# e-Learning Diversification in Higher Education: Conceptions of Participation

**Paulo Dias, Luísa Aires and Darlinda Moreira**

**Abstract** In this chapter, we reflect on the conceptions and different forms of participation in e-Learning contexts in higher education and its influences in climate change literacy. Although the literature review highlights intense research on the value of participation in informal contexts, we argue that the construction of a pedagogical discourse on e-Learning cannot be sustained without the pedagogy of participation. Such participation also acquires new meanings when analysed using socio-constructivist and cultural approaches. In this study, the analysis of participation in e-Learning contexts is based on categories such as leadership, sharing and cohesion. The empirical data we present are the result of more wide-ranging research carried out at the Observatório da Qualidade da Educação a Distância e e-Learning (Distance Education and e-Learning Observatory) at the Universidade Aberta, Portugal. Data were collected from the online questionnaire given to a sample of 26 e-Learning course leaders and pedagogical coordinators in face-to-face higher education institutions. The conclusions of the study highlight the different conceptions about the nature of e-Learning processes and practices in higher education, which we believe highlight the need to promote a participation-oriented pedagogy as a fundamental aspect of both climate change literacy/education and online education and based on the construction of both pedagogical innovation and teachers' education to teach in virtual environments.

**Keywords** e-Learning · Participation · Higher education · Pedagogy

P. Dias
Universidade Aberta, Lisbon, Portugal

L. Aires (✉) · D. Moreira
CEMRI, Universidade Aberta, Lisbon, Portugal
e-mail: Luisa.Aires@uab.pt



U. M. Azeiteiro et al. (eds.), *Climate Literacy and Innovations in Climate Change Education*, Climate Change Management,
https://doi.org/10.1007/978-3-319-70199-8_17

## Introduction

In 2013, about 82% of European higher education institutions offered online learning courses (Gaebel et al. 2014), thus giving rise to an educational framework where various HEIs coexist with a diversity of teaching methods and pedagogical models for e-Learning courses. This scenario is particularly important for distance learning universities, because it poses various questions about what is considered and understood to be e-Learning.

The authors of this chapter belong to the faculty of a distance learning institution where online learning has been used since 2001. The e-Learning we practise adheres to principles and quality guidelines, both in terms of course design and pedagogical practice. As an increasingly widespread teaching method, e-Learning sustainability must be ensured.

During an exploratory research undertaken in 2014–2015 for the Distance Learning and e-Learning Observatory, which is based at the Universidade Aberta (Open University), Portugal, various pedagogical concepts and practices regarding e-Learning courses were identified (Dias et al. 2015). Surveying a sample of 26 e-Learning course leaders and coordinators taught by Portuguese higher education institutions (HEI), this study identified three subgroups: one (around 38%) with organisational and pedagogical concepts similar to those of online distance education; another (approximately 36%) advocating concepts similar to blended learning, emphasising face-to-face contact in teaching and learning processes; and a third (about 25%) that seemed to distance itself from these concepts, focussing on e-Learning from a technological perspective, reducing this type of teaching and learning to the online availability of content, typical of face-to-face teaching. The abovementioned research also observed that the first two subgroups are not static. On the contrary, they are fluid, sometimes moving towards an online distance education perspective, other times, defending concepts like those of blended learning. When the analysis focusses on practices, the learning processes data shows that the group with concepts most similar to online education drops to 28%.

Other aspects emerging from research also required further investigation, such as respondents' contradictory answers regarding pedagogical aspects of participation in online distance learning, which in theory and in practice are connected, as well as the need for changes in institutional cultures regarding online teaching and teacher training in this area.

We highlight the study's conclusions to underline the importance of recognising the differences in distance education and the institutions that use it within the context of higher education policies, as well as the need to incorporate new ways of promoting a culture of participation in face-to-face HEIs.

