A multidimensional and analytical perspective on Open Educational Practices in the 21st century

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Participatory approaches to teaching and learning are experiencing a new lease on life in the 21st century as a result of the rapid technology development. Knowledge, practices, and tools can be shared across spatial and temporal boundaries in higher education by means of Open Educational Resources, Massive Open Online Courses, and open-source technologies. In this context, the Open Education Movement calls for new didactic approaches that encourage greater learner participation in formal higher education. Based on a representative literature review and focus group research, in this study an analytical framework was developed that enables researchers and practitioners to assess the form of participation in formal, collaborative teaching and learning practices. The analytical framework is focused on the micro-level of higher education, in particular on the interaction between students and lecturers when organizing the curriculum. For this purpose, the research reflects anew on the concept of participation, taking into account existing stage models for participation in the educational context. These are then brought together with the dimensions of teaching and learning processes, such as methods, objectives and content, etc. This paper aims to make a valuable contribution to the opening up of learning and teaching, and expands the discourse around possibilities for interpreting Open Educational Practices.

Openness in (Higher) Education

Behind the concept of openness lies a complexity that has not yet been examined more precisely for the educational context (Hodgkinson-Williams and Gray, 2009, p.114). Openness is understood as a pluralistic notion encompassing many open practices and trends (Open University, Open Science, Open Technology, etc.), as well as concepts (diversity, inclusivity, transparency, participation) (Koseoglu and Bozkurt, 2018, p.14).

In this context, Open Education (OE) stands for an emerging paradigm that focuses on the relationship between education and information technologies and, in doing so, opportunities for sharing tools, materials, and practices in the digital environment with the aim of improving the access to, effectiveness of, and equity in education (Lane, 2009; Chiriac, 2018; Nusbaum et al., 2020). This is based on the assumption that internet-enabled tools and systems, in principle, allow any individual free access to content and resources regardless of institutional boundaries, time, and place. The general prerequisite, however, remains that everyone has access to these tools, as well as the corresponding skills to handle them confidently. For instance, at the macro-level, universities can open up as institutions by offering courses of study featuring hybrid formats that are not only tied to a physical location and time (Open University). Further, open-license educational materials can be shared online and further developed globally (OER). In the wake of new collaborative tools, learners can become more involved in the design of educational practices, such as through feedback apps or digitally supported peer-review processes (Padilla-Zea et al., 2022). Thus, OE as a term also encompasses another understanding of the relationship between teachers and learners (Cronin and MacLaren, 2018). The new possibilities for teaching, learning, and assessment practices, which are summarized under the term "Open Educational Practices" (OEP), go beyond the free design of content and raise a number of new questions, especially in relation to the design of learning environments (Caswell et al., 2008; Knox, 2013; Chiriac, 2018).

This paper seeks to advance the discourse on OEP by presenting an analytical framework for Participatory Educational Practices (PEP). To this end, it narrows down the concept of openness and focuses the discussion on the term "participation." Openness and participation are closely related in the literature and are even referred to as "key areas for the transformation of education" (Wiley and Hilton, 2009, p.8; Costa et al., 2018; Fahrer et al., 2022, p.9). The analytical framework, composed of two levels, is intended to assess participatory teaching and learning processes. First, it presents the forms of participation in the interaction between teachers and learners. Second, the components of teaching and learning processes that can enable participation are described and specified in terms of their characteristics. Following its development, this analytical framework was evaluated in a focus group discussion and further refined. Before introducing the analytical framework in more detail, sections 2 and 3 take a look at the existing research and framework models on OEP and participation on which I base my theoretical-conceptual work.

Open Educational Practices

An increasing number of publications on OEP shows the growing importance of the topic in the research discourse (Koseoglu and Bozkurt, 2018). From Koseoglu and Bozkurt's literature review conducted in the period from 2007 to 2017, it is clear that the research around OEP is quite extensive and multidisciplinary (Koseoglu and Bozkurt, 2018). For example, in the 53 publications identified, the discourse revolves around various topics such as the design of open teaching, open assessment and review processes, open platforms and architectures, and the use of open-source software. This multidimensionality involved in the notion of practices is also evident in Mays (2017) model of an open ecology. The model is used to describe OEP in terms of the culture of openness and is divided into different development levels of individual learning resources, open methods of teaching and learning, and open educational practices (Mays, 2017, p.394). Accordingly, OEP is a process-oriented approach that offers many dimensions of openness to teaching and research (Koseoglu and Bozkurt, 2018, p.15) and includes "active engagement of learners in participation and dialog, as well as further critical exploration of the relationships between technology and education" (Knox, 2013, p.21). Bellinger and Mayrberger (2019) obtained similar findings in their systematic literature review of the OEP concept in higher education. Despite the multidimensionality of the practice concept, two basic perspectives can be identified in the literature: The first interpretation is very closely connected to the concept of OER. The second is a perspective oriented around the pedagogical concept of open pedagogy (Hegarty, 2015), which does not necessarily presuppose OER for OEP (Bellinger and Mayrberger, 2019). With the notion of open pedagogy, questions of power relations involved in the openness concept are also critically appraised (Cronin and MacLaren, 2018; Koseoglu and Bozkurt, 2018). One can therefore start from either a narrower or a broader understanding of the term. Similarly, Cronin (2017) distinguishes between

these two perspectives and comes up with one inclusive definition:

> Collaborative practices that include the creation, use, and reuse of OER, as well as pedagogical practices employing participatory technologies and social networks for interaction, peer-learning, knowledge creation, and empowerment of learners (Cronin, 2017, p.4).

OEP, then, represents pedagogical practices that allow learners to participate and have a greater say both with and without the use of OER. In this sense, the question arises to what extent OEP as learning practices in higher education are closely related to a digital participatory culture (cf. Costa et al., 2018; Fahrer et al., 2022, p.9). In OEP, students are not understood as products of educational institutions, but as active co-creators and potential innovators in an open educational space (Sporer and Jenert, 2008). Both teachers and learners should see themselves as innovators of their own learning environment. This perspective goes beyond the provision of open teaching and learning materials, which is why the mandatory linking of OER with OEP is just one possible interpretation (cf. Cronin, 2017; Fahrer et al., 2022). While the concept of OEP has historically grown out of the context of OER development, it has evolved into a multidimensional construct with unclear boundaries. OEP can be understood as an overarching term that brings together all the different dimensions of educational openness while focusing on processes (Naidu, 2016; Koseoglu and Bozkurt, 2018). The current research uses this broader conceptual understanding that goes beyond the connection to OER to then focus on the micro-level of higher education in the field of teaching and learning, comprised of student and staff interactions (Zentel et al., 2004; Vaugh et al., 2022). Starting from this point, the discourse can be further extended to the socio-cultural structure in higher education institutions (HEI), including departments and their interaction with one another (meso-level) and HEI's strategy, governance, policies, and culture (macro-level) (Zentel et al., 2004). These considerations build on existing research, which will be briefly introduced below.

