Implementing Sustainability at the Campus – Towards a better Understanding of Participation Processes within Sustainability Initiatives

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Abstract

Participation is seen as a fundamental pre-requisite for the achievement of sustainable development. Applied to the university framework, participation refers to student and faculty involvement, giving the institutional community the opportunity to shape an institutional transformation process toward a more sustainable campus.

This ongoing research project intends to analyse how universities involve students and faculty in their efforts towards campus sustainability, and how these efforts are assessed. It aims to contribute towards a better understanding of the complexity inherent to sustainable development and the participation processes used in higher education for promoting sustainability practices and for fostering citizenship and democratic values.

This paper presents the project's methodological approach, based on an intensive literature review about participation and sustainability assessment tools, with a focus on tools applied in the higher education sector. Eleven of these tools, of which some use indicators, were selected, systemised and verified against the extent to which the participation of the campus community is captured and evaluated.

The results are used as a starting point for further discussion and research that shall lead to the development of an assessment tool for participatory approaches.

Introduction

Sustainable development (SD) and the question of how to overcome global challenges such as climate change, social inequality, loss of biodiversity, overpopulation, and lack of resources – to name but a few – have been discussed at the highest international political level for about four decades. Within this debate, the education sector has been attributed a key role in promoting SD (UNEP 1972; UNESCO 1998).

Due to their high societal impact, universities have been challenged to take a leadership role in disseminating sustainability principles. Universities are seen as multipliers with ethical obligations to systemically integrate SD in their institutions and to provide best-practice examples (Cortese 2003; Čiegis and Gineitiene 2006; Lozano 2006a; Alshuwaikait and Abubakar 2008; Leal Filho 2009) A growing number of higher education institutions have adopted declarations about Campus Sustainability (e.g. the Talloires Declaration, the Halifax Declaration and the recently updated Copernicus Charter). The current UN Decade of Education for Sustainable Development (2005-2014) has originated a vast number of projects related to SD in the tertiary education sector (UNESCO 2010). A research team associated to the UNESCO Chair in Higher Education for Sustainable Development (Leuphana University of Lüneburg) recently published a proposal for an indicator set evaluating education for sus-

tainable development for the geographical regions Austria, Germany and Switzerland (Di Giulio et al. 2011).

Agenda 21 stresses the importance of public participation as a "fundamental pre-requisite for the achievement of sustainable development"(UNCED 1992), as does the OECD's governance strategy "Citizens as Partners" (OECD 2001) and the Aarhus Convention (UNECE 2001). Furthermore, Agenda 21 gave the impulse to develop sustainability indicators (UNCED 1992, Ch. 40) in order to strengthen the implementation of SD to be able to evaluate progress and to have a solid basis for decision-making.

Universities have started to recognise the use of assessment and reporting tools, as these tools constitute a helpful guideline for SD implementation. They make policy and charter statements more operational by identifying best-practice examples and striving for continuous improvement (Shriberg 2002). Furthermore, they enable more effective communication about the complexity of sustainability. Several assessment tools, of which some are indicator-based, have been developed for universities to assess their sustainability performance, and carried out on their strengths and weaknesses (Shriberg 2002; Cole 2003; Chambers 2009; Laroche 2009; Fonseca et al. 2011; Madeira et al. 2011). The dimension of participation in these assessment tools, if included at all, is approached in different ways, and there is a paucity of studies dealing with integrated approaches to SD involving faculty and students.

To help fill this gap, this ongoing research project focuses on campus sustainability and its assessment tools, and on participation processes within sustainability initiatives in particular, with the final objective of developing a measurement tool for participation. The overall aim is thereby to contribute towards a better understanding of the complexity inherent to SD and the means of participation processes in higher education for promoting sustainability practices and for fostering citizenship and democratic values.

To achieve these objectives, at the initial stage of the research project environmental management systems (EMS) were analysed as one group of assessment tools that have been adopted in many campuses around the world. This stage of the study examined whether the implementation followed a top-down or a participatory approach, and which activities were carried out in relation to EMS on campus (Disterheft et al. 2012). Case studies showed that EMS can be used beyond operations ends and give opportunities for research and teaching embracing a participatory dimension (ibid.). The results of the study pointed to the necessity of deepening the research into the participatory dimension of campus sustainability and investigating further assessment tools. This paper constitutes a continuation of the previous research, and focuses on the participatory dimensions within sustainability initiatives on campus and the related assessment procedures. Therefore, current practices were examined, which led to the selection of eleven sustainability tools that have been used in the university context. Some emphasis was given to indicator-based tools, since these allow the presentation of condensed information in a more comprehensive and traceable way. These tools were analysed with respect to the applied measurement approach (Dalal-Clayton and Bass 2002) and the extent to which the participatory dimension of the campus community is captured. A preliminary evaluation is presented in order to gain a better overview and understanding of the current situation, and allows some conclusions to be drawn for the ongoing research.