Active participation and digital education are interconnected areas that politicians, employers, educators and other social agents must take into account to consider climate change education. Managing information is not all an exclusive competence to answer multiple challenges of digital society. Citizens must appropriate social competences to be part of online and face-to-face communities

and teachers and digital media must promote innovative approaches for teaching and learning climate change problems in different tips and levels of schooling (Azevedo 2016).

The aim of this chapter is to analyse participation in e-Learning contexts, based on the empirical data obtained in the abovementioned study, which is part of research undertaken for the Distance Education and Learning Quality Observatory.

## Participation in e-Learning

Although there is widespread agreement that participation is a key aspect of online education and e-Learning, this concept has been studied from very different perspectives. In simple terms, interaction in the virtual classroom equals participation, while, a more complex approach views participation as intrinsic to learning and, in particular, to the dialogue and social relationships developed within such educational contexts.

Hrastinski (2008) situates participation in the complex and relational processes using the socio-constructivist approach of Vygotski (1978) and Wenger (1998), defining participation in learning as:

> a process of learning by taking part and maintaining relations with others. It is a complex process comprising doing, communicating, thinking, feeling and belonging, which occurs both online and offline (Hrastinski, 2008, p. 1761).

Hrastinski's (2008) proposal is reflected in Carrie James's statement, when she describes participation "as the very nature of our online conduct" (James 2014, p. 83). In fact, participation has been the focus of other approaches that, due to their cultural and ecological emphasis, can be considered complementary to Hrastinski's perspective (2008, 2009). Learning ecologies presuppose unstructured contexts of participation, trust, simplicity, decentralisation, tolerance of experimentation and error, and a range of mediating tools (Siemens 2003). Offering an ecological approach to learning processes, Siemens (2003) suggests the existence of dynamic contexts that are open and in permanent construction; communities with common interests and intense participation flows that are constantly evolving and self-regulating.

Siemens' proposal can be expanded with Jenkins' approach (2009), highlighting the cultural dimension, the interrelation between different digital media and cultural communities that develop alongside the processes mediated by these technologies.

According to Jenkins (2009), participation cuts across educational practices, creative processes, community life and democratic citizenship. This participation is conducted through affiliation to communities with different vocations, public participation, new creative methods and collaborative problem solving.

Hrastinski's (2008, 2009) and Jenkins' (2009) perspectives on participation laid the foundations for the development of a pedagogy of participation in online distance education, calling for a complex analysis of the concept supported by cultural

and relational processes of doing, communicating, feeling and belonging (Hrastinski 2008, 2009; Freire 1982; Jenkins 2009; Carter and Arroyo 2011).

## *Different Types of Participation*

The concept of participation has become central and crucial in several social contexts, including the digital one. Here, participation may be part of distinct dimensions and have different purposes, problems and possibilities, as well as tending to interfere with power relations.

According to Vieira (2015), participation requires learning and the acquisition of competences, which are constructed "from the interaction-action of the actors" (p. 105). Along similar lines of thought, Jenkins et al. (2016) present the idea of participatory culture as a culture:

> … which embraces the values of diversity and democracy through every aspect of our interactions with each other – one which assumes that we are capable of making decisions, collectively and individually, and that we should have the capacity to express ourselves through a broad range of different forms and practices. (p. 2)

Participatory culture in online educational environments boasts unique features that should be highlighted for a better understanding of the diversity of e-Learning contexts in higher education. Focussing on these technological artefacts and contexts, it should be mentioned that e-Learning can range from environments based on text availability to the inclusion of virtual worlds based on three-dimensional graphics in educational scenarios. These different contexts require different forms of participation which, in turn, develop different ways of being, communicating and interacting, and the existence of a learning community presupposes a complex and demanding degree of interactivity and sharing. As highlighted in perspectives on participatory culture, learning comes from collective interaction, often in a learning community, which allows individuals to develop competencies and feelings of involvement, belonging and protection. To this end, we return to Lave and Wenger's (1991) thinking about communities of practice as places of action that develop within contexts of experience, particularly through the involvement of a social voice as a means of promoting sustainability and the development of communities.

