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Sustainable universities – a study of critical success factors for participatory approaches

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ABSTRACT

Participatory approaches can be seen as a requirement, but also as a benefit to the overall paradigm change towards sustainable development and contribute towards the integration of sustainability concept into the university culture. So far, there have been comparatively few research studies on participation within sustainability implementation at university level, and a more differentiated understanding of these processes is still missing, both in the practice of conducting a participatory process and in the sustainability assessment. This paper addresses some of the failures and successes experienced within participatory approaches in campus sustainability initiatives, and deduces a set of critical success factors and emergent clusters that can help to integrate the dimensions of participation more inclusively into sustainability assessment. Following a qualitative approach and inspired by the Delphi-method, semi-structured expert interviews ($N = 15$) and four focus group discussions ($N = 36$), with participants coming from twenty different countries in total, were conducted and compared according to qualitative content analysis. Findings give empirical evidence to some of the characteristics related to stakeholder engagement, and associate higher education for sustainable development to empowerment and capacity building, shifting away from a previous focus on environmental sustainability. The success of participatory approaches is interdependent with structural institutional conditions and the persons engaged, highlighting the importance of specific skills and participatory competencies. A better integration of the dimensions of participation into sustainability assessment practices can help in defining and establishing participatory approaches on institutional level and fostering a culture of participation in the transition to sustainable universities.

1. Introduction

Participation is seen as pre-requisite for achieving sustainable development (SD), as officially acknowledged in Agenda 21 (UNCED, 1992b). It is one of the buzzwords that has entered the sustainability discourse (Stakeholder Forum, 2012), but lacks a more differentiated use and application (Cornwall, 2008). Universities, seen as key players in the promotion of SD (Cortese, 2003; Lozano, 2006a; Leal Filho, 2011; Sterling et al., 2013) are making advancements in SD implementation (e.g. in terms of campus greening, curriculum renewal and research orientations) and follow a manifold variety of implementation strategies (Brinkhurst et al., 2011; Barth, 2013; Mader, 2013; Saadatian, 2009), of which some include also participatory approaches (Disterheft et al., 2012b).

At the same time, within the overall SD debate, a high emphasis is being given to assessments as well as to the development of SD indicators, in order to monitor progress, to identify strength and weaknesses, to correct deficits and prevent unwanted effects. Universities apply different types of assessment tools in order to assess their sustainability performance: for example, standardised and non-standardised instruments (such as environmental management systems and ISO products, or internal audits and reports, respectively) and also an elevated number of university-specific assessment tools (Roorda, 2001; Beringer, 2006; Lozano, 2006b,

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2010; Glover et al., 2011; AASHE, 2012). Nevertheless, the dimensions of participation, referring to the active engagement of students, faculty, non-teaching staff and relevant external stakeholders, are less considered in sustainability assessment practices and show reduced perceptions of participation (Disterheft et al., 2012a; Saadatian et al., 2013). Furthermore, there is still a focus on environmental sustainability, and more holistic approaches are necessary to achieve the proclaimed paradigm change towards sustainable universities (Alshuwaikait and Abubakar, 2008; Ferrer-Balas et al., 2009; Lozano et al., 2013).

Participatory approaches can be seen as a requirement, but also as a benefit to the overall paradigm change towards SD and contribute towards the integration of SD into the university culture. So far, there have been comparatively few research studies on participation within sustainability implementation at university level, and a more differentiated understanding of these processes is still missing, both in practice of conducting a participatory process as well as in the sustainability assessment.

Most research related to participation is done outside of the university context and focuses on environmental planning (Bass et al., 1995; Reed, 2008), rural and community development (Lowe et al., 1999; Fraser et al., 2006; Thabrew et al., 2009), volunteering (Lozano, 2012) or policy-making on local and regional level (Macnaghten and Jacobs, 1997; Singleton, 2000). But higher education institutions (HEI) have particular characteristics and dynamics (Adomssent et al., 2007) and are required to develop a specific research agenda targeting sustainable universities (Stephens and Graham, 2010; Waas et al., 2010), for which reason it becomes necessary to explore in more depth what participation can mean in the university context. In doing so, the complex challenges inherent to participation and sustainability implementation can be better understood, and knowledge can be adapted to the specific needs of sustainability practitioners in HEI, who execute and assess these processes.

Consistent with this thinking, the objective of this on-going, cross-sectional study is to investigate participatory processes in university sustainability initiatives, with the final purpose to develop assessment criteria and a tool for a better integration of the dimensions of participation into sustainability assessment related practices in HEI. The relevance of this work is based on the fact that empirical knowledge in this field is still scarce and practical advice yet to be adapted to the university context.

The specific objective of this paper is to analyse the opinions and experiences of sustainability practitioners, in order to identify critical success factors (CSF) for an effective participation of the academic community in the transition towards sustainable universities. It focuses on both, failures and successes experienced in participatory sustainability initiatives, from which a set of CSF is deduced and examined for relationships and patterns, preparing therefore the way for a more inclusive assessment of these processes.

2. Theoretical framework

The theoretical framework of this study comprises broad areas related to social theories. A focus is set on theories of democracy, in particular on questions about participation, governance and stakeholder engagement (section 2.1). These questions are linked to the educational concept of Education for Sustainable Development (ESD), for this study applied to the university context (Section 2.2).

2.1. Participation, governance and stakeholder engagement

Participation is associated to the understanding of democracy and the relationship between citizens and state, being the theories of *representative democracy* and *participative democracy* the two most important strands in democratic theories. Both theories consider participation as essential to democratic governance and in forming legitimate institutions, even though the relation between civil society and state is perceived differently in each strand (Keohane, 2002; Brodie et al., 2009).

Based on these theories, and influenced by the preoccupation about the 'democratic' deficit that many Western societies are confronted with (Smith, 2005), new forms of participation methods and techniques have emerged, often related to *public participation* like participatory budgeting, citizen's juries and partnership governance (Fung and Wright, 2001; Fung, 2006; Cornwall, 2008). Public participation refers to the practice of consulting and involving members of the public into agenda settings, decision- and policy making of organisations or institutions (Rowe and Frewer, 2004) which is nowadays also associated with stakeholder engagement (Blomgren Bingham et al., 2005), often based on Freeman's (1984) stakeholders approach. Other forms of participation are *individual* and *social participation:* the first category refers to individual choices and actions as a statement for a society one would like to live in (e.g. voting, but also individual consumer attitudes and options of life styles), the second relates to collective activities one is engaged in on a regular basis, e.g. in one's community (Cornwall, 2008; Brodie et al., 2009).