Participatory approaches are in general considered to be positive, as they can increase acceptance, achieve consensus, enhance the understanding of SD and may result in a higher level of awareness that in turn may contribute to an overall improvement of institutional sustainability performance (Bass et al. 1995). At the same time, participation has become a catch-all term with a multifaceted use and different understandings depending on the context. Some reflections on the term *participation* are given in the first section and linked later to the field of assessment, since the underlying understanding of participation influences the choices

for indicator variables, and forms the basis for reflecting on the participatory dimension to existing sustainability tools.

Defining participation – a catch-all term

Promoting SD is closely linked to areas such as public participation and citizens' involvement. *Participation* and *empowerment* are two terms associated with the development of key competencies for SD. The first term refers to a continuous learning perspective, as pointed out by Howell et al. (1987): "Individuals must be provided with numerous opportunities throughout their lives to acquire the information and skills necessary to enact the citizen role". The second describes a multidimensional process of learning to think critically and to effect change in the personal life and in the community (Florin and Wandersman 1990). Particularly the latter aspect calls on citizens to be personally involved in decision-making processes (ibid).

The important commitments at the highest political level, as expressed in Agenda 21, the Aarhus Convention and the OECD strategy, have strengthened participatory approaches, but have also led to an inflationary use of the term *participation*: it has become a catch-all term and, similarly to the term *sustainable development*, it appears that the same word is understood in different ways; a universal definition does not exist. Therefore, in order to be able to conduct an analysis of the participatory dimension within sustainability assessment tools it became necessary firstly to understand what participation means or can mean. This reflection helps to define criteria for assessment ('what to measure') and helps find these criteria in existing assessment tools. From this reflections it is possible to move on to the question of 'how to measure', which provides an overview of future steps in this ongoing research project. In order to help clarify the different connotations around the term *participation*, the authors provide a brief resume of the theoretical context and the main streams of the current academic discussion.

Theoretical context

The recently concluded two-and-a-half-year project "Pathways through Participation", carried out in the United Kingdom by the National Council of Voluntary Organizations (NCVO), in cooperation with the Institute of Volunteering Research (IVR) and Involve[1], provides a useful summary of the huge amount of literature related to participation (Brodie et al. 2009) and gives insights into its complex dimensions from theoretical and practical perspectives. Below, some of the most important aspects connected to the research topic have been identified.

Since participation is linked to the understanding of democracy and the relationship between citizens and state, democratic theories have served as an analytical tool to further develop the research in this field. The two most important strands are the theories of *representative democracy* and *participative democracy*. Both theories see "individual participation as essential to democratic governance and in creating legitimate institutions", even though the relationship 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, such as participatory budgeting, citizens' juries and partnership governance (Brodie et al. 2009). In particular, participatory democracy, with its demand for "involving the majority of people in decisions that affect their lives" (ibid.), is seen as an imperative way of revitalising the concept of democracy, to keep communities agile and public institutions accountable (Potter et al. 1994; Roberts 2004).

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1   Involve is a charity-funded organization that carries out research in the field of public participation: http://www.involve.org.uk/about/.

Agenda 21 aligns with this view and requests integrating participation on all societal levels (UNCED 1992; Ch. 1, 28, 36 ff). The positive implications of this participatory approach seem to be evident and are not questioned in the literature, but some authors criticize the fact that the principles of participatory democracy are not translated into practice, and fail to shift existing power relationships (Brodie et al. 2009).

Theories about civil society, social capital, social networks and movements can complement the understanding of representative and participatory democracy because they reflect on the power relationships between individuals, groups and wider society. Since a detailed discussion of these theories would exceed the scope of this paper, the authors have selected only single aspects of the broad discussion that are considered important for the understanding of participation: (i) the provision of space for voices of different stakeholders to associate is a critical component of democracy (Dahl 1989); (ii) joining and taking part in local organizations helps to foster trust in others and to develop a sense of values (Putnam 1995); (iii) the presence or absence of public engagement impacts on the quality of governance, democratic institutions and public life (Stoker 2004). Furthermore, these theories depict questions about social and socioeconomic inequality. Recent studies show, for example, a relationship between social status (class) and likelihood to engage (Brodie et al. 2009). Social movement theories shift the emphasis from organizational to social networks, where individuals are no longer *members*, but *participants*, who "have a sense of being involved in a collective endeavour" (ibid.). These movements are where personal involvement, individual investment, new cultural modes, relationships and world views are experienced and shaped, and can be seen as a predictor for individual participation (della Porta and Diani 2006).