The first maturity model to guide OEP in organizations was developed by Andrade et al. (2011). The model aims at helping key stakeholders to improve OEP in organizations by providing a mechanism for individuals or institutions to benchmark themselves in terms of their current OER practices and consequently develop a vision and plan for implementation (Andrade et al., 2011). Thus, these authors understand OEP in close connection with OER. Their matrix is divided into two axes: OER usage and learning architectures (Andrade et al., 2011, p.4). In their understanding, learning architectures are innovative pedagogical models that respect and empower learners step by step as co-producers on their own learning paths, e.g., when defining objectives or methods.

Andrade et al. (2011) divide the dimensions of pedagogical practice and OER usage into three degrees of openness: low, medium, and high (Andrade et al., 2011, p.4). According to this maturity model, a high level of OEP is realized when a high level of openness in both the design of learning architectures and OER usage is achieved (Andrade et al., 2011, p.4). In contrast, a high degree of pedagogical openness without extensive use of OER would result in an interactive, autonomous learning context. This model provides a valuable starting point for the design and analysis of open teaching and learning scenarios. However, the maturity model does not refer to the roles of teacher and learner, nor to collaborative practices (cf. Coughlan and Perryman, 2015). The model developers do, nevertheless, give hints in this direction, for example, by discussing a high degree of openness when learning objectives and methods are determined and controlled to a great extent by learners (Andrade et al., 2011, p.5). This understanding takes the discussion in the direction of learner self-direction and considers the instructor in a supportive, tutorial role. Moreover, the above-described understanding of OEP is again very closely tied to the OER discourse and remains very general in its description of open learning architectures, limiting itself only to learning goals and methods. As already explained, the creation and use of OER can be part of OEP. However, the discourse can be opened up further by looking at the design of multidimensional learning settings and the learner's role and decision-making power. OER is one potential interpretation of OEP. However, looking at this dimension alone undermines the potential of opening up education to be viewed in a broader context. For this reason, a number of authors are striving for a broader conceptual understanding of OEP that moves away from OER by itself to a holistic approach instead (Weller et al., 2015; Kimmons, 2016; Huang et al., 2020). A more practice-oriented framework for OEP is lacking (Fahrer et al., 2022). This paper addresses this research gap. The concept of openness is concretized along with the term 'participation,' as it emerges as a common thread while going through the publications on OEP (Fahrer et al., 2022) and is related to a multidimensional understanding of teaching and learning processes.

Participation in Education

One notion of participation that is still used particularly at the level of democratic theory and politics is also increasingly gaining momentum in the educational context. As early as the beginning of the 20th century, English educator and philosopher John Dewey emphasized the importance of children having a say in their education and developing into mature subjects under democratic principles (Dewey, 1903). Nevertheless, participatory approaches to teaching and learning are experiencing a new lease on life in the 21st century as a result of the rapid development of information and communication

technologies in the wake of digitization. With the help of a representative literature analysis, the current research seeks to investigate how the concept of participation in education is defined nowadays, and which models already exist for a more detailed differentiation. The representative literature analysis, conducted *via* the Google Scholar database, was determined by the following two questions:

1. How is the term 'participation' defined in an educational context?
2. What conceptual or empirically-based approaches, models or matrixes already exist to classify participation?

A search was conducted for literature published between 1980 and 2022 while following the scheme according to Schad and Jones (2019) (see **Table 1**). A total of 119 papers published in the English and German were identified from the titles and abstracts. After reading all the material, 53 articles were finally filtered to address the questions formulated above.

A closer look reveals that there is still no clear definition for the term 'participation,' although learner participation is not a new phenomenon and is increasingly becoming an important topic in (digital) higher education (Piškur et al., 2014; Healey, 2016; Fredericksen et al., 2019). It can be summarized from various sources that the concept of participation usually is used to refer to a kind of self-determined participation or involvement in a higher-level process, the outcome of which is significant for a group in which the person is involved (Shirk et al., 2012, p.3; Robra-Bissantz et al., 2017, pp. 462–464; Levasseur et al., 2022). This also emerges from Lave and Wenger's (2008) understanding of participation, which entails an interaction between two or more individuals who are in—or have a part in—a process of being engaged in a decision-oriented activity. The representative literature analysis reveals

two main concepts used to capture the notion of participation, namely political and social participation (Gabriel and Völkl, 2005, p. 529f; Derecik et al., 2013, pp.43–77; Piškur et al., 2014; Levasseur et al., 2022).

Political participation

Political participation is understood to describe all the ways in which people can influence key decisions made within the political system (Zaslove et al., 2021). Possibilities for direct or indirect influence can include elections, protests or referendums. The original concept for analyzing power relations is the Ladder of Citizen Participation, published by Sherry R. Arnstein in 1969 (Arnstein, 1969). With it, she developed a model aimed at classifying citizen participation processes. Arnstein's ladder of citizen participation originally consisted of eight stages, from manipulation (lowest stage) to citizen control (top stage), and has been taken up by various authors including Bovill and Bulley (2011) and further developed for the educational context, also explicitly for curriculum design in higher education (Bovill and Bulley, 2011; Mayrberger, 2019). Bovill and Bulley's (2011) ladder of student participation in curriculum design shows how each stage changes learner participation. The lowest of the eight stages involves total control and decision-making power on the part of the tutor. This dominance is progressively removed, so that by the highest rung in the ladder learners' control or exert significant influence over decision making (**Figure 1**).

According to this understanding, the top level of participation is where learners exercise sole control and the tutor is absent. Bovill and Bulley argue, that the last level seems unrealistic in the higher education context, where

TABLE 1 Process of representative literature review (cf. Schad and Jones, 2019, p. 4).

