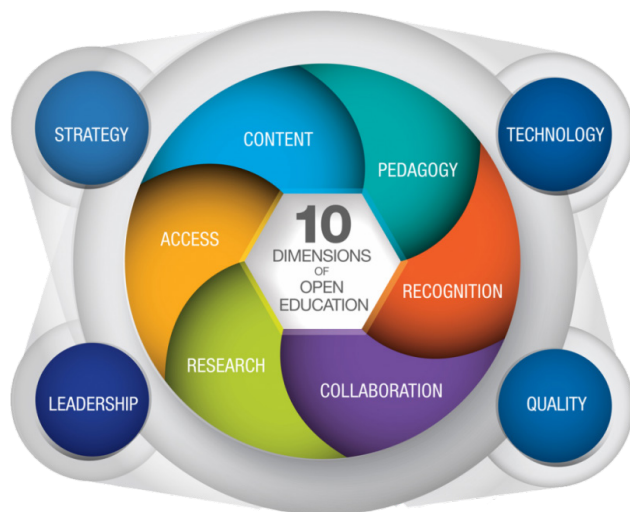

Figure 2. Support framework for higher education institutions (HEI) to open up education [9]

In opening up education, aspects of openness embrace the development and adoption of both OER and MOOC. OER and MOOC are defined and described in the following paragraphs.

An important step toward quality education and universal access to information was taken when the UNESCO General Conference adopted a recommendation on OER on 25 November 2019 [4]. This new recommendation supports the development and sharing of openly licensed learning and teaching materials, which will benefit students, teachers, and researchers worldwide. Moez Chakchouk, UNESCO Assistant Director-General for Communication and Information, stressed that the OER recommendation would contribute to building open and inclusive knowledge societies and achieving the objec-

tives of the UN Sustainable Development Goals. The recommendation encompasses five areas [4,6]:

(1) Building the capacity of stakeholders to create, access, reuse, adapt, and redistribute OER

(2) Developing supportive policy

(3) Encouraging inclusive and equitable quality OER

(4) Nurturing the creation of sustainability models for OER

(5) International collaboration and networking

Furthermore, processes and indicators of monitoring and evaluation were adopted, and a new definition of OER was adopted [6]:

OER are learning, teaching and research materials in any format and medium, which are publicly available or under copyright, published under an open license allowing free access, reuse, reuse, adaptation and redistribution by others.

The UNESCO Recommendation supports the creation, use, and adaptation of inclusive and high-quality OER products, and it facilitates international cooperation in this field. Its objectives include the development of supportive policies and the creation of sustainability models of OER [6].

During debates at the General Conference, several representatives of Member States in different regions of the world expressed their support for the UNESCO Recommendation on OER and underlined their important role in providing access to quality education on digital platforms. The key contribution of the OER Recommendation to building open, inclusive and participatory knowledge societies was echoed throughout the discussion.

Following adoption of the Recommendation on Open Educational Resources (OER), UNESCO launched the OER Dynamic Coalition on 2 March 2020 [10]. The multi-stakeholders in the Coalition aim to expand and consolidate commitments to action and strategies, as well as reinforce international cooperation among all stakeholders in the five areas of the Recommendation.

OER can be considered a form of micro-learning because they are often delivered as stand-alone modules in formal and informal learning. According to UNESCO's SDG4, OER are crucial in sustaining lifelong learning for all. OER can be used as micro-learning in employment, personal interest, self-learning, "just-for-me," "just-in-time," and "just for fun" learning. Individuals who develop personal, social, and learning skills are better prepared to face the challenges of today's society and to seize the opportunities that change brings [11]. Furthermore, UNESCO stated that they believe that universal access to high-quality education is the key to peace building, sustainable social and economic development and inter-

cultural dialogue. OER provide a strategic opportunity to improve the quality of education and facilitate policy dialogue, knowledge sharing, and capacity building [4,6,10].