In this context, several authors offer reflections on the question of power, characterizing power by its "public, hidden and insidious face" (Lukes 1974, 2005, in Brodie et al. 2009), and on how these forms of power relate to the space for participation and the different levels (local to global) of power (Gaventa and Cornwall 2006). Understanding these dimensions of spaces, the levels and forms of power as "separate yet interrelated dimensions" permits us to link them analytically together and to identify "obstacles and different entry points towards changing power balances in new forms of governance" (Gaventa and Cornwall 2006; Brodie et al. 2009). in this way, some light may be shed on the question of why some people are routinely and perpetually excluded from some form of participation.

Levels, forms, typologies and scope of participation

Societal levels

Participation has different connotations, depending on the societal level, and can be looked at from different perspectives. Due to the complexity of participation, it is helpful to have a clear picture of the societal level one is referring to when speaking about participation, since each level deals with specific questions and problems.

Participation as called for in Agenda 21 refers to the macro, meso and micro levels of society, and references to the importance of participation can be found throughout the entire document. With regard to the educational sector, at the macro-level it is, for example, required that participation be incorporated into the international and national framework of educational policymaking; at the meso-level institutions are challenged to embed the participatory dimension in their organizational structure and governance model; and at the micro-level it refers to the concrete learning settings and spaces for participation provided in institutions and their communities (Fig. 1).

Fig. 1: Societal levels of participation (adapted from UNCED 1992)
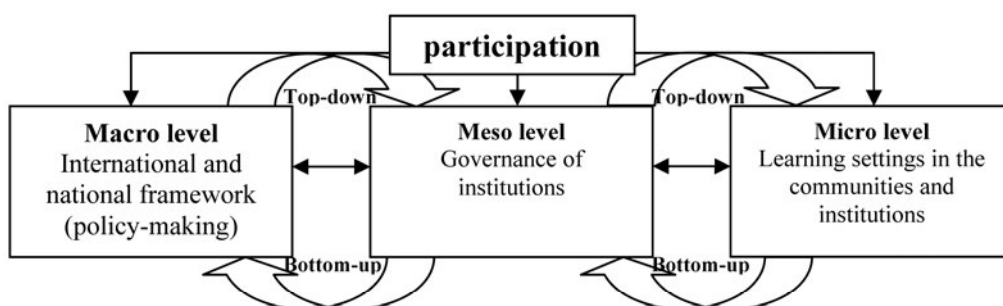
Since participation is not a static concept, all levels are interconnected and influence each other, either in a top-down or a bottom-up process.

Forms and typologies

Another helpful distinction is to categorize participation by *public*, *social* or *individual* participation (Brodie et al. 2009), though these boundaries often overlap.

A widely accepted perception of *public participation* is "the practice of consulting and involving members of the public in the agenda-setting, decision-making and policy-forming activities of organizations or institutions responsible for policy development" (Rowe and Frewer 2004). It is also often referred as political or civil participation or participatory governance. *Social participation* can be understood as collective activities in which individuals are involved on a regular basis. It is also referred to as 'civil' or 'community' participation (Brodie et al. 2009). *Individual participation* "covers the choices and actions individuals make as part of their life and that are statements of the society they want to live in (ibid.; Ginsborg 2005).

Some features and characteristics are common to any type of participation (Brodie *et al.*, 2011): (i) it is voluntary and chosen freely; (ii) it involves action; (iii) it can be collective or connected: even when the action is individual, a sense of common purpose exists and the act itself has a collective impact or ambition; (iv) it is purposeful: all participants are concerned about doing something that is worthwhile on their own terms, and every participatory act has, and is intended to have, consequences.

Another important aspect to consider when analysing participation is underlying interests, as White (1996) warns, because "if participation is to mean more than a façade of good intentions, it is vital to distinguish more clearly what these interests are". In her study she distinguishes between *nominal*, *instrumental*, *representative* and *transformative* forms of participation (Table 1). Even though her framework is based on experiences from the development policy field, it can be translated to other contexts as well, including the higher education sector, which is reflected in the examples given below.

Table 1: Typologies of participation and underlying interests toward participation from a top-down and bottom-up perspective (adapted from White1996)

Form / Type	Top-down (governmental / institutional perspective)	Bottom-up (participants' perspective)	Function (What is the participation for?)
Nominal	Legitimation	Inclusion	Display
Instrumental	Efficiency	Cost	Means
Representative	Sustainability	Leverage	Voice
Transformative	Empowerment	Empowerment	Means / End