| 1.	Aim	1. The definition of participation in general and in the (higher) education sector
		2. The identification of conceptual or empirically based approaches for determining or classifying the forms of participation in general and in the (higher) education sector
2.	Search strategy/terms	Participation AND Definition, Participation AND Definition AND Education, Participation AND Dimension, Participation AND levels, Participation AND Models, Participation AND Dimension AND (higher) education, Participation AND Level AND (higher) education
3.	Inclusion criteria	Conceptual, theoretical, and empirical articles in the formal education field, full-text (available), scientific articles, English or German language, general definitions, and specifically in the formal education context
4.	Exclusion criteria	Forms of intra-party participation, referring to a specific field outside of formal education such as poverty reduction, health care, or the elderly, publications of bachelor's and master's theses
5.	Data extraction	1. Read title and abstract
		2. Applicable articles are filtered and read
		3. Relevant information is recorded
6.	Data synthesis	Different definitions of participation as well as levels of consideration, approaches, and discourses are extracted.
7.	Report	Results analyzed and summarized to demonstrate the theoretical-conceptual research performed on participation in education.
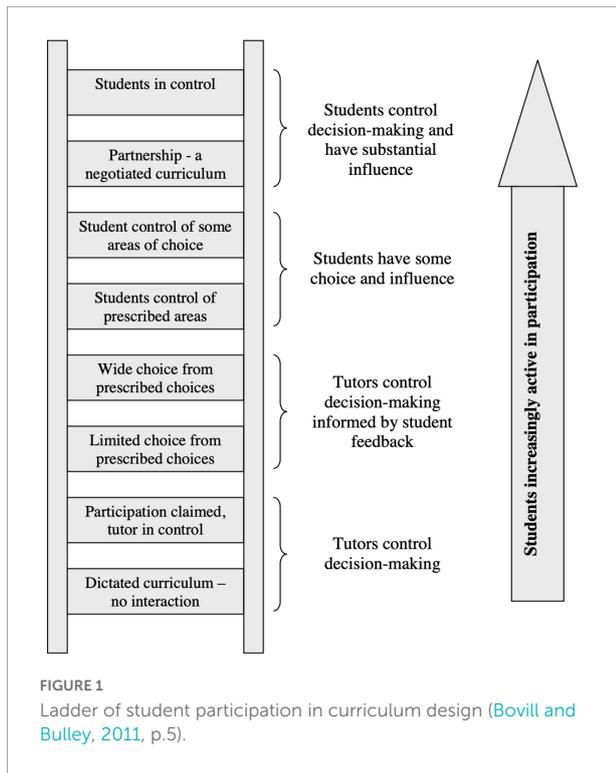
FIGURE 1
Ladder of student participation in curriculum design (Bovill and Bulley, 2011, p.5).

instructors retain at least some degree of co-determination. However, this ladder of student participation provides an initial basis for visualizing the different levels of student participation in curriculum design. A similar ladder model was developed by Mayrberger (2019) in her work on higher education design under the conditions of digitalization. In her model, the highest of the nine stages likewise entails full autonomy, which goes beyond participation. Here, actors have complete freedom of decision making and responsibility for the design process. Other actors are merely informed about the final decisions. Mayrberger also adds concrete examples in her explanation and says that 'non-participation' is rather unlikely in higher education teaching, as learners are mature individuals (Mayrberger, 2019, p. 102).

Social participation

Another line of discussion around the notion of participation focuses on the term 'social participation.' The term has been discussed since the 1960s, but still lacks a universally valid definition (Piškur et al., 2014). Fundamentally, social participation encompasses what is usually public (outside the private sphere), i.e., collective involvement in activities that allow for interaction with the community without direct political motivations (Levasseur et al., 2022). This description still leaves much room for interpretation, as it remains unclear, for example, how the private and public spheres can be distinguished from one another. Social activities can, for example, relate to health care (Piškur et al., 2014) or to education and training, and thus relate to interaction with the community in the private sphere as well. Nevertheless, social participation is described as a negotiation process in which two or more people are involved, and which takes place in social life outside of political decision-making processes in democratic systems (Derecik et al., 2018, p. 26ff.). Based on this understanding, Blandow et al. (1999) developed a stage model of participation for the education sector that considers teachers and learners as central actors in decision making (Blandow et al., 1999; Figure 2).

From their perspective, participation (level IV) is when both teachers and learners reach a decision together, such as to admit a new student to the institution (Blandow et al., 1999, p.58). They understand participation as the right to control. Stages II, III, V, and VI are described as preliminary stages of participation. Stages I and VII do not constitute participation according to their understanding (Blandow et al., 1999, p.59). Both Bovill and Bulley (2011) and Blandow et al. (1999) interpret participation as a decision-making process. Although their distinction centered around the right to control seems rather formal and not exhaustive for an all-encompassing understanding of participation, this classification serves as an initial examination of the relationship between the two groups of interest, here teachers and learners. This is in line with the general definition of participation, which describes an interaction
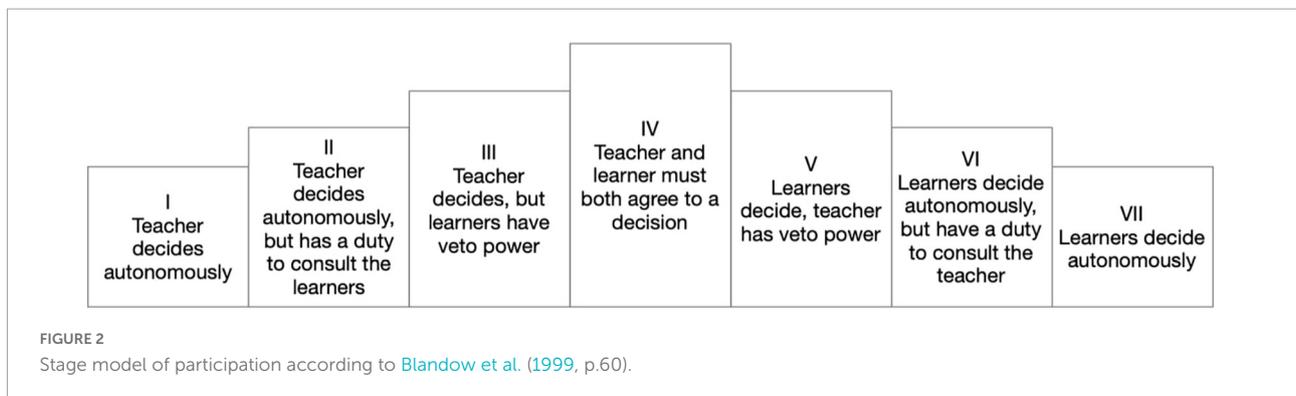

FIGURE 2
Stage model of participation according to Blandow et al. (1999, p.60).

between two or more individuals involved in decision making.

The concept of Students as Partners

The students as partners (SaP) concept can be examined for an even better understanding of social participation. With SaP, the polarity of teachers and students is broken down and further developed through a partnership understanding that entails respectful, mutually supportive interaction in all aspects of educational work (Matthews, 2017; Matthews et al., 2018). This teacher and learner partnership is seen as a "collaborative, reciprocal process through which all participants have the opportunity to contribute equally, although not necessarily in the same ways, to curricular or pedagogical conceptualization, decision-making, implementation, investigation, or analysis" (Cook-Sather, 2014, pp.6–7).