In practice, the boundaries of different participation forms are blurred and can be found sometimes all together in a single project or process (ibid.). The literature distinguishes also different levels of participation, referring to distinct degrees of citizen power (Arnstein, 1969) and scopes of participation, depending on whether the objectives of participation target merely to inform or consult the public or whether it is intended to empower the participants (International Association for Public Participation, 2007). White (1996) sets the focus on underlying interests of participation and identifies *normative*, *instrumental*, *representative* and *transformative* types of participation.

In particular, participatory democracy is seen as an imperative way to revitalise the concept of democracy, to keep communities agile and public institutions accountable (Potter et al., 1994; Roberts, 2004). Agenda 21 enforces this approach by requesting to integrate participation on all societal as a sustainability principle and attributes a notably role of importance to education, including educational institutions such as universities (UNCED, 1992a, Ch. 36). This integration has consequently impacts on governance structures and stakeholder engagement (Hemmati, 2002; Shattock, 2002), and urges HEI to implement "a new mode of governing that is distinct from the hierarchical control model, [following] a more cooperative mode" (Enders, 2004, p. 379).

Stakeholder groups of HEI can be classified by internal/external, individual/collective, academic/non-academic stakeholders, being faculty, staff and students, but as well the government or other substantial supporters the main stakeholders (Jongbloed et al., 2008). The selection of relevant stakeholders should be executed carefully (ibid., Reed et al., 2009), as stakeholder engagement bears risks and advantages at the same time. Risks, for example, can be stakeholders lacking skills and resources (like time) to engage in a meaningful level, or self-interest and instrumentality on the part of the institution, or an overall lack of fundamental agreement and common objective about what is actually required for sustainability at a systems level (Collins et al., 2005). Advantages, on the other hand, can be seen in (i) capturing knowledge, (ii) increasing ownership, (iii) reducing conflict, (iv) encouraging innovation (*management perspective*); or in (v) inclusive decision-making, (vi) promotion of equity and (vii) building of social capital (*ethical perspective*); as well as (viii) more dialogue, (ix) reflection of own values and attitudes and (x) development of shared visions and objectives (*social learning perspective*) (Narain Mathur et al., 2008).

Reed (2008) concludes that participatory processes need to be institutionalised in order to develop an organisational culture "that can facilitate processes where goals are negotiated and outcomes are necessarily uncertain" (p. 2426), and that participation approaches are worthwhile to be tried dispite the risks they bear.

Linked to the key role universities have been attributed to in the promotion of SD principles, stakeholder engagement is therefore of particular importance for HEI with regard to the educational and institutional dimension.

2.2. Higher education for sustainable development (HESD)

The debate about sustainable development has also initiated the debate about an educational concept that would help to achieve the goals of sustainability: Education for Sustainable Development (ESD), usually called HESD when referring explicitly to the university context. Being integrated in Agenda 21, it has been a field for international educational policy-making since the beginning of the SD debate. The concept follows a transformative approach to education, led by a learning process that is based on the principles of sustainability and directed towards the objectives of empowerment and critical thinking (UNESCO, 2011; Barth and Michelsen, 2013). Diverse methodological and philosophical perspectives coexist, but there is a consensus about the normativity of this concept and the orientation towards action for sustainability (McKeown et al., 2006; Vare and Scott, 2007).

The research focus, previously put on environmental sustainability, has shifted more recently to articles on pedagogy, competencies, community outreach and partnerships (Barth and Rieckmann, 2013; Wals, 2014). Among these topics, the debate about competencies has gained particular visibility where the overall need for more inter- and transdisciplinarity, system-thinking, anticipatory thinking and critical thinking are highlighted (de Haan, 2006; Barth et al., 2007; Mochizuki and Fadeeva, 2010; Wiek et al., 2011; Rieckmann, 2012). Scholars debate about specific ESD competencies that can refer both to learners (competencies that should be developed when engaging in ESD) and to teaching persons, i.e. the person who facilitates ESD (Wals, 2010, 2014). It is differentiated between a *built-on* and a *built-in* approach: Whereas the first builds on extra sustainability courses and programmes for sustainability literacy improvement, the second fosters an integration of sustainability in all courses and research, and underlines the necessity of curricula renewal, new learning methods and reorientation in teaching. Specific ESD teacher training programmes exist (e.g. Barth and Rieckmann, 2012), but are yet to be spread more broadly among HEI.

Assessment tools have been developed within the evaluation process of the UN Decade Education for Sustainable Development (2005–2014), and offer some general ESD indicators (e.g. Podger et al., 2010; Di Giulio et al., 2011). There are also indicators for social learning within sustainability networks (Dlouha et al., 2013), but none of these efforts are university-specific, and participatory approaches are less explicitly covered. Scholars call for more research in these fields (Mader, 2013; Wals, 2014).

ESD in universities is therefore a field for enlarging the dialogue about SD and for the development of new mental models. It is consequently intertwined with the ideas about participation and governance and contributes in particular to the ethical and social learning perspectives of stakeholder engagement.

3. Methods

Inspired by the Delphi-method (Linstone and Turoff, 2002), the data collection was divided into two consecutive phases, consisting, first, of expert interviews ($N = 15$) and, second, of focus group discussions (four groups, $N = 36$). In addition to the research questions targeting CSF for participatory processes in campus sustainability initiatives, a further research question directed towards experiences with sustainability assessment tools was part of both data collections, but is not subject of this paper.