A **nominal form of participation** can seek, for example, *legitimation* for continuous funding of a project or programme (institutional perspective); the participants may see advantages of being part of a project or programme (*inclusion*) because they benefit for example from personal recognition, or because it creates possibilities for personal future plans (e.g. financial loan, scholarships, etc.): the participation itself may merely fulfil a function of *display*. An **instrumental form of participation** may be based on the idea of cost-effectiveness (*efficiency*) from the institutional perspective, for example participation as a necessary component for providing/establishing services or facilities. From the participants' perspective this form of participation can be perceived as a *cost* (e.g. of time), and "its function is *a means* to achieve cost-effectiveness on the one hand, and a local facility on the other" (White 1996). **Representative participation** aims to 'give a voice' to the people involved, and by doing so the executing party (government or institution) can develop better structures for the long-term perspectives of a programme or project (*sustainability*), avoiding errors and misconceptions. For the participants, this form of participation allows *leverage* for a better recognition of their interests and needs. In a **transformative form of participation**, *empowerment* is at the central focus of both the institutional and the participants' perspective. Institutions might seek empowerment for several reasons, for example because of a general wish to improve performance or because of 'solidarity motivations' (e.g. with disadvantaged or disfavoured groups). Participants might perceive the positive impacts of empowerment when seeing their interests taken into account. Participation becomes a means to empowerment and an end in itself (ibid.). White stresses that empowerment will challenge existing power relations ("[governments and institutions] may find it rather uncomfortable when empowerment actually occurs", ibid.) and that any participation process is dynamic, as it is continuously influenced by a mix of interests.

Scope

A subject for further analysis within the participation discussion is the scope and depth of participatory processes. A classification still relevant today was made by Arnstein (1969) who developed a "ladder of participation", moving from *non-participation* to *citizen control* by differentiating between scopes of participation. Based on her work, the International Association of Public Participation (IAP2) presents a spectrum in which public participation is divided into five levels (no participation to high participation): the level of participation and the public impact increase when activities or methods are directed towards involvement and empowerment (Fig. 2).

Fig. 2: Scope of participation related to the spectrum of participation (adapted from International Association for Public Participation, 2007)
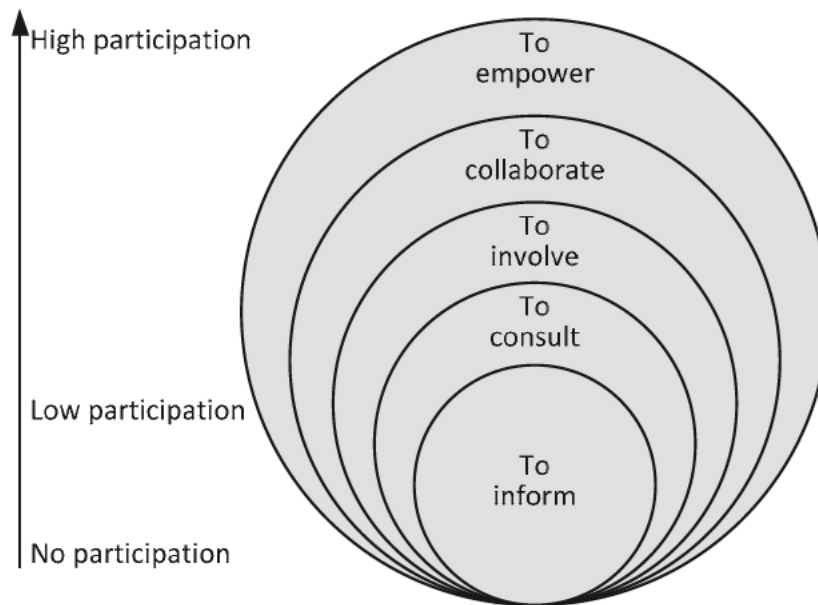
This spectrum can overlap with the previously presented forms and typologies of participation, but it links in a very explicit way the *intention of actions* within participatory processes to the *outcomes*, and offers a useful classification to analyse the scope of participation.

Sustainability assessment tools within the university context

The literature about sustainability assessment tools, and about indicators in particular, is vast, which only shows the importance and necessity of this research field. As Meadows (1998) remarked in 1998, when those indicators were emerging: "[…] the process of finding, implementing and improving sustainable development indicators will not be done right at first. Nevertheless, it is urgent to begin."

Sustainability indicators are the measurable part of a system (*variables*) (Dalal-Clayton and Bass, 2002) and allow information to be simplified, clarified and summarized, making the complexity of dynamic systems more transparent and understandable. They are therefore very useful for assisting decision-making (United Nations 2007; Singh et al. 2009). Furthermore, they help to visualize phenomena, to highlight trends and to provide early warning to prevent economic, social and environmental setbacks (ibid.). Sustainability indicators differ from traditional indicators, which are usually one-dimensional; SD indicators should go beyond for example growth indicators, and report "about efficiency, sufficiency, equity and quality of life" (Meadows 1998). They aim to capture the four dimensions of sustainable development, namely the economic, social, environmental and institutional dimensions, in order to help the reflection of the overall concept of SD (United Nations 2007; Singh et al. 2009). A large variety of indicator lists exist, aggregated in the form of *indices*, which differ in the particular selection of 'representative' indicators of the four dimensions of SD and the related sustainability concerns (Bartelmus 2008).