The SaP concept is not limited to teachers and learners, but also includes university staff and external partners. This emerges from a systematic literature review by Mercer-Mapstone et al. (2017, p.19), among others. A broadly conceived partnership concept breaks down old role models and institutional boundaries and is thus particularly compatible with the open education approach. In contrast to student engagement, which emphasizes students' actions, in SaP the focus is on what students and staff do together to accomplish common educational goals (Mercer-Mapstone et al., 2017, p.2). Staff and students are positioned as co-learners who take shared responsibility for learning and teaching (Harrington et al., 2014). Thus, SaP can be understood as a reciprocal process of renegotiating traditional role models, power arrangements, pedagogy, and ways of working in higher education (Rodríguez-Triana et al., 2017). Similar to the work of Blandow et al. (1999) in the concept of SaP, participation is understood as a joint decision-making process in which the design of educational practices is commonly discussed and all actors involved have control rights.

Since both formal and informal education has an impact on political participation (e.g., in the form of political opinion formation or voter turnout), social and political participation cannot be thought of separately. For a functioning democracy, it should also be a central concern of (higher) education to help learners become responsible individuals in society through, for example, more participatory elements in teaching and learning settings.

The dimensions of teaching and learning processes

In order to further examine participation in teaching and learning, it is necessary not only to have a comprehensive understanding of the term and certain stage models, but also

to reference a particular context. To identify the particular aspects of students' opportunities for co-determination, the various dimensions of teaching and learning processes shall be described and differentiated in more detail below. Teaching and learning processes fall within the scope of didactics and teaching and learning research (Riedl, 2010; Leppink, 2020). They are examples of instruction with a superordinate character, in which the different perspectives of the actors involved in a learning unit are taken into account and the individual structural elements of instruction are brought together (Lachman, 1997; Gloerfeld, 2020, pp.62–63). Here, in terms of scope, the teaching and learning processes in higher education can refer to a 2-h seminar, an entire semester module, or even a full course of study.

The categories elaborated by Christina Gloerfeld (2020), developed within the framework of an extensive theoretical and empirical research process, are used as the basis for a more precise differentiation between participatory teaching and learning processes in higher education. Working with a wide variety of theoretical models and positions in didactics, she has developed a framework model for the analysis of didactic changes in (distance) studies (Gloerfeld, 2020, p.6). She puts the six essential models of didactics along with their characteristics and functions into context in a detailed manner. From this starting point, she then uses them to justify an analytical framework model for the analysis of didactic changes in the course of digitization.

Basically, her analytical framework consists of eleven categories: 1. teacher, 2. learner, 3. objective, 4. methods, 5. media, 6. content, 7. assessment and control, 8. relationships and social interactions, 9. disruptions, 10. context conditions, and 11. participation and involvement. Similar components for teaching and learning can also be found in the transactional model of college teaching according to Dees et al. (2007) and the constructive alignment according to Biggs (1996), albeit not as detailed or in a slightly modified form. Of the eleven dimensions mentioned by Gloerfeld (2020), the present study focuses on the following: 1. objective, 2. content, 3. methods, 4. media, 5. context, 6. result, and 7. evaluation. In Gloerfeld's model, participation and involvement make up a separate dimension. Since the present study understands participation as a notion of overarching epistemological interest and as a decision-making process between teachers and learners, it omits the dimensions of participation and involvement, teachers, learners, and relationships and social interactions. Furthermore, it omits the dimension of 'disruptions' from further consideration, as this is rather an external factor influencing the learning and teaching process and is not actively desired or caused by actors (cf. Dohaney et al., 2020). Besides 'objectives,' it adds 'results' as a point of analysis because they help to distinguish between the intended and obtained learning outcomes (cf. Harden, 2002). In this study, "assessment and control" are summarized following Gloerfeld (2020) as 'evaluation,' which takes a broader reflection on the appropriateness, goodness, validity, etc.,

TABLE 2 The dimensions of teaching and learning and their characteristics.

Dimension	Definition	Characteristics (examples)
Objectives	Learning objectives summarize the knowledge and skills that are to be achieved and assessed at the end of a learning unit (Harden, 2002). Learning objectives are a means of making transparent the expectations for content and performance on the part of the stakeholders involved in a learning unit (Faulconer, 2017).	• Cognitive, affective, and psychomotor learning objectives (Bloom, 1956; Anderson and Krathwohl, 2001); • Generic and subject-related objectives (Harden, 2002)
Results	Learning results do not focus on the learning occasion but on the student's performance. Learning outcomes therefore provide information about what the student can or should know, understand or create after completing a learning phase (Arbeitstelle für Hochschuldidaktik, 2008; Bergstermann, 2013)	• Knowledge (the student knows.), • Skills (the student masters method x) and • Competences (the person is able to take a certain position or perform activity) (Amtmann, 2012, p.50–61).
Methods	Learning methods describe the way of acquiring knowledge (Prince and Felder, 2006)	• Deductive (e.g., lecture) and • Inductive (e.g., project and or problem-based) methods (from theory to practice and vice versa); • Mixed forms (Prince and Felder, 2006)
Content	Content is equated with knowledge and information that is used to achieve the learning objectives.	• Declarative knowledge, which comprises facts and principles within a certain domain (Know-about); • Procedural knowledge, in which knowledge is conveyed about how something is realized (know-how, • Causal knowledge (know-why) and situational or conditional knowledge, which has a contextual reference (know-when or -with) (de Jong and Ferguson-Hessler, 1996; Alavi and Leidner, 2001; Anderson and Krathwohl, 2001)
Context(s)	Conditions that directly and indirectly influence the teaching and learning process (Gloerfeld, 2020, p.258).	• Spatial, formal, legal, and personal conditions of teaching and learning (Gloerfeld, 2020, p.258, Dees et al., 2007, p.132)
Media	Learning media basically convey signs (e.g., letters or pictures) between the subjects involved with the aim of ostensibly storing, transmitting or presenting information to the learner(s) (Horz and Ulrich, 2015, p.26).	• Physical (hardware) and non-physical (software) tools (Puspitarini and Hanif, 2019; Würffel, 2021); • Primary (painted pictures), secondary (books), tertiary (podcast, radio), and quaternary media (media that use computer and network technologies e.g., Living Documents, learning apps) (Krutz et al., 2006; Horz and Ulrich, 2015)
Evaluation	The evaluation serves as a reflection of the teaching and learning process and outcome.	• Self-monitoring, teacher-monitoring (Rodríguez-Triana et al., 2017); • Summative (project reports, assignments or written and oral performance tests) and formative assessment (e.g., Q&A sessions) (Kennedy et al., 2008; Taras, 2008; Dixson and Worrell, 2016)

of teaching and learning into account and includes reliable forms of assessment and control (Kizlik, 2012). The seven described dimensions are defined based on a representative literature search and supplemented by possible characteristics or subcategories (**Table 2**). For instance, objectives are defined as knowledge and skills that are to be achieved and assessed at the end of a learning unit (Harden, 2002). They are used as a means of making transparent the content- and performance-related expectations of the actors involved in a learning unit (Faulconer, 2017). Objectives can be further divided into cognitive, affective, and psychomotor learning objectives (Bloom, 1956; Anderson and Krathwohl, 2001), or generic and subject-related objectives (Harden, 2002).