3.1. First data collection: semi-structured expert interviews

For the first data collection, a semi-structured interview method was chosen to obtain rich and varied data (Bryman, 2012) that would allow to compare different cases of sustainability initiatives involving different stakeholder groups and to identify a list of critical success factors of participatory approaches. Experts, like sustainability coordinators, professors and students engaged in activities directed towards to the transition to more sustainable universities, were considered to be the most appropriate sample group as they pursue relevant experience in the field. The selection followed a convenience sampling, as the interviews were supposed to be carried out mainly during an academic conference, but contacts were established previously by e-mail and based on the requirement of a minimum of 2 years working experience in campus sustainability. Fifteen selected experts in sustainability implementation at university level, from diverse academic backgrounds and nationalities (Table 1), were interviewed, using mostly open-ended questions about experienced failures and successes with participatory approaches in sustainability implementation. The questions strived for rich narratives that would allow deducing CSF. One closed question was geared to the personal classification of the respective participatory processes on a scale from 0 to 5, being 0 not successful at all and 5 very successful, and was used as a contextualisation for further open-ended follow-up questions to explore the most and least successful aspects and possible underlying factors A second part of the interview dealt with sustainability assessment tools and the interviewee's experience with them, exploring whether and how participation is or can be better included. The interviews, of 20–60 min length per interview, were conducted during the *World Symposium Sustainable Development in*

Table 1
Participants' profile of first data collection through semi-structured expert interviews.

#	Nationality	Age	Gender*	Profession	Level of education	Working in sustainability (average in years)
#1	Australian	30–39	f	Lecturer	PhD	10
#2	British	50–59	f	Sustainability Coordinator	PhD	15
#3	British	40–49	m	Lecturer	MSc	13
#4	Finnish	30–39	f	Sustainability Coordinator	MSc	13
#5	Finnish	40–49	f	Sustainability Coordinator	MSc	14
#6	German	30–39	m	Post-doc fellow	PhD	3
#7	German	30–39	m	Post-doc fellow	PhD	2
#8	Portuguese	40–49	f	Professor	PhD	15
#9	Portuguese	60–69	f	Professor	PhD	25
#10	Russian	30–39	f	Researcher	PhD	10
#11	Swedish	60–69	f	Professor	PhD	20
#12	US	20–29	f	Sustainability Coordinator	BSc	5
#13	US	20–29	f	Student	BSc	3
#14	US	30–39	m	Lecturer	PhD	15
#15	US	40–49	m	Professor	PhD	25
15	Total N (10 = f, 5 = m)			Average (years)		13

Universities 2012, a side event of the UN Earth Summit Rio+20, as well as in Portuguese and German universities during 2012 and 2013.

The interviews were audio recorded, transcribed, anonymised and coded, following a qualitative content analysis approach (Mayring, 2000, 2010), with the support of qualitative data analysis software NVivo 10. By examining what has worked best or not worked in the experiences described, and why, and what should therefore exist or be assured in order that effective participation a set of preliminary critical success factors for participatory processes in sustainability initiatives was retrieved. Rowe and Frewer (2004) alert that "establishing 'what works best when" (p.552) in public participation causes several research difficulties, as there is no precise definition for concepts such as 'effectiveness', and analysis relies on subjective interpretation. They consider, however, descriptive qualitative research as a valuable option to identify possible variables. The list of preliminary CSF was prepared to be discussed in focus group discussions for deeper exploration (Bryman, 2012).

3.2. Second data collection: focus groups

Focus groups are a common method in qualitative research to collect data via a group discussion in order to analyse perceptions, opinions and thoughts referring to a particular topic (Krueger and Casey, 2000). Due to usually informal settings and a relatively small group size, interaction between group participants is facilitated and can provide new aspects about the topic at study that would be difficult to collect in a different research approach.

For the second data collection, focus groups were considered the most appropriate method, as the objective was to investigate further (i) how the participants perceive the list of CSF previously obtained, (ii) to complete the previous data by integrating further aspects generated in the discussions, (iii) to analyse the level of importance attributed to the CSF, (iv) to discuss experiences with sustainability assessment tools and possible assessment criteria for participation while looking as well for (v) additional emerging patterns.

The focus groups were set up during academic meetings and conferences related to *Education for Sustainable Development in Higher Education* (European Virtual Seminar (EVS) Meeting 2013, Sinaia, Romania; and Regional Centres of Expertise (RCE) Meeting 2013, Kerkrade, Netherlands) and *Sustainability in Universities* (ESCR-EMSU 2013, Istanbul, Turkey) as well as at a German university that is considered a pioneer in holistic sustainability implementation and that has highly experienced experts in this field. Participants were selected similarly to the first data collection (convenience sampling with previous contact by e-mail), i.e. sustainability experts from diverse backgrounds, but with a minimum of a two-years working experience in campus sustainability. The participants ($N = 36$) were represented equally by female and male (50% each), were mostly in the age group 30–39 and 50–59 years (31% each) and pursued mostly a postgraduate degree (Table 2).

3.2.1. Focus group procedure

The groups were composed of 4–12 participants and one moderator (first author), with a relatively homogeneous distribution of gender, age and working experience between the different groups. A planned fifth focus group could not be realised due to agenda incompatibilities of the selected participants and was transformed into three individual interviews and one interview in pairs, following a slightly adapted procedure to the focus group, but maintaining the same objectives (Table 3).

The focus group procedure for this study was inspired by the Delphi method and analysis methods applied in project management, like the relevance tree (Drews and Hillebrand, 2007, p. 136).

Table 2
Socio-demographic data of focus group participants.

		f	m	*N*
Gender		18 (50%)	18 (50%)	36 (100%)
Age groups	20–29	4 (11%)	0	4 (11%)
	30–39	6 (17%)	5 (14%)	11 (31%)
	40–49	2 (6%)	4 (11%)	6 (17%)
	50–59	3 (8%)	8 (22%)	11 (31%)
	60–69	3 (8%)	1 (3%)	4 (11%
Level of education	Bachelor	2 (6%)	0	2 (6%)
	Master	10 (28%)	4 (11%)	14 (39%)
	PhD	6 (17%)	14 (38%)	20 (56%)

At the beginning of the discussion, the participants were introduced to the scope of the study and to the list of CSF retrieved from the first data collection. Focus groups with more than four participants were then divided into two groups, A and B. Every (sub-) group was provided with a set of cards containing a CSF on each card, including some blank cards for further notes. Participants were requested to discuss the CSF in their (sub-) group and to organise the cards according to the importance they would like to attribute to the respective CSF. Further factors could be added, if wished. At the end, the subgroups presented their results to each other, followed by a plenum discussion. During the card exercise, the moderator was not actively involved, being only in charge of clarifying doubts, controlling time and guiding to the final plenum. In the cases where the focus group discussion was substituted by an individual interview, the procedure was similar: the participant organised the cards according to the personal perception of importance, only the plenum discussion was skipped. As the respondents possessed a high level of expertise, the data geared in these interviews were considered important and could be integrated satisfyingly into the analysis.