Participation in the educational experiences and activities has been considered one of the essential stages of learning since Kolb (1984). Combined with the educational scenarios underlying a particular learning context, student participation may range from a single answer on a multiple-choice test to being an avatar in a simulation or game environment in online learning communities.

However, non-physical presence in the online learning environment involves context-specific characteristics that need to be considered and analysed. One of the consequences of non-physicality is related to the unique characteristics of online communication (James 2014), which, in addition to possibly including a mixture of

text, video, audio and other fantastic elements, can also be expressed via a simple anonymous click on a predefined icon. Another detail is the size of the community where we participate and speak, which, in educational contexts, can range from virtual groups with the usual 20–30 students to the fabulous amphitheatres seating over 500, a metaphor that can be compared to the learning environments used as part of Massive Open Online Courses (MOOCs).

We may consider the lack of non-verbal signals of online speech—usually described as non-verbal communication—as something negative in terms of interpretation and cognitive, social and cultural interaction, however, it can also be advantageous for certain participants who "may be marginalised in other contexts" (Stirling 2008, p. 171). In addition to this, the asynchronous mode of communication allows some readjustment, as repeated reading of the message helps control emotional or cognitive reactions.

Another aspect to consider when analysing students' participation in online educational environments are expectations regarding educational participation, which should be made explicit and eventually negotiated among teachers. These expectations may, on the other hand, influence the type of student involvement. In other words, course design influences or determines a certain type of participation, to which we should add the possibilities provided by digital environments and tools. Considering technological progress, we believe the latter elements tend to become a bound variable in educational settings. We can also say that participation in online educational contexts may be associated with unavoidable telecommunication costs or different geographical times, as online courses bring together students from anywhere in the world.

However, as we mentioned previously, an online learning community presupposes a complex set of relationships, interactivity and sharing that involves symbolic, relational, emotional, axiological dimensions or, if we prefer, different participatory cultures. The pedagogy of participation, in which internet use and virtual worlds are increasingly "transparent" (Bolter and Grusin 2000), seeks to strengthen different aspects of multiple social contexts and learning guided by an inclusive approach. This principle will lead to group and individual development of community members (Nunes 1998, 2002; Moreira and Fantinato 2014).

Climate change is a central issue in education that requires new practices of citizenship. Learners create their own meanings about climate change participating actively in digital media such as social networks, blogs and other virtual environments. Education can mediate different understandings about global warming and encourage changes in attitudes and behaviours to innovate in urgent answers to climate change (UNESCO).

According to Dias (2016), "there is no possibility of autonomy based on desire or willingness, but rather in action through the type of sharing that values participation as a means of constructing intellectual freedom. Intellectual freedom is in the social voice that transforms something private into collective expression, shaping the community's identity as a common asset".

In the study undertaken previously (Dias et al. 2015), the key aspects of participation were identified as attitudes and feelings of sharing, leadership, cohesion and

mediation that shaped the quality of community relations. In this study, participation is analysed according to informants' conceptions of interaction, leadership, sharing, cohesion, mediation, trust, authenticity of information and knowledge and credibility. The participation analysis employed is based on Dias (2014) and Aires et al. (2014). The data that follow are interpreted within this theoretical framework.

## Methodology

The data we analyse in this section comes from research undertaken by Dias et al. (2015) in 2014 and 2015. The empirical research was based on the development and use of an online questionnaire for 26 e-Learning course leaders and coordinators in higher education.

### *Sample*

A theoretical and purposive sample was created for this study. During the initial phase, participants were contacted via e-mails sent to universities and polytechnics, inviting the institutions to participate in the project's online questionnaire.

Only some universities participated. The reasons for not participating are unknown. They did not respond, either because they did not have distance education and e-Learning courses, or they simply decided not to participate for other reasons.