Analytical framework for Participatory Educational Practices

In order to further stimulate the discourse on OEP and make it easier to investigate participation in the educational setting,

the analytical framework on participatory teaching and learning processes was developed. The analytical framework is based on an understanding of participation in which as many decisions as possible are made in a joint process between teachers and learners regarding the curriculum design, such as goals, methods, media, content, evaluation etc. Thus, if the decisions on the design of the teaching-learning unit are made solely by the teachers or by the learners, there is little or no participation. Depending on the learning objectives, target group, methods, context conditions, etc., the actors involved must see how co-creation is possible and useful. It must be emphasized that it is not always desirable to involve both teachers and learners in the design of all dimensions of a teaching and learning setting (cf. Bovill, 2017, p.4). It may well be that students welcome situations where learning objectives are already set by lecturers at the beginning of the teaching and learning process, thus providing a clear orientation for the learning process. In particular, learners with little previous experience can be overwhelmed by too much right to control, as they are used to learning in a different way (cf. Mercer-Mapstone et al., 2017,

p.17). With this in mind, the aim of this framework is not to evaluate participation and non-participation either positively or negatively, but to highlight areas in teaching and learning processes where a possible space for participation can be created. Accordingly, this scheme can be used as a basis primarily for the purpose of analyzing qualitative data (e.g., learning diaries, lecturer interviews or field studies) in order to identify OEP and, based on this, to further develop it conceptually-theoretically and methodologically. For example, further research can reflect on how the degree of co-determination in teaching and learning affects the outcome, or which methods are particularly suitable for designing participatory teaching and learning processes.

In the first step, the matrix serves to systematically describe the didactic concept. In the second step, the extent to which students are involved in the design of the learning setting can be investigated. Thus, the framework consists of two levels similar to the work on the participation matrix by Bovill (2017):

1. the form of participation on the x-axis according to Blandow et al. (1999) as a starting point.
2. the dimensions for describing teaching and learning processes in the digital age on the y-axis according to Gloerfeld (2020).

Bovill (2017) focuses on project work and the associated different project phases (stages of action research) that a group of learners goes through (Bovill, 2017, p. 3). In contrast to Bovill (2017), the present study goes one step further and not only focuses on the phases of project work, but also takes a holistic look at the teaching-learning setting and makes the different curriculum design dimensions transparent. Based on comprehensive research and previous explanations, the present study uses the stage model of Blandow et al. (1999) as a starting point for the analytical framework. Unlike the ladder of student participation in curriculum design according to Bovill and Bulley (2011), Blandow et al. (1999) clearly emphasize that learner autonomy is not synonymous with participation. Similar to the concept of participation, learning autonomy as "the ability to take charge of one's learning" (Holec, 1981) comes in different forms, which is why it cannot be treated as an absolute concept (Thanasoulas, 2000). Learner autonomy can be the goal of participatory teaching and learning processes or positively influence the shared decision-making process (Babbe and Bagge, 2013, p.38; Holec, 1981). There is no question that the two terms are directly related. However, learner autonomy is about becoming aware of and recognizing one's strategies, needs, and goals as a learner, and having the opportunity to rethink and redesign approaches and procedures for optimal learning (Thanasoulas, 2000). Learner autonomy can thus be seen as a starting point or prerequisite for participatory learning, or an ideal that can be achieved. The term 'learning autonomy,' however, still refers more to the individual and moves away from a collaborative decision-making and design

process among different interest groups (Thanasoulas, 2000). Blandow et al. (1999) in their stage model more precisely describe the actors involved — teacher and learner — and their possibilities to exert influence (e.g., veto power). The continuum of participation forms ranges from teacher autonomy to learner autonomy (Blandow et al., 1999, p.58–59). The aim of participatory teaching and learning becomes clear, namely the joint negotiation process between teachers and learners (full participation). The first and last forms of participation in which teachers or learners decide completely autonomously on the curriculum design, do not represent participation in this model (no participation), because no joint negotiation processes take place. The remaining forms of participation are considered as preliminary stages of participation, since either teachers or learners are partially involved in the decision making (low to medium participation). The other group is then included in the decision or has the right to veto, but the decision-making authority still only lies with one of the two groups.

The stage model of Blandow et al. (1999) serves as a good starting point for a broader classification, but it remains unclear which aspects reflect students' possibilities for co-determination. Consequently, in the second step, the dimensions of teaching-learning units and forms of participation are brought together in an analytical framework (Table 3).

The areas in which teaching and learning processes can be jointly designed, become visible with this analytical framework. For example, teachers can specify the learning objectives and content, but decide together with the learners how the learning unit can be implemented methodologically and with which media. In addition, the teacher could share the evaluation process with the students and they could give feedback. Teaching and learning processes can thus be realized in different forms of participation. Teachers can reflect on the participation opportunities in their teaching and, if necessary, open them up further under appropriate formal conditions. They can share their didactic concepts with others, both teachers and learners, and develop them together.

The analytical framework can therefore be used for both preparing and evaluating lessons. It can also be used to analyze qualitative text material in relation to a participatory approach to teaching and learning. It provides an instrument as a basis for identifying OEP or for further development in other domains of higher education, such as interaction in peer groups (student-student, teacher-teacher, teacher and other university staff) or forms of student engagement in committees (meso- and macro-levels).

In the analytical framework, the term "form" was intentionally used instead of "stages of participation." The visualization as a ladder gives the impression of having to master one stage after the other in order to reach the goal of participation. In formal higher education in particular, it is

TABLE 3 Analytical framework for Participatory Educational Practices 1.0.