At international level, and following the requirement of Chapter 40 in Agenda 21, SD indicators were initiated by the UN Commission for Sustainable Development (CSD) after the Earth Summit in Rio de Janeiro (1992). They were developed during a five-year period (1994-2001) – since when they have been applied, tested and revised – and became known as the *CSD indicators* (United Nations 2007). Other well-known international indices are, for

example, the *Index of sustainable and economic welfare* or the *Human Development Index*. A useful overview of the main international SD indicators and indices is given by Sing *et al.* (2009).

Not all sustainability assessment tools use or are based on indicators. Approaches to measurement can be divided into (1) accounts, (2) narrative assessments, and (3) indicator-based; however, assessment tools can combine several of these approaches (Dalal-Clayton and Bass 2002; Lozano 2006b). *Accounts* means that raw data are constructed and converted into a common unit, for example monetary, area or energy, as used in the Ecological Footprint. *Narrative assessments* combine text, maps, graphics and tabular data, sometimes using indicators though these are not a cornerstone. The World Development Report can be considered one example of this approach. The *indicator-based* approach also includes texts, maps, graphics and tabular data, similar to the narrative assessments, but groups them around indicators. The Well-Being Assessment or the Dashboard of Sustainability are examples for an indicator-based approach (ibid.). Dalal-Clayton and Bass (2002) attribute different strengths and weaknesses to each approach by classifying them according to their potential for (a) transparency, (b) consistency, (c) participation, and (d) usefulness for decision-making (Table 2). These criteria are based on the ground-breaking Bellagio Principles (Hardi and Zdan 1997).

Table 2: Types of Measurement approach and their potential (adapted from Dalal-Clayton and Bass 2002)

Measurement approach	*Accounts*	*Narrative*	*Indicator-based*
Potential for Transparency	Low	Medium	High
Potential for Consistency	High	Low	high
Potential for Participation	Low	High	medium
Usefulness for decision-making	Medium	Medium	high

Participation in this context refers to the potential scope of engagement of non-experts. Dalal-Clayton and Bass (2002) specify: "[…] the more technical the method, the less scope of participation".

For the higher education sector, Orr (2000, in Shriberg 2002) proposes that an ideal campus SD assessment tool should address the following questions: (1) What is the consumption of material goods on a per capita basis? (2) What are the university's policies regarding operational management (waste, recycling, purchase, energy and building)? (3) Does the curriculum strengthen the development of ecological literacy? (4) Does the outreach of a university financially support the creation of sustainable regional economies? (5) What do the graduates do in the world? This list, though it includes a broad range of topics and an intergenerational outlook (students' activities in the future) of extreme importance, excludes several aspects of the social dimension of SD and focuses more on the institutional impacts on the environment and economy. In contrast, Lozano (2006b) bases his criteria for an ideal assessment tool on the different parts of a university system (Cortese, 2003), and argues that sustainability indicators should cover systemically (i) education, (ii) research, (iii) campus operations, (iv) community outreach, and (v) assessment and reporting. Shriberg (2002) considers it essential "to identify issues with broad effects and influences", as well as to move beyond eco-efficiency, to measure processes and motivations and to include a large range of stakeholders. These different approaches demonstrate the complex and difficult task of defining *what to measure* when assessing campus sustainability.

Over the past 20 years, several authors have dedicated studies to measuring sustainability in higher education institutions, also using in some cases indicator-based tools (Roorda 2001; Lozano 2006b; Rode and Michelsen 2008; Chambers 2009; Laroche 2009; Brinkhurst et al.

2011; Lozano 2011). Some assessment tools were developed exclusively for universities to try to give an answer not only to the question of *what* to measure but also to the question of *how* to measure. These tools include for example the *Audit Instrument for Sustainability in Higher Education (AISHE)* (Roorda 2001); the *CSAF – Campus Sustainability Assessment Framework* (Cole 2003; Sierra Youth Coalition 2012); the *Graphical Assessment of Sustainability in Universities (GASU)* (Lozano 2006b); *STARS – Sustainability Tracking Assessment & Rating System* (Association for the Advancement of Sustainability in Higher Education (AASHE 2012); *STAUNCH – Auditing University Curricula in Higher Education* (Lozano 2010); and the *Sustainability Report Card* (Sustainable Endowments Institute 2011). Other tools, such as the *Ecological Footprint, GRI – Global Reporting Initiative Guidelines*, international environmental standards like *ISO 14001*, *EMAS* or the social responsibility standard *ISO 26000*, have been adapted to the higher education context and are currently being successfully implemented at many universities (Disterheft et al. 2012).