Each focus group and interview lasted approx. 60 min and was video- or audio recorded, respectively. Pictures were taken from the final card sorting. Observations were noted down during and after the discussions. Relevant sections of the video and audio files, like the participants' explanation about their card sorting and plenum discussions, were transcribed and anonymised.

3.2.2. Data analysis

All types of material sources collected during and after the focus group sessions, namely video/audio, pictures, transcripts and field

Table 3
Composition of focus groups.

Focus group (FG)	Group	*N*	Nationalities	Working in sustainability (average in years)
FG1	A	4	Romanian, German, Austrian, Dutch	8
	B	4	Portuguese, Greek, German, Romanian	
FG2	One only	4	Austrian, South-Corean, British, Greek	11
FG3	A	3	Czech, British (2)	13
	B	4	British, French, German, Swedish	
FG4	A	6	Belgian, British, Swedish, Canadian, Dutch	8
	B	6	French, Belgian, Mexican, German	
Exp. Int. I	n/a	2	German	15
Exp. Int. II	n/a	1	German	13
Exp. Int. III	n/a	1	German	15
Exp. Int. IV	n/a	1	German	12
Total *N*		36		10

notes, were considered for the data analysis, following again the qualitative content analysis procedure according to Mayring (2000, 2010). A focus was set on similarities and differences as well as on aspects highlighted by the participants, in order to identify emerging patterns and the levels of importance attributed to the CSF. Based on these outcomes, a matrix was developed to rank the card sorting order, classifying the CSF into four categories: 1 – very important, 2 – important, 3– still important but less, 4 – least important, considering as well proximity and distances of how the cards were placed. This ranking was then compared to the patterns and additional CSF emerged during the focus groups and integrated into a final concept map (Novak, 1990) to support visually some of the findings.

Qualitative research approaches questions related to reliability and validity differently than quantitative research, applying alternative criteria for its evaluation (Bryman, 2012). The authors conducted the research with highest sensitivity to the context, commitment and rigour as well as transparency in all research steps. In order to avoid observer biases (Angrosino, 2004; Bryman, 2012), the authors applied an overall reflective and conscious attitude to reconsider influences of personal assumptions and preconceptions and hope to have addressed best the shortcomings of qualitative research regarding the concerns about subjective interpretations.

4. Findings

4.1. General remarks

Similarly to the term 'sustainable development' or 'sustainability', the term 'participation' can be perceived differently, and due to its vagueness and manifold possibilities of understanding many options coexist (Brodie et al., 2009; Fung, 2006). This phenomenon could also be observed in this study, as participants sometimes used the same terms while meaning different issues, making the analysis more complex and difficult. Since the study does not focus on the different perceptions and understandings related to participation, but aims to identify critical aspects for effective participation in sustainability efforts at university level, the experiences described were analysed based on their rich descriptions of successes and failures. First, the participatory approaches to sustainability implementation, reported by the first sample group, are resumed and linked to different forms of participation for a better contextualisation of the findings. Next, failures and successes of these approaches are portrayed and resumed in a list of CSF. Finally, based on the second data collection, the CSF are ranked and completed with a clusters map emerged from the focus group discussions.

4.2. Variety in participatory approaches to implement sustainability

The interviewees of the first sample reported about different types of sustainability initiatives in which they were involved:

- Campus Retrofitting with a *public participation* approach
- Creating a campus garden *(individual/social participation)*
- Executing a student-lead referendum for a campus sustainability tax *(public participation)*
- Executing a World Cafe[1] as a kick-off for campus sustainability ideas *(public participation)*
- Holding conference meetings related to climate change and sustainability *(individual participation)*
- Implementing environmental management systems *(individual/social/public participation)*
- Organizing activities for signing the declaration *Higher Education Sustainability Initiative Rio+20 (individual/social/public participation)*
- Organizing online forums *(individual/public participation)*
- Organizing workshops related to sustainability *(individual/social/public participation)*
- Student projects related to campus sustainability *(social participation)*
- Town hall meetings for the development of a Sustainability Action Plan *(public participation)*
- Projects related to biodiversity and other activities in a university botanical garden (individual/social participation)

This list of initiatives demonstrates a large variety of different forms of participation (individual/social/public participation) and consequently different objectives and levels of participation (see Section 2.1. for details). Data was analysed as a whole and not fragmented into different types of participation, in order to obtain a more global view of the failures and successes experienced.

4.3. Failures and successes based on reported experiences

Overall, interviewees classified the participatory approaches in the initiatives that they described as *fairly successful*, with some examples being *very successful* and others being *not successful at all*.

When referring to successes, most interviewees highlighted that many people were participating, sometimes also specifying the large variety of different stakeholder groups being involved, i.e. students, non-teaching staff, staff, and even external stakeholder like external partners or the local government authorities, underlining positive aspects like 'more dialogue' or attributing a positive time perspective where participants are seen as 'future advocates/champions':

> *Maybe one criterion could be that the people involved now could get more involved or inspired by the idea of sustainability. And I think in this way it was a great success. Fifty people, I think some of the guests, (…) got at least very inspired to think about sustainability. And if they are 'multipliers'[2] or other people who deal with some kind of sustainability at university, I think it was a great success. [#6, participatory approach / initiative: World Café]*

On the contrary, the absence of relevant stakeholder groups in the process was perceived as a failure:

> *There were some things that were very successful, and a few initiatives a spectacular failure; they didn't really manage to bring everyone in. [#13, participatory approach / initiative: student projects related to sustainability]*

Faculty members were considered to be the most difficult group to engage, as pointed out by several interviewees from the same stakeholder group, but a better collaboration, particularly between administrative staff and faculty, was experienced as an enriching teamwork that would keep the process on-going:

[1] The World Café is a participatory process method using small group discussions in a cafe setting. Further information can be found at http://participationcompass.org/article/show/166 (accessed 02-10-2013).