A second pillar of open education is represented by MOOC, which are related to the scalability of open and online education. Research has demonstrated that every letter in the acronym MOOC is negotiable; therefore, the term can have many definitions. According to EADTU, MOOC are courses designed for large numbers of participants, which can be accessed by anyone and anywhere as long as they have an Internet connection [12]. In several EADTU projects [12], such as the HOME project (Higher education Online: MOOC the European way), the ECO project (ECO: E-learning, Communication and Open-data: Massive Mobile, Ubiquitous and Open Learning), and OpenupEd, a definition of MOOC was shared by many European partners, who agreed that MOOC are courses designed for large numbers of participants. They can be accessed by anyone anywhere as long as they have an Internet connection, they are open to everyone without entry qualifications, and they offer a complete course experience online for free [13]. MOOC are also often seen as a political instrument and hence as a concept that should be broadly defined. EADTU (re-) defined MOOC in their quality model OpenupEd, which is described in detail below, so that it clarified the differences in the implementations of open and online courses. The first O in the abbreviation MOOC refers to open. Furthermore, because MOOC were built on OER, there is a strong link between them.

Having defined open flexible online learning (OOL), OER and MOOC, the most frequently used and common quality models are described in the following sections. These three types of open education-OOL, OER, and MOOC-use quality models that are specific to each type. However, in each type of open education, some features of quality display communalities with one or both of the other types.

3.3 Description of Quality Models in OOL, OER, and MOOC

The concept of quality is one of the most frequently discussed in education. Quality in online and e-learning usually refers to "*one in which the learner has a reasonable opportunity for success in reaching their goals*" [2]. Several authors and reports in the field have argued that quality in open online education and learning is defined as "*methods that successfully help learners develop knowledge and skills that they will require in a digital age*" [2].

In this section, quality models of open online learning, including OER and MOCCs, will be described. In general, the quality dimensions of OOL apply to OER

and MOOC. However, both of the latter have specific quality dimensions, such as those that are absolute critical from the learner's point of view. In the following paragraphs, quality in open flexible online learning is discussed, followed by the most well-known and the most frequently used quality models of OER and MOOC.

3.3.1 Overview of Quality in Open Flexible Online Learning

A global research study was conducted by Ossiannilsson et al. on quality models in online and open education around the globe: "State of the art and recommendations" on behalf of the International Council for Online and Distance Education (ICDE) [2]. In this study, 40 of the most frequently used and best-known quality models of e-learning, online open learning, OER, and MOOC around the globe were reviewed and analyzed. The models' aims and rationales were analyzed, as well as their modality and application, including mature models of quality. In the report on the quality spectrum, norm-based (accreditation) versus process-based (enhancement) models were discussed, which included the entire spectra of accreditation, certifications, benchmarking, guidelines, and the issue of quality labels. A matrix of the analyzed models related to the spectra and the models was provided. Furthermore, stakeholders who had interests in the quality of open flexible online learning, OER, and MOOC were identified. Recommendations for stakeholders were included. The research showed that although many models were available on all continents, some quality indicators and quality dimensions were in common. Hence, sets of quality characteristics were presented. In all the reviewed quality models, the theoretical and practical approaches emphasized the importance of a holistic approach and the importance of placing the learner at the center. The quality indicators were considered standards, and best/next practice, especially in OOL (OER do not usually have a curriculum), were identified as being valid for OER and MOOC:

(1) Institutional support (vision, planning, and infrastructure)

(2) Course development

(3) Course structure or curriculum

(4) Course delivery

(5) Course design

(6) Teaching and learning (instruction)

(7) Student and faculty support

The model shown in Figure 3 and the study of more than 40 quality frameworks stemmed from research by Ossiannilsson [14] and were further developed in

research by Ossiannilsson [15]. Products, services, and management are the three main domains that characterize this holistic model, which contributes to obtaining and developing a quality assurance mechanism, enabling individuals' success in their learning processes. A natural consequence is that both content and technology are crucial. Moreover, processes play a significant role because they are interactive and interdependent. The learner is placed at the center of this quality model. The ICDE research study confirmed the following characteristics of this model: the learner (student) is at the center, and services, products, and management are the three main quality domains. In Figure 3, the right side of the model represents the dimensions necessary to guarantee quality assurance in open and online learning from the learner's perspective.