The sample is made up of 16 women and 10 men (N: 26). Respondents work at different universities and polytechnics throughout the country (Fig. 1).

### *Data Collection Tool*

The questionnaire used was developed via a literature review and the contributions of teaching staff and researchers who analysed the different versions. A closed-ended questionnaire was constructed with Likert-type questions with five

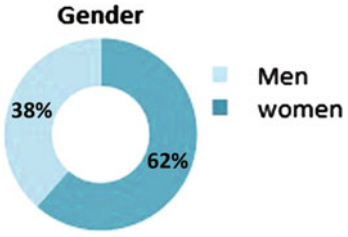



**Fig. 1** Sample: percentages by gender (*Source* Dias et al. 2015)

answers: 1—strongly disagree; 2—disagree; 3—tend to agree; 4—agree; 5—strongly agree.

The pre-test was done with 16 teachers working in face-to-face and online higher education, which led to various changes, both in terms of structure and content, improving the tool significantly. The latest version of the questionnaire was analysed by a group of researchers in distance education. This last stage produced the final version of the questionnaire, which was divided into five parts:

1. Description of the institution and respondents;
2. Distance education and e-Learning course design;
3. Pedagogical guidelines for distance education and e-Learning;
4. Pedagogical participation;
5. Technological and support infrastructures.

Although the original research boasts a wide scope, for this study, we focussed solely on the notions of "participation" of course leaders and coordinators working in public higher education institutions and who take part in research. Participation is interpreted using the categories in Table 1.

The data obtained from the questionnaire was analysed using descriptive statistics techniques (SPSS, version 23).

## On the Pedagogy of Participation

The combination of the literature review and the collection and analysis of data allows us to outline pedagogical perspectives on participation *as* a key principle in digital citizenship and consequently in online distance education.

### *General Participation*

Informants consider students to have high levels of participation in online teaching activities (4.0) (Fig. 2).

**Table 1** Analysis categories

| | Analysis categories |
|---|---|
| Participation | • General participation<br>• Interaction<br>• Leadership<br>• Sharing<br>• Cohesion: groups<br>• Cohesion: dynamics<br>• Mediation: teacher-community<br>• Trust<br>• Authenticity of information and knowledge<br>• Credibility |

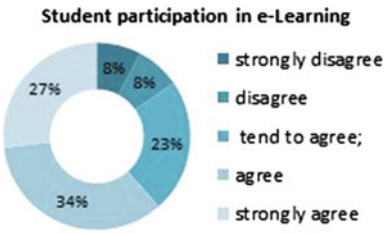



**Fig. 2** Students participation in e-learning (*Source* Dias et al. 2015)

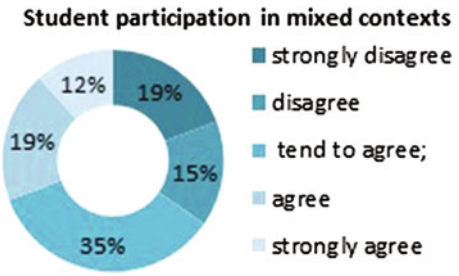



**Fig. 3** Students participation in mixed contexts (*Source* Dias et al. 2015)

In contrast, student participation in mixed situations (online and face-to-face teaching) is considered moderate (3.0) (Fig. 3). These results are in line with other studies that indicate high participation rates on online courses (Gibson 2003).

## *Interaction*

Interaction between students is considered moderate in online, mixed and face-to-face contexts (average: 3.0). Conceptions regarding the link between the type of teaching employed and interaction with the teacher divides the informant group. As can be seen in Table 2 (item 54), 9 respondents' assessment ranges from "completely agree" and "strongly agree" to another 9 between "completely disagree" and "disagree". The other 7 informants' assessment is mid-range—"tend to agree".

## *Leadership*

Leadership is primarily associated with the teacher and, to a lesser extent, learning communities, i.e. for most respondents, leadership does not involve the learning community but does have an important role for 9 respondents. The role of distributed leadership is not consensual; the teacher leads more for some (13) and less for others (6). Seven respondents chose the "tend to agree" option (Table 3).