[2] 'Multipliers' or 'multiplicator' is commonly used in German-speaking regions and refers to persons who disseminate and spread a certain idea. In English, most closely are terms like 'advocates' or 'champions'.

Well, I still think that it's really good to have, you know, the variety of both from faculty and from administration staff together. Because sustainability is so wide, so then maybe you discuss with your colleagues about something, but then you hear something else and you get new ideas. So, I think that's also one aspect why it is successful. [#5, participatory approach / initiative: Signing the Higher Education Sustainability Initiative Rio+20]

However, the lack of time and availability, in particular from staff and faculty, were experienced to block well-intentioned participatory approaches. High workloads and different lists of priorities were also mentioned as impeding factors for a more successful participatory process (for the this section and the following see also the appendix for additional examples of quotes):

So, in order to get participation, we very much rely on good willingness, and that is not sustainable. That's the problem. One of the big issues that we find is that people are very passionate about it, they want to be involved, but because it's not part of their job, then they sometimes have difficulties to free some time. [#3, participatory approach / initiative: various]

But when describing the most successful aspects of the participatory approaches, several interviewees highlighted the positive emotions participation may stir up, referring to feelings such as esteem, joy, confidence, optimism, acceptance, recognition, empowerment, of all parties involved:

You know, so that people hopefully felt valued. [#14, participatory approach / initiative: town hall meetings and online forum for a Sustainability Action Plan]

I think, we also constructed optimism about solving problems for sustainability and it's a discipline where there is not a lot of optimism, right? Most things are just very depressing, but I think we are all really empowered, all of us were empowered, which is… 'we can do it here, and we can do it here, and here, and here. We should be able to go to any place.' [#15, participatory approach / initiative: retrofitting of campus]

These potentials for transformation were linked to raising champions and to capacity-building, perceived as being the most positive aspects in a participatory approach.

For institutional-wide change, however, the support of the university's presidency and a more systemic approach were perceived as necessary in order that the outcomes of a positive participatory approach can have a longer lasting impact and not turn into frustration:

I would classify it [the initiative] as 'not successful'. Because, I think there were some good attempts in there, but I actually think in terms of having goals that have been brought into by the entire community, and (…) and then you're dropped off a cliff [by the university (top-)management]…(…) I think that at the high levels, they wanted to have the appearance of participation, more so than actually deal with having so many opinions on the table. [#14, participatory approach / initiative: Town Hall Meetings to develop a Sustainability Action Plan]

They're mainly ad-hoc. Kind of isolated examples that tend to burn out. [#1, initiative: Workshops]

By analysing what has worked best or caused failures, and which can be possible reasons or specific requirements needed for success, several items were identified as preliminary critical success factors, including positive outcomes/benefits of participatory approaches (Table 4, items are in alphabetical order). These factors were put on small paper cards and presented to participants of the focus group discussions as explained in the methodology Section 3.2.

Table 4
Preliminary critical success factors for participatory processes in sustainability initiatives in HEI (results from the first data collection).

Critical success factors	
• Communication	• Starting on time
• Enough time	• Stimulate positive feelings
• Identification with goals	• Strategy with a goal
• Making sure that the right people are at the table and that they are heard	• Support of top-management
	• Tangible objectives
• Non-judging attitude	• To find out what people are caring about
• Personal strength and persistence	
Outcomes/Benefits	
• Capacity Building	• More dialogue
• Collaboration	• Networking
• Confidence	• Optimism
• Empowerment	• Positive image of the university
• Increase of acceptance	• Raising champions

4.4. Ranking of CSF and emergent clusters

Cards were sorted differently in each (sub-) group and expert interview, but the most often chosen form were placing the cards in rows, which were described as a "timeline", "process" or "clusters", indicating sometimes a hierarchical level:

"This is both, an order of importance, we say, this is the most important set of factors. This ranks second, this ranks third; it has more process characteristics. But we discovered also there is basically a timeline in where you start, basically 'first things first'- idea. We start here and this is what you follow. "[FG1_A_m1][3]

"Process" was one of the most often referred terms in all groups, followed by "structure":

"Looking through the statements we thought that we are seeing specific clusters of statements, having to do with the structure of conditions, with the personal characteristics of those involved and finally the process". [FG1_B_m2]

However, some participants preferred not to follow a hierarchical categorisation, considering the factors equally important depending on the specific context:

"First we say 'It depends on!' [General laughter] The academics are completely satisfied with this answer [general laughter]. But it really depends on context, on the persons involved and on students engagement, where we need the champions... And depending on this – the persons and the context – we have to pick up the critical success factors, according to the situation, and that is why we created a basket [general laughter]. Maybe it is also a kind of backpacker's philosophy, where you have all you need in your rucksack. [FG3_B_m1]"

Based on the combined analysis of the focus group transcripts, pictures and a specific matrix developed as explained in Section 3.2.1, the critical success factors were ranked according to four

[3] The code refers to the focus group compositions of Table 3 and indicates first the specific number of the focus group, then the subgroup (A or B) and, third, the gender of the participant (m = masculine, f = feminine).

levels of importance: (i) very important, (ii) important, (iii) still important, but less; (iv) not very important (Fig. 1).

Communication was most often considered as a 'very important' critical success factor, together with *strategy with a clear goal*, whereas *starting on time* was perceived merely 'less' or 'least important'. Overall, the perceptions of importance vary significantly between items and reflect a blurred picture about the CSF ranking.

The graphical analysis of the cards' sorting exercise reveals a variety of approaches to classification: cards were placed, for example, in form of a pyramid, 'basket', cross, frame or blocks, that can be seen as a preference to combine classical hierarchical ranking with an additional non-linear approach (Fig. 2). As grouping the CSF into clusters and outlining interdependences and relationships was the most often choice, it can be considered more appropriate to identify patterns than to follow a quantitative or linear classification for the CSF.