In addition to these indicators, dimensions based on the learner's views, demands, and perspectives were identified as follows: transparency (learners can easily see and follow activities, demands, processes in a user-friendly way, so they can orchestrate their learning pathways); motivation (intrinsic and extrinsic); participation (involvement); productivity (being collaborators and/or *prosumers*), flexibility (time, path, place, learning style, content, and device); accessibility (anytime, anywhere, with any device, and the Web Accessibility Initiative [WAI]), interactivity (learner-to-learner, learner-to-academic, learner-to-material); and personalization (related to individual's needs, desires, study paths, and learning style). Flexibility was defined and considered crucial in the quality of OOL. These dimensions were emphasized as being crucial for student success in online learning, in which learners take control in orchestrating their learning processes. Moreover, these features of quality are iterative and interrelated.
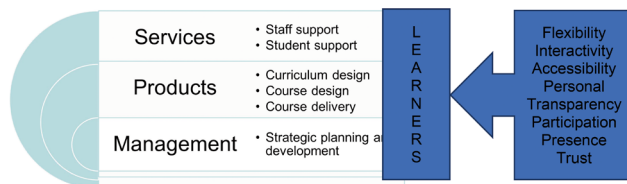

Figure 3. A model of quality in open and online learning

Ossiannilsson et al. [2] indicated that concepts of quality in OOL and education can be applied at different levels, such as the macro level (national/international), meso level (institutional), and micro level (individual practice). The review of the models in [12] addressed quality at the macro and meso levels. Less evidence of performance standards was found at the micro level, but it undoubtedly exists. For example, it is well-known that criteria for professional development and performance management are used by institutions engaged in the quality assurance of their open and flexible online learning programs. However, such quality models were developed in-house.

Because changes in the areas of open and flexible online learning, OER, and MOOC are occurring rapidly, it is necessary to have a flexible and agile approach to quality in open education. Although there are general dimensions of quality, it needs to be situational, cultural, and contextualized. In general, quality concerns the three Ps (i.e., people, products, and processes). The authors proposed that quality models require a holistic contextualized approach and a set of identified quality characteristics of quality assurance and quality enhancement, which are listed as follows:

(1) Multifaceted - e.g. Systems use a multiplicity of measures for quality and often consider strategy, policy, infrastructure, processes, outputs, and more to form a well-rounded view of holistic quality.

(2) Dynamic - e.g. Flexibility is built into systems to accommodate rapid changes in technology as well as social norms. For this reason, they rarely refer to specific technological measures and instead concentrate on services provided to users through that technology.

(3) Mainstreamed - e.g. While all the quality tools surveyed are aimed at high-level quality improvement, their benefits are intended to trickle down throughout the institution and be used in reflective practice by individual members of staff in their daily work.

(4) Representative - e.g. Quality systems seek to balance the perspectives and demands of various interested stakeholders, including students, staff, enterprises, governments, and society.

(5) Multifunctional - e.g. Most systems serve the triple function of instilling a quality culture within an institution, providing a roadmap for future improvement, and serving as a label of quality for outside perspectives.

Kahn and Ally [16] argued that quality in e-learning and online learning concerns the three Ps. Furthermore, similar to the findings in Ossiannilsson [15,21,22,24] and Ossiannilsson et al. [17], Frydenberg [17], Kahn and Ally [16], and Kahn [18] emphasized an eight-dimension framework of quality. The framework was designed to guide the process of developing content for e-learning purposes in both public and private institutions as they moved from traditional approaches to an electronic format. The eight dimensions of this e-learning framework are as follows: (1) institutional, (2) educational, (3) technological, (4) interface design, (5) evaluation, (6) management, (7) resource support, and (8) ethical (see Figure 4).