**Table 2** Interaction (*Source* Dias et al. 2015)

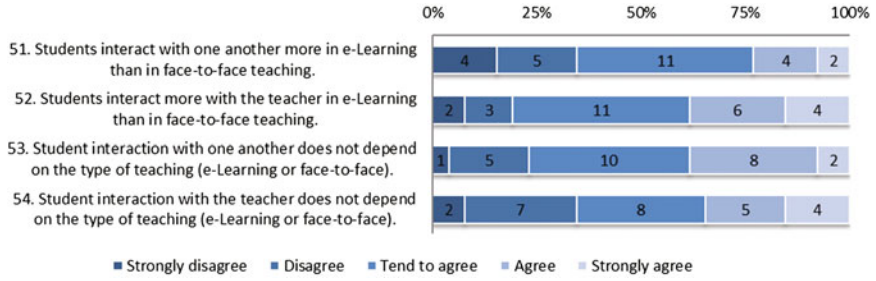
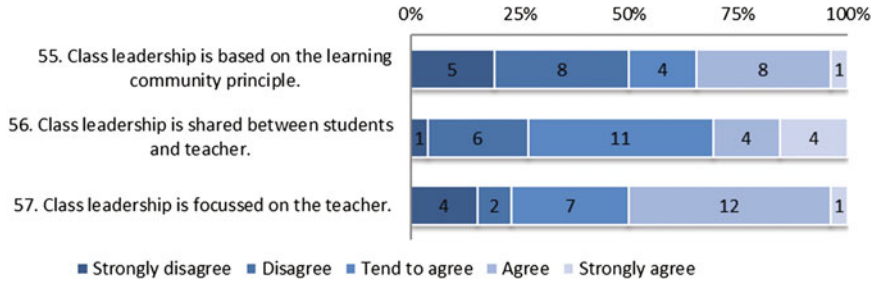



**Table 3** Leadership (*Source* Dias et al. 2015)




This indicator requires further development, given that, in other aspects not analysed in this chapter, when we examine the assessment process, peer assessment scores the highest.

## *Sharing*

In contrast to the results for interaction (moderate), virtual sharing is very important, according to the respondents. The role of virtual contexts in sharing among students is highly valued by 19 of the 26 respondents, while 7 consider it to be of little (2) or moderate importance (5) (Table 4). If we compare this data with the moderate scores for interaction, it seems to us that this indicator requires further research, in terms of understanding the informants' ideas on the link between sharing and interaction.

**Table 4** Sharing (*Source* Dias et al. 2015)

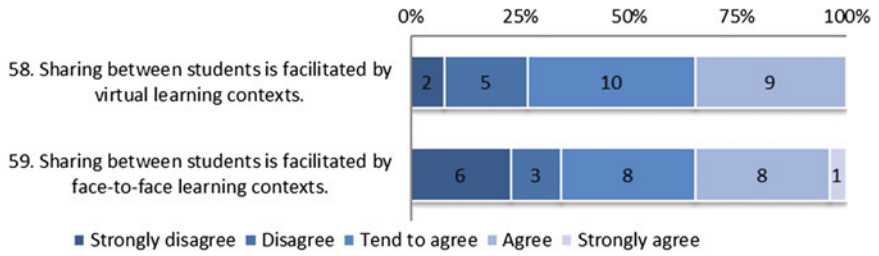
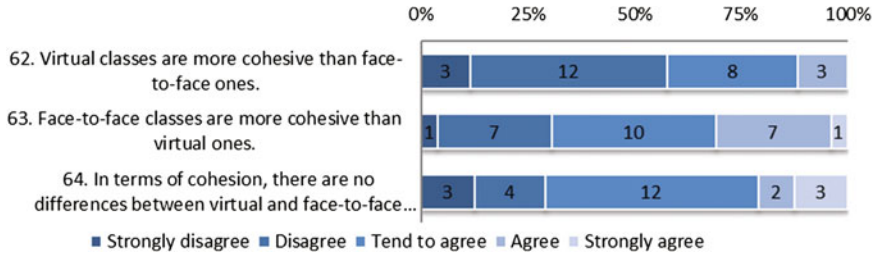