	No participation	Little to medium participation		Full participation	Little to medium participation		No participation
Forms of participation	**Teacher decides autonomously**	**Teacher decides autonomously but has a duty to notify the learners**	**Teacher decides, but the learners have the right of veto**	**Teacher and learners both have to agree to a decision**	**Learners decide, but teacher has the right of veto**	**Learners decide autonomously but have a duty to notify the teacher**	**Learners decide autonomously**
Learning objectives	Teachers decide autonomously on the lectures' learning objectives.	Teacher decides autonomously on the lectures' learning objectives, but gives learners a feedback option.	Teacher defines the learning objectives, but the learners can veto them so that the learning objectives can be discussed again.	Consensus is needed between teacher and learners in setting learning objectives.	Learners set the learning objectives, but teacher can veto them so that the learning objectives are discussed again.	Learners decide autonomously on the learning objectives pursued in the learning unit but give teacher the opportunity to provide feedback.	Learners decide autonomously on the learning objectives.
Learning outcomes	Teacher decides autonomously on the lectures' aspired learning outcomes.	Teacher decides autonomously on the lectures' aspired learning outcomes but gives learners a feedback option.	Teacher defines the aspired learning outcomes, but the learners can veto them so that the learning outcomes can be discussed again.	Consensus is needed between teacher and learners in defining the learning outcomes to be achieved.	Learners determine the learning outcomes they want to achieve, but teacher can veto them so that the success of the learning outcomes achieved are discussed again.	Learners decide autonomously on the learning outcomes they want to achieve in the learning unit but give teacher the opportunity to provide feedback.	Learners autonomously decide on the learning outcomes.
Learning content	Teacher decides autonomously on the lectures' aspired learning contents.	Teachers decide autonomously on the lectures' aspired learning contents but give learners a feedback option.	Teacher defines the learning content, but the learners can veto them so that the learning content can be discussed again.	Consensus is needed between teacher and learners in defining the learning content.	Learners determine the learning content, but teacher can veto it so that the learning content is discussed again.	Learners decide autonomously on the learning content pursued in the learning unit but give teacher the opportunity to provide feedback.	Learners decide autonomously on the learning content.
Learning methods	Teacher decides autonomously on the learning methods.	Teacher decides autonomously over the learning methods but gives learners a feedback option.	Teacher defines the used learning methods, but learners can veto them so that the methodological approach can be discussed again.	Consensus is needed between teacher and learners in the selection and use of methods.	Learners determine which methods are most appropriate for them, but teacher can veto them so that the methodological approach is discussed again.	Learners decide autonomously on the methods to be used in the learning unit, but give teacher the opportunity to provide feedback.	Learners decide autonomously on the methods.

(Continued)

TABLE 3 (Continued)

	No participation	Little to medium participation		Full participation	Little to medium participation		No participation
Learning media	Teacher decides autonomously on the learning media.	Teacher decides autonomously on the learning media but gives learners a feedback option.	Teacher defines the learning media, but the learners can veto them so that the used learning media can be discussed again.	Consensus is needed between teacher and learners on the selection and use of media.	Learners determine the media most appropriate for them, but teacher can veto so that media selection is discussed again.	Learners decide autonomously on the media to be used in the learning unit, but give teacher the opportunity to provide feedback.	Learners decide autonomously on the media.
Evaluation	Teacher decides autonomously on the lectures' evaluation procedures.	Teacher decides autonomously on the lectures' evaluation procedures but gives learners a feedback option.	Teacher defines the lectures' evaluation procedures, but the learners can veto them so that the evaluation procedures can be discussed again.	Consensus is needed between teacher and learners in selecting and determining evaluation procedures.	Learners determine the most appropriate evaluation process for them, but teacher can veto it so that it is discussed again.	Learners decide autonomously on the evaluation process to be used in the learning unit but give teacher the opportunity to provide feedback.	Learners decide autonomously on the assessment and evaluation procedures.
Context (conditions)	Teacher decides autonomously on the context conditions (time management and space).	Teacher decides autonomously on the context conditions (time management and space) but gives learners a feedback option.	Teacher defines the context conditions (e.g., time management and space), but the learners can veto them so that the context conditions can be discussed again.	Consensus is needed between teacher and learners in designing the context.	Learners determine the contextual conditions that are most appropriate for them, but teacher can veto them so that the context conditions are discussed again.	Learners decide autonomously on context conditions but give teacher the opportunity for feedback.	Learners decide autonomously on the context conditions (such as timing and space).

necessary to look at which participatory design elements are best suited to the particular teaching and learning unit, depending on the learning experience, content, and objectives. For example, a classic frontal lecture with little or no opportunity for students to participate can also be a suitable form of acquiring declarative knowledge.

Evaluation of the analytical framework for Participatory Educational Practices

This theoretical-conceptual preliminary work was evaluated and critically reflected on in a focus group discussion in terms of its conclusiveness, applicability, and completeness. This was used as an opportunity to recruit experts and potential users and discuss with them the previously developed framework and refine it further based on their feedback.

The focus group approach

The focus group survey method is a participatory form of qualitative research and involves a discussion on a defined topic within a moderated group (cf. Bär et al., 2020, p.208; Winlow et al., 2013, p. 2). In contrast to group discussions, focus groups put the content of a discussion in the foreground and not its social construction (Bär et al., 2020, p. 210). The method is used to analyze needs, generate ideas, or test concepts (Block et al., 2010). The format allows for a focused reflection on a specific topic or artifact, taking into account the different perspectives of the participants (Reason and Torbert, 2001). The participants usually do not know each other beforehand (Flick, 2021, p.259ff.). A suitable group size is described as 5 to 12 people (Cameron, 2000; Fallon and Brown, 2002; Longhurst, 2003). A topic is set in advance, in this case OEP and student participation, and guiding questions are prepared to stimulate the discussion. One advantage of this survey method is that different perspectives on a concrete artifact, concept or idea can be collected in a relatively short time (cf. Bär et al., 2020, pp. 214–215). The prerequisite is that the participants and organizers have sufficient social and communicative competence. In addition, this survey method is a particularly participatory format, as it has novelty value for both researchers and participants due to the stimuli introduced (cf. Winlow et al., 2013, p. 2). It is considered disadvantageous in the literature that not all participants may want to have their say or express a critical opinion in the group (cf. Bär et al., 2020, p. 215). This effect can even be intensified by an online format. Furthermore, this survey method is very time-consuming in terms of preparation, implementation, and evaluation (cf. Winlow et al., 2013, p.2). Nevertheless, the method proves to be suitable for critically reflecting on and

further refining the analytical framework developed with experts and potential users without taking up too much of their time.

Preparation process

In the first step, the participants were sought and selected according to the following criteria and officially invited *via* email:

1. activity at a higher education institution in a German-speaking country,
2. practical and/or theoretical involvement with the topic of Open Education, especially OER and OEP or student participation, and
3. a research field in the area of innovative and transdisciplinary higher education teaching.

In order to find and identify suitable contacts, the list of networks provided by the Foundation for Innovative Higher Education was consulted (cf. Stiftung Innovation in der Hochschullehre, 2022). In addition to the experts, there was also a student representing the learners' perspective. A total of 28 contacts in German-speaking countries were identified and contacted, from which we received twelve acceptances. In the end, 10 experts participated in the workshop, excluding the moderator, the researcher and the student. The focus group was conceptualized as an online workshop *via* Zoom, as the participants work all over Germany and a physical appointment would have meant further barriers to participation, such as a long journey and the associated greater time expenditure.