Figure 4. Kahn's quality framework [18]

Each of these eight dimensions includes a group of concerns or questions that need to be examined to assess and develop the e-skills of high-quality institutions. Kahn and Ally [16] and Kahn's [18] quality framework is shown in Figure 3. Similar to Frydenberg [17], Kear et al. [19], Inamorato dos Santos et al. [9], and Ossiannilsson [1,2,14,15], they argued that it is crucial to use a holistic ecosystem approach because the dimensions are interrelated.

In Contact North [20], the researchers argued that the quality agenda has to be rewritten and further developed by Ossiannilsson [21-24] to examine the effects of the dimensions over time on learning, careers, lifelong learning, community involvement, and benefits. Engagement is a key driver of quality, innovation, flexibility, the effective use of technology in learning, teaching, analytics, and assessment involving learners in practical applications of the content. In re-thinking the approach to quality, we should ask ourselves the following:

(1) How? How do students experience their learning?
(2) How? How do faculty experience their teaching?
(3) What? Focus on outcomes in depth.
(4) So what?
(5) Then what?

Accordingly, there are requirements to move to a much more experiential and outcome-based view of quality if it is to be the engine of transformation. Furthermore, agile approaches are needed to respond to rapid changes in the educational learning landscape. According to UNESCO Futures of Education, quality must be considered from the learner's perspective in line with the approach of learning to become [5,23].

3.3.2 Quality Models of Open Educational Resources (OER)

What does quality in OER mean? It is difficult to specify exactly what quality means in the context of OER, where traceability, accessibility, and availability are at least as important as the production values they represent. There is a difference

in the emphasis on OER sharing, as third parties are actively encouraged to reuse, recycle, and remix resources. Overtime, as OER advocates, and I argue, this will lead to higher standards. However, the problem remains that the quality of learning resources is usually determined by the following:

(1) Accuracy
(2) Reputation of author/institution
(3) Standard of technical production
(4) Accessibility
(5) Fitness for purpose

The question of trust is an important factor in the issue of quality. OER that reference Wikipedia are obvious examples. While it is possible to abuse trust in relation to OER licenses, the community aspect and the inherent iterative model provide protection in the long run. Cultural issues are identified as important in relation to whether and how people share learning and teaching resources. Different institutions, sectors, and professional communities may all have their own established practices in terms of sharing teaching methods and learning materials. Academics may feel more connected to the culture of their discipline or professional practice community than to the institutional culture. It could be argued that within the higher education sector, there is no such thing as an institutional culture because there are many subcultures, which are often linked to different institutional roles, traditions, and approaches that can be more convincing than policy and policy documents. Moreover, some traditions and practices can lead to the slow uptake of new approaches and ideas [26].

The open movement challenges individuals and groups to change their existing practices. However, in large institutions with many subcultures, uneven development is very likely. An institution-wide approach to human resource development and promotion can help to overcome some of these cultural barriers and encourage the use of OER. Some institutions may choose to engage in such activities in order to move forward [21,27,30,31].

Stakeholders in different contexts have differing perspectives on what constitutes quality in OER. However, as emphasized above, quality is very much in the eye of the beholder. The most comprehensive, best-known, and most frequently used quality model related to OER is the TIPS model, which was developed by the Commonwealth Educational Media Center for Asia (CEMCA) [27]. The acronym TIPS stands for teaching and learning process (T), information, material and content (I), presentation, product and format (P), and system, technical and technology (S).

According to CEMCA and Kawachi [27], three fields of quality can be clarified. The first two-quality as a product (content) and quality as a process-are well known. As products, OER can be released with the logo or the brand-name

of the institution that produced them with the intention to preserve and/or improve its reputation. As a process, OER metadata tags can be completed by the end-users of the OER to offer feedback and comments for the benefit of future users. However, the educational experience is much more than simply producing free online content (regardless of whether it is high-quality content). For that purpose, the TIPS guidelines are oriented to nurturing the idea of quality as a culture, which constitutes the third field. Culture is shaped and developed by people. This idea resonates with Ossiannilsson and Kahn, who argued for the three Ps [15-17,21-24]. Developing a culture of quality may be the way forward rather than advocating resources as quality products or simply promoting quality practices and quality processes. Another common way to characterize OER, which is included in the TIPS framework, is a classification that embraces dimensions that describe the function of OER:

(1) Cognitive Domain: content knowledge, content skills, and reflective critical thinking skills to be learned

(2) Affective Domain: the motivations, attitude and decision to initiate performance, learner independence and autonomy

(3) Metacognitive Domain: understanding how the task is performed, and the ability to self-monitor, evaluate and plan own future learning

(4) Environment Domain: the localization, artistic presentation, language, multimedia, interactivity, and embedded links to other content

(5) Management Domain: discoverability, tagging, including for time management, transmissibility, business models

In the TIPS model by CEMCA and Kawachi [27], the three fields of product, process, and culture, as well as the five domains are integrated using 38 criteria under the four headings comprising the acronym TIPS, as shown in Figure 5. Additionally, the TIPS guidelines are intended to facilitate a culture of professional reflection, which was described above as the third field.
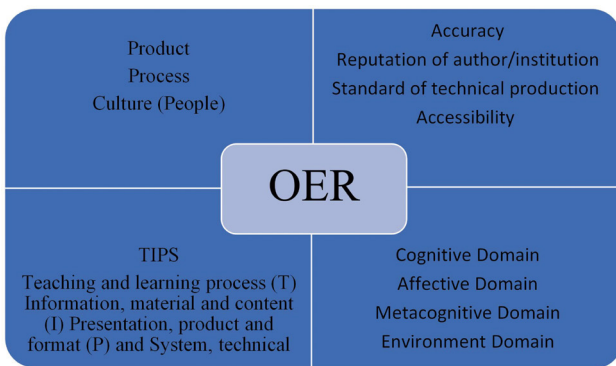

Figure 5. Free illustration of identified fields, domains, and features of the TIPS quality model related to OER developed by the Commonwealth Educational Media Center for Asia (CEMCA) [27]

Kahn's framework of e-learning has been applied to not only OER and MOOC but also micro-learning [18,28,29]. The eight dimensions of this framework are as follows: (1) institutional, (2) educational, (3) technological, (4) interface design, (5) evaluation, (6) management, (7) resource support, and (viii) ethics. It is obvious that the dimensions in this framework correspond highly to the features and domains in the TIPS framework [24].

3.3.3 Quality Model of MOOC

The EADTU's European quality benchmarking model OpenupEd offers a framework of common features in MOOC, which emphasizes learners' perspectives. The framework is not meant to be followed slavishly, as it is a benchmarking model, but it is intended to serve as a guideline for improving the quality of MOOC offerings. Because of its flexibility, some institutions and MOOC conform to the benchmarks more than others do. The framework is intended to be applied at the institutional level and in single MOOC. The background features of the OpenupEd framework of quality are intended to offer MOOC to everybody in a flexible manner that meets the needs of today's learners. The model comprises 35 benchmarks that relate to self-assessment or to external reviews required for the OpenupEd quality label. Any institution and course that meets the quality features of OpenupEd is awarded an international quality label.

The OpenupEd features guarantee that MOOC secure the fundamental values of open and free education in all societies. From the learner's perspective, OpenupEd facilitates appropriate incentives for learners to progress and succeed in learning by removing barriers such as costs and physical, mental, or requirements at entry into learning and along the learning path. As shown in Figure 6, OpenupEd is characterized by eight features:

(1) Openness to learners: free of charge, free admittance, open access, learn anywhere online, start anytime, self-paced, and diversity in languages and cultures, a spectrum of approaches and contexts, accounting for variety, and profiling.

(2) Digital openness: open sources (software), open access (scientific output), open content, and open educational resources.

(3) Learner-centered: all unnecessary barriers to learning are removed, while aiming to provide students with a reasonable chance of success in education. The focus is more on innovation in open pedagogical thinking and less on technology and platforms. Students construct their own learning in a rich environment, and they share and communicate it with others in learner-centered activities.

(4) Independent learning: providing high-quality ma-

terials and a rich learning environment to enable an independent learner to progress through self-study.

(5) Media supported learning: course materials should make use of online affordances (interactivity, communication, and collaboration) as well as rich media (video and audio) to engage students.