Three main clusters emerged (Fig. 3, related terms were put in italic in the following section): CSF were grouped into structure-, process- and persons- related issues that are influenced by each other. Further CSF were added or modified to the preliminary list. The structure provides *enough time and availability* for a participatory approach, and eventually the support of the university's high board members (*support of top management*), that was considered to be very important if the sustainability initiative strives to have an institutional impact. The process of a participatory approach should be directed towards a *communication* strategy aiming *to find out what people are caring about* and be based on *listening*, *giving feedback* and *a non-judging attitude*. This form of communication should allow developing together a *strategy with clear goals* that the participants identify with (*identification with goals*) and that has *tangible objectives*. Overall, the process should be focused on *capacity-building*, *empowerment*, allowing *raising champions, stimulating positive feelings* and *give a voice to relevant stakeholders*. In the cluster related to persons it was highlighted in particular the advantage, or even the necessity, of having a *dedicated facilitator* to lead throughout the participatory process, without specifying further the group of participants. But the facilitator and participants should have *specific dispositions, skills and participatory competencies*. These can be, for example, communication skills, as outlined above, as well as *intuition*, *personal strength and persistence*, *flexibility*, and *appreciation*. Furthermore, there should be *authentic interest* and *credibility* from all parties involved, shown as well from the university's top-management, in order to *avoid frustration* and encourage continuous participation.

5. Discussion

Overall, the experiences described by the university sustainability experts in this study demonstrate consistency with some previous studies about sustainability in higher education, as they mirror:

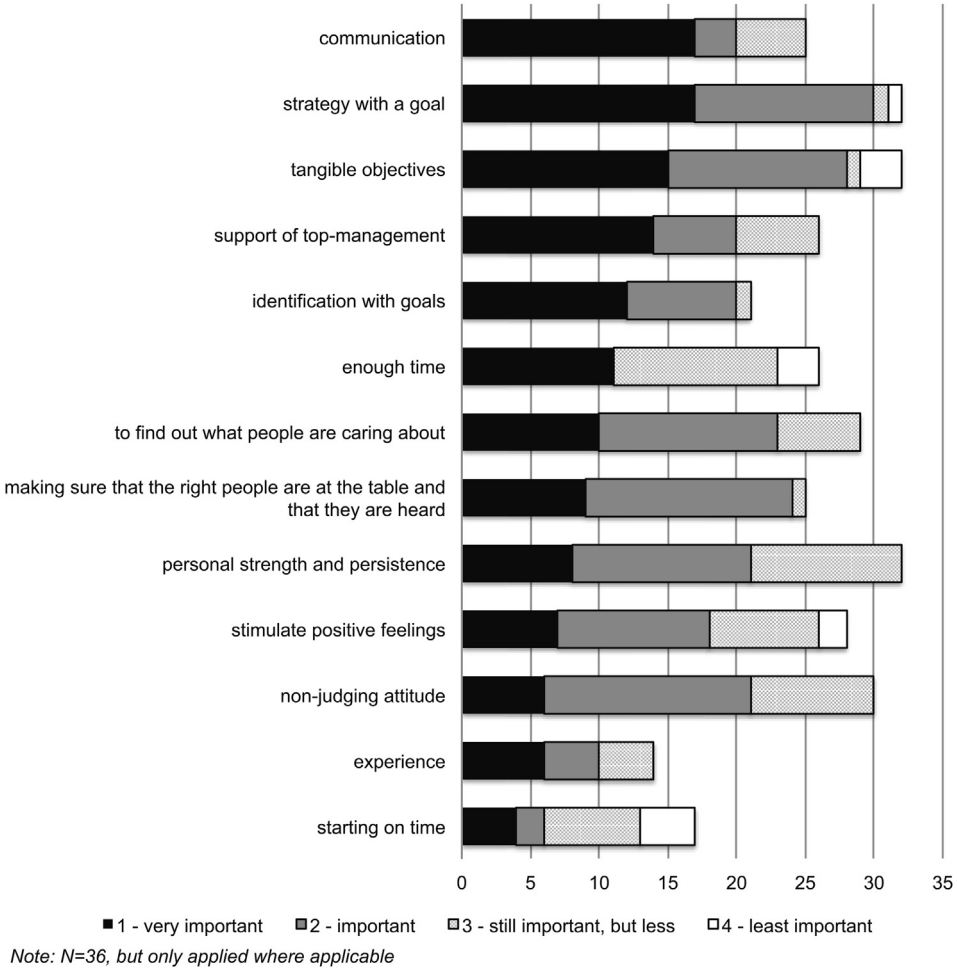

Fig. 1. Critical success factors for participatory processes – perception of importance according to the sample.

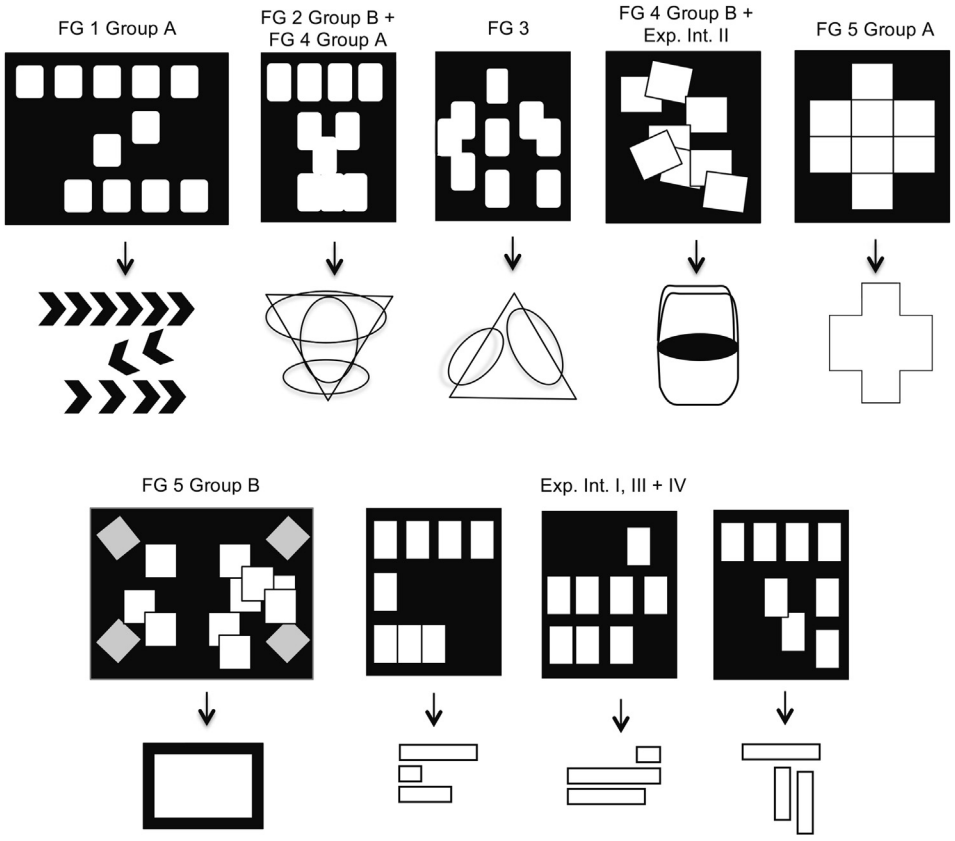

Fig. 2. Schematic representation of CSF organisation (card pictures): Black squares illustrate the cards positions (upper row) and the corresponding graphical trends (lower row).