**Table 5** Cohesion: groups (*Source* Dias et al. 2015)




## *Cohesion: Groups*

In relation to group cohesion, there does not seem to be a clear demarcation regarding any differences between online and face-to-face teaching. In item 64, the most popular option was "tend to agree" (Table 5).

## *Cohesion: Dynamics*

The relation between shared leadership and cohesion in face-to-face teaching scores moderately, but scores better when considered in face-to-face situations (averages: 3.0 and 3.5, respectively). When asked for an assessment of the statement "virtual classes are more cohesive than face-to-face ones", once again, the sample divides (15 do not agree with the statement and 11 tend to/strongly agree) (Table 6). These data lead us to reflect on the importance of face-to-face interactions on class cohesion for the latter informants and, generally, on the pedagogical relationship on e-Learning courses.

**Table 6** Cohesion: dynamics (*Source* Dias et al. 2015)

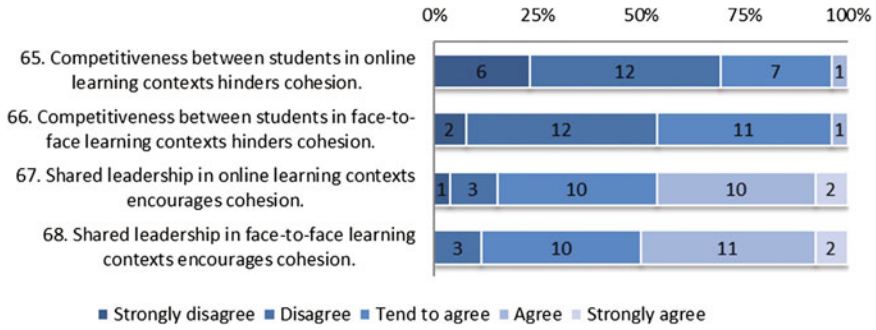
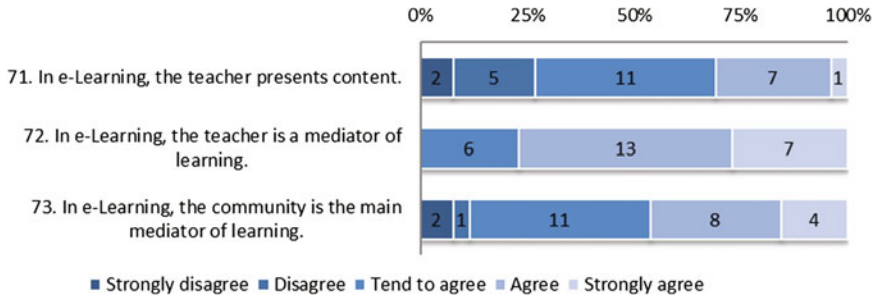



**Table 7** Mediators of learning (*Source* Dias et al. 2015)




## *Mediators of Learning*

The teacher profile is not clearly defined and is constructed via the mediation of learning (broad consensus) and, to a lesser extent, the presentation of content. The learning community being associated with the mediating role is scored positively by 11 respondents and moderately by 11 informants. Three respondents also consider that the community does not have/ has little value in the mediation of learning (Table 7).

## *Trust*

For most respondents (average: 4.0), trust between teachers and students is not directly linked to learning situations, whether online or face-to-face (Table 8). This is one of the aspects that require further development using narrative methods.