(6) Recognition: OpenupEd partners offer a full/complete course experience, including recognition options.

(7) Quality focus: quality assured, accredited, and European Qualifications Framework level.

(8) Spectrum of diversity: a course should be inclusive and accessible to a wide diversity of citizens. In short, it should appeal to everyone, be diverse in language and culture, provide a spectrum of approaches and contexts, and account for variety and profiling. Diversity is considered one of the key advantages of new and emerging learning technologies.
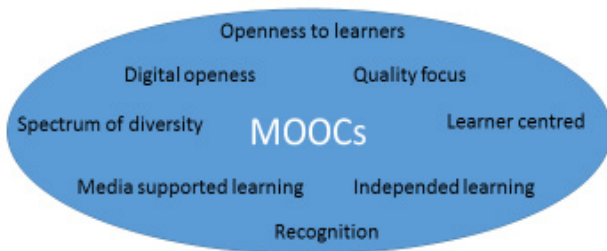
mains, dimensions, and features. In all three perspectives, the learner is at the center.

In Figure 8, OOL, OER, and MOOC are defined, and the most frequently used quality models in those areas are included. However, the quality dimensions of the models are described in general terms, and they do not necessarily focus on the learner as the core or consider the learner's perspective, even if they claim that personalization is a core quality dimension. Although personalization is important, the concept can be interpreted in at least two ways: literally and aligned with organizations' offers and services.

The learner's perspective on quality in OOL, OER, and MOOC is taken literally. Furthermore, several quality dimensions have been identified through experience and research, which are related to motivation, success, and self-determined learning [2]. In this context, success means motivation, passion, learning to learn, outcomes in the form of completion, employability, and "just-for-me" learning. Previous studies showed that if learners can take control and orchestrate their own learning and if the offers and services embed quality dimensions such as flexibility, transparency, personalization, there is a positive effect on completion rates, which unfortunately used to be a highly ranked quality indicator in traditional education and a marker of success in institution [15,21].

Figure 6. Identified features of the OpenupEd quality model related to MOOC by EADTU [12].

3.3.4 Quality dimensions of OOL, OER, and MOOC from the learner's perspective

Figure 7 presents a summary of the areas of open, online learning, OER, and MOOC and the main quality do-

As shown in Figure 8, additional quality dimensions for learners to succeed in the learning process can be identified in OOL, MOOC, and OER. Some dimensions are commonly considered quality dimensions that are crucial not only for success from the learner's perspective but also for completion rates. Unfortunately, many quality dimensions are not mentioned, considered, or explicit in the models presented above.
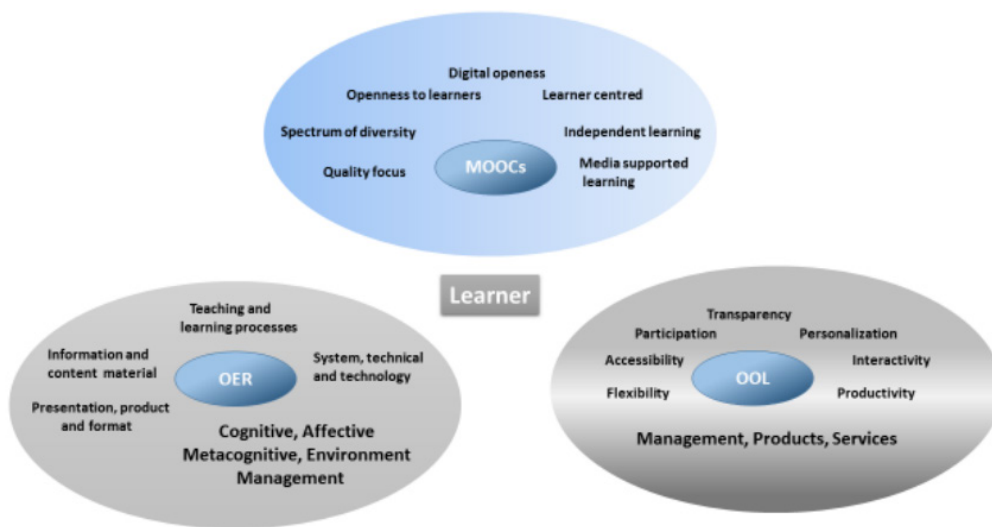