(i) the manifold varieties of sustainability initiatives existing in universities that can be either student-led or institutionally initiated (or a combination of both)(Brinkhurst et al., 2011);

(ii) the diversity of implementation strategies universities choose to foster sustainability (e.g. Barth, 2013);

(iii) the shift from a ESD perception focused on environmental sustainability to a more holistic approach, emphasizing

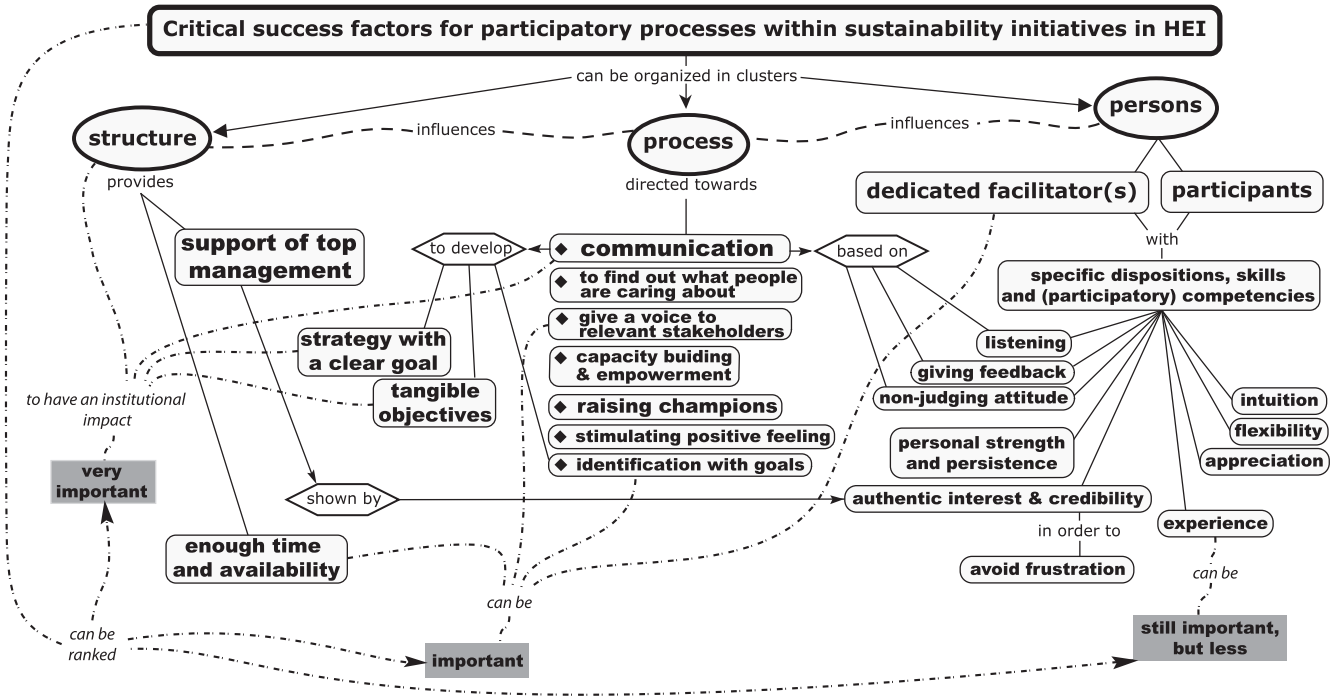

Fig. 3. Clusters of critical success factors for participatory processes within sustainability initiatives in HEI.

transformative learning (Wals, 2014), in as much as the participants have given high value to empowerment and capacity-building. The findings point also to an increasing use of public participation approaches and to the growing expertise HEI are gaining in ESD.

Furthermore, the findings give empirical evidence to some of the aspects of stakeholder engagement regarding risks (Collins et al., 2005) and benefits (Narain Mathur et al., 2008; Reed, 2008): Similarly to those studies, the respondents in the present research highlighted risks such as lack of resources, credibility and frustration, and in return the positive outcomes, such as increase of acceptance, confidence, more dialogue and optimism. The focus group discussions revealed in particular the importance of specific competencies for participatory approaches, pointing out that required participatory skills need to be trained and developed, not only by the participants but as well by those who aim to lead through participatory processes. This aspect is of importance with regard to teacher training and/or to the need of ESD trained facilitators, as there is still a lack of sufficient attention to the development of ESD competencies for faculty and staff (Barth and Rieckmann, 2012). However, these competencies can be vital for the success of a public participation process, as shown also in research conducted out of the university context and in which the need of highly skilled facilitators is emphasised (Reed, 2008).

The findings also point to the complexity inherent to participation, as the success of a process does not depend only on the persons engaged, but likewise on the structural conditions. These conditions would allow participants to allocate enough time and availability, and ideally provide the support of the university's high board members. The latter, however, can be discussed divergently: Some respondents underlined that this support is important in order to integrate sustainability initiatives into the institutional structure, whereas others made clear that initiatives can also be successful without the top-management's support, as many student-led projects prove. These typically bottom-up initiatives can nevertheless have an institutional impact by challenging existing governance structures in HEI and can exert pressure for change (as e.g. the referendum initiated by students for a campus sustainability tax in this paper).