These tools have been assessed in terms of their strengths and weaknesses (Shriberg 2002; Cole 2003; Laroche 2009), and some were evaluated in case studies on specific campuses (see Glover et al. 2011, for *STAUNCH*; Beringer 2006, for *CSAF*; Flint 2001, and Venetoulis 2001, for the Ecological Footprint; and Disterheft et al. 2012, for case study examples of Environmental Management Systems at European Campuses). Furthermore, a still-small but increasing number of higher education institutions use Sustainability Reports, of which some follow the Global Reporting Initiative Guidelines (GRI) (Lozano 2011; Disterheft et al. 2012).

Methodological approach

For the first time, the dimensions of participation and their assessment have been analysed within sustainability initiatives in higher education institutions and compared with existing assessment tools.

This research is based on an exhaustive literature review about participation and sustainability assessment tools. Starting from Shriberg's (2002) and Cole's (2003) reviews about sustainability assessment procedures within higher education institutions, the list was updated to apply to the current situation, including some international standards (two ISO standards and EMAS). Then, eleven assessment tools that have been used in higher education institutions were selected, based on their complexity, timeliness and accessibility. These tools were systemized following Dalal-Clayton and Bass's (2002) categorization of measuring approaches (Table 4). Based on the literature review about participation (Chapter 2) the authors formulated preliminary criteria for the assessment of the participatory dimensions and analysed how participation is reported in the selected campus sustainability assessment tools. The criteria for this analysis were: (i) Participation possibilities are assessed (yes/no); (ii) Participation possibilities are differentiated by subgroups (students, faculty, staff, external community); (iii) The assessment of participation possibilities is either quantitative or process-oriented (or combined); (iv) Differentiation between participation forms is made (yes/no), and if affirmative, (v) Which differentiation between forms of participation are made? Finally: (vi) Participation processes themselves are assessed (yes/no).

Results

A large number of universities have opted for different tools to assess sustainability on campus. In the USA and Canada, many campuses use CSAF, STARS or the Sustainability Report Card, whereas in Europe an increasing number of universities publish sustainability reports

following the GRI guidelines. Table 3 shows a very brief characterization of the tools that were selected for the present analysis.

Table 3: Characteristics of assessment tools applied in higher education institutions

Assessment tool	Characteristics
AISHE – Auditing Instrument for Sustainability in Higher Education	An instrument developed for the managerial board/ administrative experts as well as for education experts (faculty) and students, based on a model for quality management and using the Plan-Do-Check-Act-Cycle to assess up to which level sustainability principles are incorporated into the curriculum (education) and institution (operations) (Roorda 2001)
CSAF – Campus Sustainability Assessment Framework	An academically developed standardized audit tool for the Canadian university landscape. It uses 169 indicators in total to report on the "eco-system" (air, water, land, energy, material) and on the "people-system" (community, governance, knowledge, health & well-being, economy & well-being) (Cole 2003; Beringer 2006)
GASU – Graphical Assessment of Sustainability in Universities tool	Adds the dimension of education and research to the GRI- Global Reporting Initiative Guidelines. Consists of charts where the user can grade a list of indicators referring to the different dimensions of sustainability. The tool allows benchmarking over time and comparison with other institutions (Lozano 2006b)
STARS – Sustain-ability Tracking, Assessment & Rating System	Developed by the Association of the Advancement of Sustainability in Higher Education (AASHE), this tool uses indicators, based on the environmental, economical and social dimension of SD and divides these into four categories related to campus activities, such as Education & Research, Operations, Planning, Administration & Engagement, Innovation (Association for the Advancement of Sustainability in Higher Education (AASHE) 2012). Applied mainly in US and Canadian universities, but there has started recently as well an international pilot project.
STAUNCH – Sus-tainability tool for Auditing Univer-sities Curricula in Higher Education	This tool audits universities' curricula holistically by applying a two-tiered balance of SD. Based on four main aspects this tool calculates numerically the balances and strength of the curricula, providing a snapshot of how SD is addressed by the institution (Lozano 2010)
Sustainability Report Card	A survey based instrument, sending surveys to administrators and students' leaders to collect data that are translated to 52 indicators about campus operations, dining services, endowment investment practices and student activities. It is carried out by the non-profit Sustainable Endowments Institute and universities sign up to participate in the annual report (Sustainable Endowments Institute 2011)
Ecological Footprint	Measures how much land and water area a human individual or population requires to produce the resources it consumes and to absorb its carbon dioxide emissions. Developed in 1990 by Wackernagel and Rees and meanwhile adopted scientifically with differences in its applications (Global Footprint Network 2012)
EMAS – Eco-Management and Audit Scheme	Standardized management tool developed by the European Commission for companies and other organizations to evaluate, report and improve their environmental performance. It requires clear and quantified goals as well as a verified environmental declaration to obtain a final certification (European Commission 2010). As an environmental management systems it derives from quality management systems and follows the Plan-Do-Check-Act-cycle
ISO 14001 (International standardisation Organisation)	Most well-known and internationally recognized environmental standard; can be implemented with or without a final certification. Derives as well from quality management systems and is based on the Plan-Do-Check-Act-Cycle (ISO 2011b)