Figure 7. Summary of identified quality features in existing quality models related to the three perspectives OOL, OER, and MOOC

Figure 8. Quality dimensions from the learner's perspective on the three domains of OOL, OER, and MOOC. The common areas are identified and clustered

The common quality dimensions in OOL, OER, and MOOC from the learner's perspective are identified in Figure 6. Table 1 provides a detailed explanation of the concepts and what they relate to.

Table 1. Common Concepts in OOL, OER, and MOOC

Accessibility	Related to anytime, anywhere, with any device to Web Accessibility Initiative (WAI)
Content	Related to needs and desires; have to learn, want to learn, must learn
Fitness for purpose	Meets learners' desires and needs, just-in-time and purpose
Just-for-me	Meet learners' desires and needs, just-in-time and purpose at the right level for individual's knowledge, skills and attitudes, here and now
Just-in- time	Timing exactly when individuals have needs, motivation, passion and requirements related to work and leisure time
Motivation	Related to both intrinsic and extrinsic motivation
Passion	A powerful feeling. An extreme interest in or wish for doing something, such as a hobby, activity, and/or to learn something
Personalization	To personalize related to individual's needs, desires, study paths and style. Level of flexibility in all means
Security	Personal security, as well as technical, moral, and legal security
Quality	Quality of content, process, culture, and at all means and levels; quality assured, accreditation, certificated, peer reviewee
Recognition	Valued for time and effort spending time and energy and sometimes cost in learning settings and contexts
Trustworthiness	Trust and reliability, security, current, professional
User-friendly interface	Easy to navigate, easy overview, interactive, and intuitive

4. A Quality Model Embracing the Threefold Perspectives on OOL, OER, and MOOC

A fragmented picture of quality assurance in digital and online learning arose from the analysis presented in this conceptual research article and from the peer learning activities performed within the mandate of the WG-DOL. This article attempted to present a quality model that embraces all three main areas described above. The learner at the center, that is, at the heart of the model, symbolizes single individuals and their motivation, purpose, enjoyment, and passion for learning in open OOLs with MOOC, OER, and other open sources, which allows them to have options to become autonomous, self-directed, self-paced lifelong learners.

As shown in Figure 9, through identification and clustering, three domains of quality emerged: (1) the excellence of the open education offered; (2) the effects of the learning process; (3) the implementation from the learners' point of view in relation to the material and methods used to learn. Each domain has a set of characteristics based on and clustered from the quality models described above. Depending on the context, they can be situated and elaborated in detail. However, it should be noted that although most of the obvious quality features are included, other features, dimensions, and benchmarks might be emphasized, depending on the specific educational purpose of open education. However, any model must be flexible, which was argued in a quality research report by Ossiannilsson et al. [2], because open learning environments are changing rapidly.

Figure 9 shows a framework of quality domains in OOL, OER, and MOOC from the learner's perspective. This framework is the result of research on the most commonly used quality models in OOL, OER, and MOOC, as well as clustering quality domains, indicators, and dimensions. The quality of the product and the process from the learner's perspective has implications and consequences for *excellence, impact (Outcome)*, and *implementation*. The model can be elaborated and described as follows:

(1) Excellence is related to the comparison of the quality of a concept or an object with its peers and its maximum potential. Excellence relates not only to quality at all levels but also to efficacy, accuracy, and research. OOL, OER, and MOOC are excellent when quality not only exists at all levels but also is efficient. Moreover, offerings must allow and meet learners' expectations of equity, access, participation, collaboration engagement, passion, and motivation. User-friendliness, accuracy, affordance, fitness for purpose, and just-for-me learning are also related to excellence.