In the second step, guiding questions were developed based on Winlow et al. (2013, p.8), which served to structure the discussion and were agreed upon within the organizational team (Table 4). With the agreement of the participants, the discussion was recorded and documented on a white board.

The majority of the participants were lecturers who themselves worked on participatory teaching and learning concepts in their universities. Some of the group dealt with the concepts on a theoretical and conceptual level and had written their own dissertations or post-doctoral theses on the subject. In addition, there were several participants from a project committed to the design and implementation of OER in higher education teaching who work together to share best practices in a network of various higher education institutions within a federal state.

Results

At the beginning, the focus group was asked what participation in the teaching and learning context meant to them. A variety of interpretations of the term and different

TABLE 4   Guiding questions in focus group discussion.

Phase	Question type	Topic/Question	Sub-questions (only use if required)
Arrival	Opening question	What are your points of contact with OEP and participation?	
Introduction	Transition question	What does participation mean to you in the teaching and learning context?	Who are the actors involved for you? What are the theoretical and practical implications?
Main part	Key question	To what extent is the analytical framework suitable for determining the participatory nature of teaching and learning processes? What are the strengths and weaknesses of the matrix?	Are the dimensions of teaching and learning suitable for a detailed description of the participation characteristics? Do other dimensions have to be added or can they be combined? Are the characteristic expressions exhaustive/complete?
Summary and outlook	Closing question	What application do you see of the analytical framework for practice?	

approaches came to light. A certain number of participants described participation as a free space where there is still much to be discovered. This understanding of a participatory space instead of a participatory process is also found in the publication by Mayrberger (2020, p.190) and makes clear how many components, such as institutional or intrapersonal conditions, a participatory higher education comprises. The institutional conditions were concretized, for example, around the concept of accessibility, so that a corresponding diverse range of students has access to education in the first place. In addition, the intrapersonal and staffing conditions for participatory learning were emphasized. The students need to be trained in the relevant competences so that they can participate, take responsibility, and experience empowerment (Castaño Muñoz et al., 2013). Furthermore, from the experts' point of view, there needs to be a corresponding willingness on the part of both teachers and students to hand over or accept responsibility. It is also necessary to learn how to deal with uncertainty. A part of the focus group also underlines that participative teaching and learning should not only focused on results, but that the process itself is of interest, which is characterized by iterations and feedback loops. This process-driven instead of outcome-based orientation is also emphasized in the concept of SaP (cf. Mercer-Mapstone et al., 2017, p.2).

The question that was then asked by the moderator was: Who are the actors involved? It was underlined that students must be considered as individual actors and not as one homogeneous group. In addition to students and lecturers, university staff at higher hierarchical levels were also mentioned (such as committees, university political staff, and the university board). In contrast to the SaP concept, arguments were made within institutional boundaries and external actors were not mentioned (cf. Mercer-Mapstone et al., 2017, p.19). However, it becomes clear that participation in education goes beyond the classical understanding of actors divided purely into teachers and learners.

Afterward, the analytical framework was presented and the question was given to the focus group to what extent the matrix

serves to determine the form of participation in teaching and learning processes. Basically, the matrix was found to be a very complex and promising tool for both empirical investigation and practice. In the following, the feedback on the framework is clustered according to

1. forms of participation,
2. dimensions of teaching and learning processes, and
3. practical implications.

Forms of participation

The participants said that the framework allows a systematic approach to evaluating teaching and learning settings related to participation. However, it was questioned to what extent students can be represented as a homogeneous group. It is clear that a systematization always means a reduction of reality. In that light, one participant saw the matrix as a successful start for the analysis and for continuing the discourse around OEP. Nevertheless, he emphasized that after the evaluation in the reflection part, reference must also be made to the different individual types of participation (cf. Ditzel and Bergt, 2013; Park, 2015, p.185). Furthermore, the question arose as to who ultimately determines whether a decision has been made jointly. There is no objective authority in this framework who can assess or determine this. Additionally, it was criticized that the analytical framework only maps the decision-making momentum, but not the process before and after the decision, which is equally essential for participatory teaching and learning processes. The model according to Blandow et al. (1999), which was chosen as a basis, thus falls short. The suggestion for improvement was therefore to speak of a 'negotiation and design process' of a curriculum instead of a decision-making moment in which all actors are more or less involved. This would instead focus on the didactic design process, including decisions on the part of both teachers and learners. From the perspective of the

focus group, terms such as 'veto' and "no or full participation" still leave too much room for interpretation and need a clearer definition.

Dimensions of teaching and learning processes

None of the experts involved questioned the completeness of the described dimensions. On the contrary, those who are themselves involved in the practice suggested a simplification of the dimensions according to Biggs' (1996) concept of 'constructive alignment.' It was noted, however, that at the beginning it has to be clarified what can be negotiated at all within a particular learning setting. As an example, one participant mentioned that some learning objectives are already fixed at the beginning and can no longer be negotiated with the students. Nevertheless, in addition to the fixed learning objectives, further objectives can be discussed with the students and supplemented if necessary. Another suggestion for improvement was to use the word 'learning' less often in the dimension description. It was recommended, for example, to speak of 'objectives' instead of 'learning objectives,' which would otherwise not sufficiently take into account the view of all participants. Teaching and learning objectives are different aspects, and it is necessary to define exactly what is meant without excluding groups of actors. Reference was also made to the concept of the 'community of practice' according to Lave and Wenger (2008), in which learning in a social community is understood as reciprocal process. According to this, everyone in the community learns. As a solution, it was stated that the learning goals should be agreed upon together with the learners from the beginning, so that all participants share a common understanding and the differentiation between learning and teaching goals loses its importance. Another interesting point explained was the embedding of the analytical framework within a larger scenario. What is meant here is that not only the micro-level of higher education teaching, but also the meso- and macro-levels are decisive and interlock influencing factors. Accordingly, this could be mapped in perspective within the framework.

Practical implications

Finally, the focus group was asked what practical connections they could draw. The participants suggested that the analytical framework for PEP could be used:

1. as evidence for third-party funders regarding the implementation of OEP and OER,
2. as a basis for discussion with students about the implementation of OER material,
3. as an instrument for advisory concepts and discussions in the field of higher education didactics, or

4. as a starting point for a handout on the implementation of OEP.