Assessment tool	Characteristics
ISO 26000 (International standardisation Organisation)	An assistant tool to incorporate social responsibility and to go beyond legal compliance with regard to sustainability issues. It offers guidance, but is not standardized nor does it offer certification (ISO 2011a)
GRI – Global Reporting Initiative Guidelines	Provide guidelines to companies and organization to report about their sustainability performance. They are structured in five sections (vision and strategy, organization's profile, governance structure, GRI content index, performance indicators). They have been developed by a non-profit organisation and aim to promote a long-term stakeholders' dialogue (Global Reporting Initiative 2012)

Six of the selected assessment tools were specifically developed for the higher education context; five originate from models for corporations and organizations, but have been used in universities as well (Table 3). The majority of the assessment tools are indicator-based; only two (AISHE and ISO 26000) follow a narrative assessment approach. With regard to the subsystems relevant for higher education institutions, namely the economic, educational, environmental, institutional and social dimensions, only three tools, CSAF, GASU and STARS, report on all subsystems. When attributing the respective potential for transparency, consistency, participation and usefulness for decision-making, the authors closely followed Dalal-Clayton and Bass's (2002) scheme (Table 4), but these classifications should be interpreted as an indicative reference and may vary from situation to situation.

Table 4: Measurement approaches of sustainability indicators used in Higher Education Institutions

Assessment tool	Context[a]	Scope of subsystems					Measuring approach				
		environmental	economical	social	institutional	educational	Acc/Narr/Ind[b]	potential for transparency	potential for consistency	potential for participation	usefullness for decision-making
AISHE	HEI	–	–	x	x	x	Narr	medium	low	high	medium
CSAF	HEI	x	x	x	x	x	Ind	high	high	medium	high
GASU	HEI	x	x	x	x	x	Ind	high	high	low	medium
STARS	HEI	x	x	x	x	x	Acc/Ind	high	high	medium	high
STAUNCH	HEI	–	–	–	x	x	Ind	high	high	medium	high
Sustainability Report Card	HEI	x	x	x	x	–	Narr/Ind	high	medium	medium	high
Ecological Footprint	ORG	x	–	x	–	–	Acc/Ind	medium	high	low	medium
EMAS	ORG	x	x	x	x	–	Acc/Ind	medium	high	high	high
ISO 14001	ORG	x	–	–	x	–	Acc/Ind	medium	high	low	high
ISO 26000	ORG	x	–	x	x	–	Narr	medium	low	high	medium
GRI	ORG	x	x	x	x	–	Acc/Ind	high	high	medium	high

HEI = Higher Education Institutions; ORG = Organisations; Acc = Accounts; Ind= Indicator-based; Narr = Narrative assessment

Table 5: Dimensions of participation within sustainability assessment tools used in Higher Education Institutions

Assessment tool	Dimensions of participation							Differentiation between forms of participation	how?	assessment of participatory processes
	participation assessed (x=yes; –=no)	includes students	includes faculty members	includes staff	Includes external community	quantitative oriented	process-oriented			
AISHE	x	x	x	x	x	–	x	x	Interactive learning methods for the academic community (not students-focused)	x
CSAF	x	x	x	n.d.	x	x	–	x	Volunteerism, voter turnout, community engagement within policy-making	–
GASU	x	x	x.	x.	x	x	–	x	Report about capacity building, course "Educate the educators in SD", research related to SD, partnerships on local level	–
STARS	x	x	x	n.d.	x	x	–	x	Co- curricular education, volunteerism and community service, partnerships on local level	–
STAUNCH	n/a	n/a	n/a	n/a	n/	n/a	n/a	n/a	n/a	n/a
Sustainability Report Card	x	x	x	x	n.d.	x	–	x.	Employee outreach opportunities, different forms of students involvement	–
Ecological Footprint	–	n/a	n/a	n/a	n/a	x	–	n/a	n/a	n/a
EMAS	x	n/a	n/a	n/a	n.d.	x	x	x	Differentiation between top-down and bottom-up governance, stakeholders engagement in diverse forms	–
ISO 14001	–	n/a	n/a	n/a	–	x	x	n/a	n/a	n/a
ISO 26000	x.	n/a	n/a	n/a	x	x	x	x.	Stakeholders' engagement	n/a
GRI	x	n/a	n/a	n/a	x	x	x	x	Differentiation between top-down and bottom-up governance, stakeholders engagement in diverse forms	n.d.