**Table 8** Assessment of trust (*Source* Dias et al. 2015)

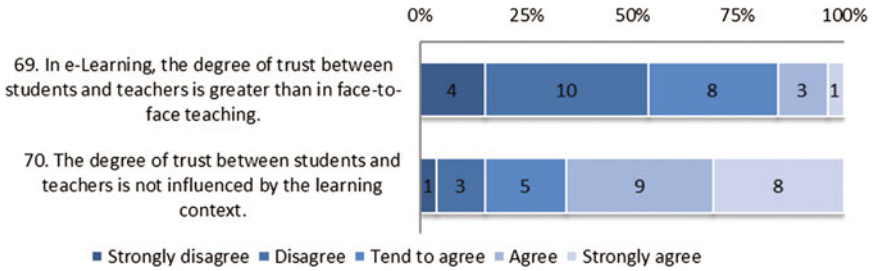
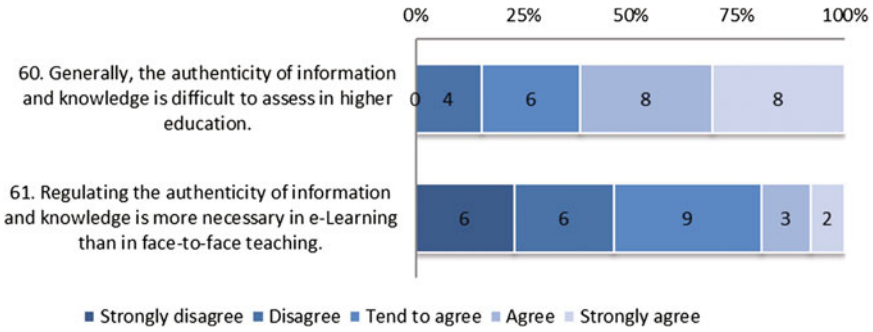



**Table 9** Authenticity of information and knowledge (*Source* Dias et al. 2015)




## *Authenticity of Information and Knowledge*

Regarding the authenticity of information and knowledge as an issue of face-to-face and online teaching, although the average is 4.0 on a scale of 1–5, in Table 9, we can see that wide range of scores (the assessment of 10 respondents ranges from disagree/tend to agree) (Table 9). This data is corroborated by Bacow, Bowen, Guthrie, Lack, and Long's study (2012), which states that issues of authenticity and its opposite are common to online and face-to-face teaching.

## *Credibility*

The credibility of face-to-face teaching scores higher than that of online teaching. The idea that e-Learning may have a complementary role with face-to-face teaching

scored poorly with most respondents (average: 2.0), although, in the data collected by the survey, the prevailing concepts are closer to blended learning.

Nevertheless, the proportion of "tend to agree" responses should be noted, following the overall trend of scores in terms of participation. It is also worth mentioning Allen and Seamen's (2014) study, which concluded that both subsystems are closer to each other in terms of credibility (Table 10).

There are no extreme scores (1 or 5) in this category. 13 of the 28 answers were at level 3 (tend to agree), 5 disagreed (level 2) and 7 agreed (level 4). As such, it is important to gather more data on the meanings of credibility in both subsystems for informants.

In short, the leadership, authenticity of information and knowledge, cohesion: dynamics and trust indicators indicate the same quartile distribution profile and averages (3), while the sharing and mediation: teacher-community indicators boast similar distributions and averages (4) (Table 11).

The "moderate" nature of the answers indicates a margin that requires further analysis. On the other hand, it presents the need to understand the existing pedagogical skills that influence the answers and specifically in the contexts in which online teaching occurs.

In short, the dominant tendency for informants to choose level 3 (tend to agree) highlights the need to discover the reasons for these opinions, when the aim is to contrast the scores in the different categories regarding face-to-face and online teaching. As previously mentioned, these data underline the need for a more comprehensive next stage that uses, among other things, interviews and discussion groups.