These initiatives reflect thereby the political dimension of participatory approaches in sustainability and can be seen as a field of learning of democratic values and encouragement to enact a responsible citizen role, as projected in Agenda 21. This may apply to the different forms of participation (individual, social or public), as there is overlapping; yet a more differentiated understanding of participation is necessary, as objectives and level of decision-power can vary significantly depending on which kind of participation is pursued. Overall, there is still relatively low attention given to the political dimensions in campus sustainability implementation, and the focus group discussions dealt only indirectly with questions related to power and governance structures of HEI.

An institutional culture of participation, as requested by Reed (2008), appears to be less associated to the success of participatory approaches within campus sustainability initiatives. But the accentuation of interdependencies of process, structures and persons, as demonstrated in Fig. 3, can allude subtly to a more cooperative style of governance (Enders, 2004), that would focus on a more inclusive communication strategy, as emphasised in the concept map, and that would give space to new forms of democratic expressions (Fung and Wright, 2001). The participants in this study highlighted the importance of capacity-building and empowerment which fall into the categories of transformative participation and critical thinking as targeted in ESD (Barth and Michelsen, 2013), and underlined the necessity to give a voice to relevant stakeholders. However, it was not debated *if* and *to what extent* participants should be engaged in decision-making (Arnstein, 1969; International Association for Public Participation, 2007).

Following the ideas of White (1996), there is a risk that participatory approaches serve interests of display (e.g. positive image of the university, 'greenwashing'), or are instrumentalised to achieve a specific goal (e.g. saving costs), that may cause frustration and loss of confidence. Therefore, it is essential for practitioners but also for high board members, to be self-critical and to examine the underlying motivation for a participatory approach, in order that participants can feel an authentic interest from the institutional side. Monitoring and evaluation can be regarded as helpful in this sense, as they allow more transparency and enhance credibility, and can in turn support participants' disposition for a continuous participation, as pointed out in the findings.

6. Conclusions

Despite relying strongly on a given context that is different in each university, participatory processes can offer different kind of positive outcomes and benefits for the academic community and their efforts in fostering sustainable development. These can be, among others, a better quality of dialogue, a higher awareness for sustainability and empowerment. But participatory approaches also imply risks and challenges, in particular related to institutional governance, as structural conditions may become necessary to be revised.

A better integration of the dimensions of participation into sustainability assessment practices can be considered desirable, in particular with regard to establishing participatory approaches on institutional level and fostering a culture of participation in the transition to sustainable universities. However, assessment for participation calls for a more non-linear approach, including qualitative elements and preferably the participants themselves, as classical linear or static forms of sustainability assessment would neither give justice to the complexity of participation and SD nor reflect satisfyingly the multiple realities in HEI. The CSF clusters deduced in this paper, to be understood in a systemic manner, can hopefully contribute to develop a more inclusive assessment for participatory sustainability initiatives in HEI.

With this research, the concept of HESD is strengthened as an important support to frame educational activities with regard on SD implementation. Further reflection on the scope of empowerment and capacity building, in particular with regard on the engagement in decision-making, are needed in order to take HESD to a further level of SD implementation. As suggested in the findings, universities are urged to invest more in ESD staff training and to open up for new governance models, if they indeed wish to be key players in sustainability. The academia in general, including students and non-teaching staff, is invited to seek and experiment new paths towards a culture of participation that allow broadening new ideas about sustainable universities. By following a qualitative approach and mapping the experience of sustainability experts within participatory approaches, this study provides insights from voices not yet presented in this manner, and wishes to encourage taking new perspectives in the sustainability debate at university level.

As the present study is based on subjective experiences of a relatively small sample group, the list of CSF and respective clusters can be considered neither complete nor representative. Even though the study is internationally orientated, with participants coming from twenty different countries, the geographical scope is still limited and cultural aspects are not taken into consideration.

Future research could explore in more detail differences between stakeholder groups in HEI (i.e. students, teaching and non-teaching staff, relevant external groups), as well as compare facilitators' and participants' perceptions and needs within

participatory processes. Thereby, research could acknowledge in more depth the societal profile of the academic community as well as the specific institutional characteristics of universities, and compare it with studies about participation and SD conducted outside the university context (e.g. Macnaghten and Jacobs, 1997; Feichtinger and Pregernig, 2005). As this is an ongoing study, these aspects are to be included in following research phases.

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Appendix

Here are presented additional quotes of interviews and focus group discussions to support the findings.

Related to Section 4.2:

Example for high workloads and different lists of priorities as impeding factors for a more successful participatory process:

Well, for example: The Sustainability Action Plan's objective was to have an overall picture of the things we are doing already, and how we can do it more systemically, how we would have sustainability included in the service units or the operations. The idea was to involve everybody (…). How would Human Resources contribute? How does our International Office contribute? How would IT contribute to the overall sustainability? To involve everybody, so I would describe it as' not successful at all', or 'not successful', because people were too busy and with work overloaded, and this [topic] is not, you know, their focus...[#4, participatory approach / initiative: Development of a sustainability action plan]

Example for positive emotions that participation can stir up:

(…), but by having this participatory process suddenly it is easier for the administration and the physical plant and the contractors, because we have students that are helping to do the research, and the students feel like they're getting a better building to study, because they got to say 'wouldn't this be cool, if we had this in the building'. So, all those physical things added up to a really good product, but the process was not painful for anyone, it was actually much more enjoyable and we all feel very confident in the process and the product. [#12, participatory approach / initiative: retrofitting of campus]

Example for capacity-building related to participatory processes:

The engagement in the process is always very positive, because you really benefit from something, when you manage to get people together to achieve one specific goal and when you see they don't give up, because they have to overcome a number of difficulties. So, I find it very positive, because it means that you are truly open and determined to do this job. Maybe this is the most positive aspect: the capacity-building. Because, when you are successful, then you can spread this positive output of your effort. This is also a good achievement, because it's easily spread and you can contaminate others and engage others in the same process. But, well, maybe the most positive aspect is that we are raising champions. [#8, participatory approach / initiative: Biodiversity / university garden]

Related to Section 4.3:

Example for 'process' and 'structure' being the most often referred terms when structuring the CSF:

We first thought of four very broad categories, content and process/ related things and then more a kind of structural aspects of a process-management. So, in terms of content and processes we thought that all these things were quite important." [FG4_B_f1]

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