n/a= not applicable; n.d. = not defined

As explained before, Dalal-Clayton and Bass's *potential for participation* refers to the involvement of the public (non-experts) within the measurement process. In this paper, *participation possibilities* refers to the *space* (in a non-physical sense) given by the institution to its community in order that participation can *take place*. Table 5 shows how the dimensions of participation according to the methodological approach used in this paper are captured in the selected tools. The subgroups of the academic community, namely students, faculty, staff and external community, are distinguished. Often, the term faculty can include teaching staff and administrative staff at the same time; cases without a clear differentiation were classified as "not defined". Only AISHE and GASU distinguish clearly between all four subgroups and report on different forms of participation. The Sustainability Report Card differentiates between students, staff and faculty, and different forms of participation, but does not include the external community. STARS and CSAF do not explicitly define the subgroup "staff", but also differentiate between forms of participation such as volunteerism, community service, voter turnout and partnerships at local level (with businesses, NGOs, etc.); however, there is a focus on students' involvement. Among the tools designed for companies, EMAS and GRI include reports on different forms of participation that are based on a stakeholder dialogue. ISO 26000 constitutes a particular case, since it is not a management system with concrete requirements, but is to be understood more as a 'guideline'. The participatory dimension is, strictly speaking, not assessed, but was included in this evaluation because of its high potential for participation within the stakeholder dialogue as well as its increasing popularity (Pojasek 2011).

With the exception of AISHE, none of the tools considers the assessment of the participatory processes themselves.

Discussion: How can campus sustainability assessment tools contribute to a better understanding of participation?

It is largely agreed that participatory processes are indispensable for promoting sustainable development, as requested in Agenda 21 and again underlined in the UN Decade Education for Sustainable Development (2005-2014). Participation is addressed in some way in most of the assessment tools analysed above, but with different focuses, for example on community engagement, volunteerism, stakeholder dialogues or voter turnout. It remains unclear to what extent the internal community as a whole, as well as the external community, is considered; also how effective the different participation options and processes are and what their impact is with regard to institutional, academic, professional and personal life.

The multifaceted use of the term, blurred boundaries between individual, social and public participation, and unclear differentiation between participation at macro, meso or micro-level can turn the assessment of participation into a very challenging task. But since assessment tools, and in particular indicator-based approaches, allow complex and dynamic processes to be made more comprehensible, they can be a supporting tool for making the participatory dimensions within the complexity of sustainable development more transparent and tangible. Assessment tools are linked to values, because, according to Meadows (1998), "we measure what we care about and we care about what we measure". Considering the participatory dimension in a more integral way would demonstrate its significance to the university's community and could lead at the same time to an improvement of participation processes.

In their recent study, Brinkhurst et al. (2011) point out that faculty and staff members are important leaders in achieving lasting progress towards campus sustainability, but that their support is often overlooked and not sufficiently recognized. An assessment tool that looks at the participation of the entire community could help to reduce this imbalance. Dahl (2012)

defends the inclusion of ethics and values in assessment tools, because "building awareness of values is an important part of the process of change towards sustainability". He identifies the lack of an indicator "to evaluate individual action or commitment" (ibid) as a gap in current sustainability indicator sets, because "sustainability (or the lack of it) depends on the individual actions of over 6 billion human beings, the choices they can and do make, the lifestyles they adopt, and their decisions on family size, consumption patterns, etc., recognizing that poverty greatly limits choice" (ibid). An assessment tool for participation, in the specific context of a higher education institution, might help visualize the impacts of individual, social and public participation. This would not only improve the institutional performance, but also contribute to increasing sustainable practices among the internal and external university communities' members, foster citizenship and democratic values, and to build sustainable development both for the present and future generations.

Conclusion

Participation, considered to be essential within efforts to create sustainable universities, has become a buzzword with different meanings to different users. In the present analysis of eleven assessment tools applied in universities, the authors were able to verify that participation is approached in distinct ways and, though assessed in most tools, that the perception of the dimensions of participation is limited. Only two tools, namely AISHE and GASU, differentiate between the subgroups of the internal academic community (students, faculty and staff) as well as the external community. All tools that have been developed for the university context distinguish between different forms of participation, such as volunteerism, community engagement and voter turnout, but put a focus on students' involvement. The participatory processes themselves are not assessed by the tools, with the exception of AISHE, and therefore it is very difficult to evaluate the effectiveness of any of the forms of participation.

The results, though still preliminary, show a research gap in terms of the need for a broader consideration of the dimensions of participation. This paper can therefore form a starting point for further discussion and reflection on how to develop a measurement tool for participatory processes within campus sustainability initiatives.

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