**Table 10** Credibility (*Source* Dias et al. 2015)

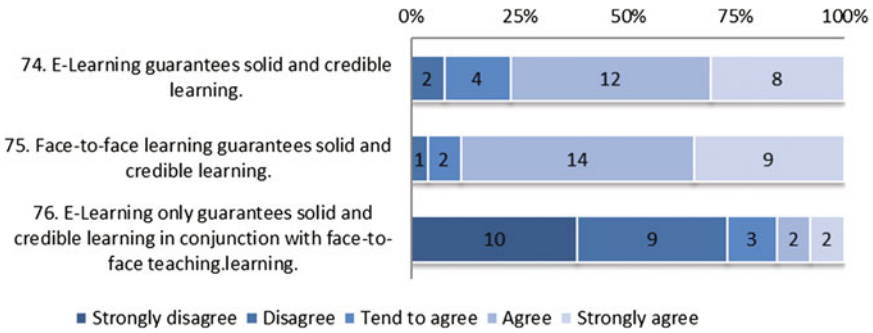
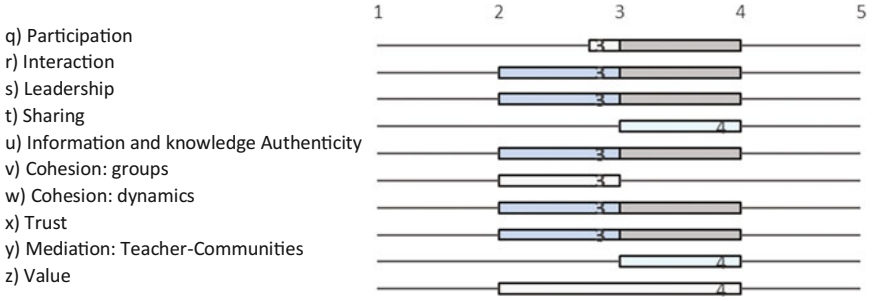


**Table 11** Distribution of quartiles and averages in participation and adjacent categories (*Source* Dias et al. 2015)




## Conclusion

In this chapter, we analysed different perspectives regarding participation on e-Learning courses from a theoretical and empirical perspective.

The analysed data was obtained from a questionnaire given to 26 e-Learning course leaders and coordinators in higher education institutions.

The questionnaire, which uses the Likert scale, was developed, systematically contrasting face-to-face and online teaching.

The "moderate" assessment of participation, as well as the fluctuating responses in analytical categories associated with this concept, highlights the need for a better understanding of participation in e-Learning. The development of these notions should include face-to-face HEIs' strategies for online learning, as well as pedagogical processes in teacher training for this type of learning, also corroborated in studies undertaken in other contexts (Krull and Mallinson 2013).

It is also important to reflect on what role the pedagogy of participation plays in how online courses are designed, as well as the pedagogical strategies that teachers should adopt.

Given the exploratory nature of the study and, particularly, the type of sample selected (convenience), as well as the type of tool used to collect information (questionnaire), it is necessary to extend this study by identifying broader and more diverse samples, as well as applying comprehensive and interpretive research methodologies.

Finally, we highlight that freedom of thought finds its greatest expression in participation, sharing and action to create collaborative learning communities in digital education. In what concerns to climate change education, learning communities need to encourage innovative teaching approaches that enhance interdisciplinary practices and new digital competences to participate and transform in formal and informal networks. We believe that this is a key value for promoting climate change education.

Building education for the future means promoting a strategic vision for sustained innovation, which will help develop new competencies for action and creativity within learning situations that emphasise the integration of social experience within education. This should help blur the boundaries between knowledge areas, establishing participation, dialogue and questioning, linking the formal with the informal, transforming the experience of knowledge into a meaningful process that solves not only today's problems but, most of all, those of tomorrow.

**Acknowledgements** This chapter was supported by the Centre of Studies on Migrations and Intercultural Relations (CEMRI, FCT), Universidade Aberta. This work was also supported by national funds via the FCT – Fundação para a Ciência e a Tecnologia, I.P. (Science and Technology Foundation), as part of the «UID/SOC/00289/2016» project.

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