Further development, strengths, and weaknesses

The above main points from the focus group discussion were used to further refine the analytical framework (Table 5). All in all, the results were valuable and comprehensible. Some of the participants would like to see a reduction in complexity, for example with the help of the constructive alignment concept developed by Biggs (1996). For practical use in the preparation or evaluation of courses, a reduction in the listed dimensions of teaching and learning processes could be valuable. However, since this analytical framework is primarily intended for academic research as an instrument for analyzing forms of participation, no simplification is made here. The seven dimensions open up a holistic picture of the design possibilities in teaching and learning. Other participants saw possibilities to further expand the analytical framework, for example, by taking into account not only the micro-level, but also the macro- and meso-levels. The suggestions appear useful, but it still seems important to focus on teaching and learning units to avoid confusion with regard to the object of study. Still, there is the potential to integrate other levels (such as strategic university development) or to differentiate between the individual participation types in teaching and learning in further research.

In order to clearly emphasize that participation is not synonymous with learner autonomy, but explicitly means the joint design and decision-making process between teachers and learners referring to the concept of partnership, the original seven levels were reduced in this study to four. In this sense, full participation is when all actors involved are included in the design and negotiation process on an equal footing. The design and implementation process is placed in the foreground rather than the decision-making moment, following Blandow et al. (1999). Furthermore, a distinction is made between indirect participation in the form of student representation and direct participation, when all involved actors are included in the curriculum design and implementation process. Accordingly, indirect participation means that only some of the students are involved in the design of the curriculum and can raise objections. This form presupposes that the group of student representatives is sufficiently aware of the interests of the other participants and can represent them. For this form of participation, there is a standardized selection process that takes place at the beginning of the semester. In contrast to the right to veto according to Blandow et al. (1999), this form of participation is more conceivable

TABLE 5 Analytical framework for Participatory Educational Practices 2.0.

		Forms of participation			
		Teacher controls decision-making process	Teacher controls decision-making process but leaves room for feedback	Students have some choice and influence via student representatives	Partnership between student(s) and teacher(s) in decision-making process
Dimensions of teaching and learning	Objectives	Teacher defines objectives	Teacher defines objectives but gives room for feedback and amendments	Teacher defines objectives in cooperation with student representatives	Teacher(s) and student(s) develop and set the goals together
	Content	Teacher defines content of learning unit	Teacher defines content of learning unit but gives room for feedback and amendments	Teacher defines content of learning unit in cooperation with student representatives	Teacher(s) and student(s) jointly develop and define the content
	Methods	Teacher defines methods	Teacher defines methods but gives room for feedback and amendments	Teacher defines methods, in cooperation with student representatives	Teacher(s) and student(s) jointly develop and define the methods
	Medium	Teacher defines the medium used	Teacher defines the medium used but gives room for feedback and amendments	Teacher defines the medium used, in cooperation with student representatives	Teacher(s) and student(s) jointly develop and define the medium used
	Context	Teacher shape context conditions	Teacher shapes context conditions but gives room for feedback and amendments	Teacher shapes context conditions, in cooperation with student representatives	Teacher(s) and student(s) jointly shape the context conditions
	Results	Teacher defines results of learning	Teacher defines results of learning but gives room for feedback and amendments	Teacher defines results of learning, in cooperation with student representatives	Teacher(s) and student(s) jointly develop and define the results of learning unit
	Evaluation	Teacher set evaluation procedure	Teacher sets evaluation procedure but gives room for feedback	Teacher set evaluation procedure, in cooperation with student representatives	Teacher(s) and student(s) jointly define the evaluation procedure of learning unit

in terms of implementation. As a finding from the focus group discussion, both the terms 'no or full participation' and 'veto' were removed, as they did not allow for a clear understanding. In addition, the names of the dimensions were changed to clearly show there are agreed-upon objectives, methods, media, etc., for all actors involved in the learning and teaching setting.

Contributions, limitations, further steps

On a theoretical level, the OEP concept was further concretized by using a broader understanding, also beyond

OER, and linking it to the discourse on participation. Here, the term 'openness' is not understood as learner autonomy but as a joint negotiation process between the actors involved in a teaching and learning setting. The article focuses on the interaction between teachers and learners. However, it also shows an opening to other interest groups (such as university staff or external partners). As a basis for this, the lines of discussion around social and political participation were identified in advance and transferred to a uniform understanding for the education sector by means of the SaP concept.

Thus, with this contribution, the discourse on OEP was further stimulated. Based on a representative literature review

and a focus-group discussion, an analytical framework was developed that makes OEP more tangible in the context of participation. By bringing together different forms of participation on the one hand and the dimensions of teaching and learning processes on the other hand, an instrument for evaluating OEP was created. This tool is primarily used for the scientific analysis of teaching and learning processes with regard to participation opportunities. Even so, it can also be used to prepare and evaluate teaching and learning settings on the part of teachers and learners. Furthermore, with the help of the framework lecturers can describe their didactic concept in a more differentiated way by means of the dimensions and characteristics and make it transparent for other interest groups. The analytical framework also provides an overview of the possible space for participation at the micro-level in higher education. In the literature around OE and OEP, technology is often understood as a tool that enables openness in education (Knox, 2013). The analytical framework presented here should point out that technology or "media" is only one of the potential possibilities for participation.

In future research, the analytical framework could be developed further on the theoretical-conceptual and practical levels. So far, the framework is limited to the negotiation process of curriculum design between teachers and learners. Both the subjects considered and the decision process can be expanded. For example, the interaction within a peer group (student-student, teacher-teacher, etc.) can be added to an extended model. In addition, the level of consideration can be changed from the micro-level to the meso- or macro-level, in which other forms of student engagement beyond the classroom such as committee work are also taken into account.

It must nevertheless be stated that participative teaching and learning only work if the corresponding initial conditions (primarily the willingness to hand over and accept responsibility) are given. Both the teachers' and learners' own learning experiences as well as the content, methods, forms of assessment, etc., must always be critically reflected on as to what extent they favor or stand in the way of participatory learning. The design process of open teaching and learning scenarios depends on other factors, such as the institutional culture, the available technologies, and support mechanisms (cf. Mays, 2017). The categorization employed and the developed framework entail a reduction of reality but enable an initial descriptive instrument that forms a basis for further studies. One example would be to investigate the influence of technology usage on the forms of participation in teaching and learning processes.

On a practical level, the analytical framework can be further developed. For instance, into a self-assessment tool for teachers or into an evaluation tool for departments and universities. It can also be used by policy makers to gain a better understanding of OEP and, based on this, to launch new programs or initiatives in the educational context. The analytical framework offers a way to make learning architectures more open and capture their holistic nature, and thus also to promote the change of learning scenarios. To this end, the present study has proposed a way forward for OEP that brings together the concept of participation with open learning architectures. An instrument was developed with which lecturers can identify and further refine their own teaching and learning units with regard to a certain OEP maturity level.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Author contributions

The author confirms being the sole contributor of this work and has approved it for publication.

Funding

Conflict of interest

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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