(2) Impact is related to both availability and accuracy, as well as to the measure of the extent to which an object or concept is effective. It is also related to the consequences or implications of the object or concept, the context in which it is applied, and the use to which it is put by the user. Impact also related to learning outcomes, equity, access, participation, collaboration, availability, and accuracy. There is an impact if learners experience access, availability, usability, and accuracy in their learning process. The levels of just-in-time and just-for-me learning are valid as high-impact factors. Similarly, recognition, self-esteem, and opening up new possibilities for life and employability are highly valid factors.

(3) Implementation is related to efficacy, fitness for purpose, services, and recognition. Implementation is also related to just-for-me learning.

Figure 9. Framework of quality domains in OOL, OER, and MOOC from the learner's perspective

Embracing and embedding learners' perspectives on quality in OOL, OER, and MOOC are important for organizations and institutions if they take personalization seriously by creating learner-centered educational settings, learning arenas, research, offers, and services. Embedding learners' perspectives on quality means that they can increase their own levels of quality and expand in relation to excellence, impact, and implementation. For organizations, excellence and outstanding performance can be related to enhancing quality at all levels. For stakeholders, quality can be related to efficacy, accuracy, and research. For organizations, im-

pact is related to both availability and accuracy. Impact is also related to visible and sustainable outcomes, innovation, and change for others and society, which is often related to high ranking. Considering the learner's perspective on quality implementation from the beginning could serve to embed quality dimensions that positively affect learners' access, engagement, efficacy, fitness for purpose, equity, and inclusiveness. By implementing this approach, organizations can increase excellence for all learners, markets, and societies worldwide.

Figure 10 shows the framework of quality domains in OOL, OER, and MOOC from the organization's perspective. The framework is based on the quality models in OOL, OER, and MOOC and through the clustering of quality domains, indicators, and dimensions. The model can be elaborated for organizations to suit their aim and business model:

(1) Excellence is related to comparison of the quality of a concept or an object or to its peers and to its maximum quality potential. Excellence is related to quality at all levels and all stakeholders, as well as to efficacy, accuracy, and research.

(2) Impact is related to both availability and accuracy, as well as to the extent to which an object or concept proves effective. Impact is related to consequences or implications for the nature of the object or concept itself as well as the context in which it is applied and the use to which it is put by the user. Impact is also related to learning outcomes, equity, access, participation, collaboration, availability, and accuracy.

(3) Implementation is related to efficacy and the fitness for purpose of the object and concept being assessed. Implementation is also related services, cost, strategy, recognition, pedagogy, technology, and leadership.

Figure 10. Framework of quality domains in OOL, OER, and MOOC from the organization's perspective

5. Discussion and conclusion

This conceptual research article addresses peer learning

activities performed within the work of WG2 DOL, output 2 on the quality assurance model for open and innovative learning environments, its impact on specific assessment frameworks, and its implications for EU recognition and transparency instruments. Through the identification of the most well-known and used quality models in the areas of OOL, OER, and MOOC, their concordance, and the identification of stakeholders and their individual and common interests, a tentative quality model was identified based on the learner's perspective and hence the organization's perspective. Organizations must review quality through the lenses of the learners.

In summary, quality in OOL, OER, and MOOC can be described and discussed at differing levels and from several perspectives. Several models of quality in OOL, OER, and MOOC have been applied. However, as discussed in this conceptual article, common core quality dimensions are crucial from the learner's point of view, which must be considered in discussing and defining quality. In opening up education, there are greater possibilities for and demands on increased personalization and *just-for-me learning*. Additionally, different stakeholders have different rationales, purposes, and interests. Moreover, they do not always have the same values regarding quality. Three main domains were derived from this overview of quality models, stakeholders' perspectives, and the learner-centered approach, which are crucial to consider for both learners and organizations: *excellence, impact, and implementation*.

Further research could focus on changes in learning landscapes, such as those caused by the pandemic in the spring of 2020 [22,32,33,34,35]. Additional topics recommended for further research are the future of education [5,22] in preparation for the changing learning and educational agenda, and the upcoming paradigm of *the new normal*, in which learner is firmly at the center and agile leadership and management approaches are required.

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