HORIZONTAL DECISION FOR THE DESIGN OF THE ACTION PLAN OF SUSTAINABILITY IN UNIVERSITIES

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Abstract

Although nowadays sustainable development is understood with more dimensions than the society-economy-environment triad, efforts are still made around it, not acknowledging the symbolic dimension of sustainable development. In Higher Education Institutions, the Hidden Curriculum is a place for the symbolic dimension. The action plan for sustainable development was the excuse to exercise horizontal decision making and learning sustainability (principles) from Hidden Curriculum. The experience was carried out in a Research center that offers two graduate programs (one master and one Ph. D. degrees) in Environmental Science and Sustainability. Following Bui’s method and Munda’s Work, a workshop-breakfast was conducted, where students, faculty members, staff, alumni, advisory committee’s members, and janitorial personnel attended. All attendants expressed their opinions (0-10 scale for importance and commitment) over 37 variables of environmental, academic, research, economic, social-personal and philosophical dimensions of Sustainability. Results were processed by software Guide 4.0 to report agreement and disagreement. Summarizing agreement and disagreement according to the variables, it is possible to conclude that a discreet and qualified consensus was reached. The environmental dimension federates community’s sustainability notion, while Philosophical-Political and Social-Personal dimensions show the weakest link to sustainability. In particular, the variable Horizontal decision-making attracts attention as the variable with highest disagreement, a paradox in itself given the fact that the participating community demonstrates a strong disagreement regarding the concept of sustainability. According with results, further research...
is needed since it seems possible to predict pro-environmental behavior but not “sustainable behavior”. This research highlights the importance of training experts on sustainability mainly by principles, not only through the formal curriculum but also on the hidden one. To our knowledge, this work is one of the first to equally consider experts and common people in an academic space.

Keywords: Higher Education Institutions; Sustainable Development; Horizontal decisions

1. Introduction

Despite the fact that other aspects such as political, religious, spiritual, intercultural, have been included to the Sustainable Development (SD) concept, (Gutiérrez-Barba and Martínez-Rodríguez, 2010) the efforts for its achievement, measure, and teaching, are still mainly based on the three bottom line model: society-economy-environment (see Vanclay, 2004; Milne and Byrch, 2011; Pinar et al. 2014, Lodhia and Martin, 2014, Blanchard and Buchs, 2015). Thus, the call of Costanza and Kubiszewski (2014) to create a shared vision that provides prosperity, fair and equitable humanity is very far. These authors’ shared vision is one of the few methods that shift the needed change into a sustainable world. Here is where the question of how to build a shared vision arises. Horizontal decision making is proxy to a shared vision, a principle of sustainability in the symbolic dimension, also called cross-cutting (governance) (Lozano and Young, 2013), or the philosophical dimension of sustainability (Gutiérrez Barba and Martínez Rodríguez, 2009), just where concepts such as equity, justice, values, creativity, spirituality, democracy, and participation, are placed. This last process (participation) is recognized as the best way to discuss environmental issues (UN,
1992), environmental assessment (Glucker et al., 2013), and a way to reach problem solving (Alonso et al. 2010, Shan 2012).

The example chosen to document the proposal of participation and horizontal decision making as ways to learn Sustainability (principles) is a Research Center where human resources are trained in environment and sustainability. This Center has two renowned academic programs (Master and Ph. D.) which means that curriculum, staff, among other aspects, are high qualified. In spite of that, no plan of action for sustainability exists and the hidden curriculum is not considered in educational practices. The paper is firstly focused on the Hidden Curriculum and Higher Education Institutions sustainability, then, horizontal decision, the case study and the method; finally, it presents the results, the discussion and the conclusions.

2.0 State of Art

Higher education shapes the mindsets and mental models of society's professionals and leaders (Dyer and Dyer, 2015) thus all that occurs within will, sooner or later, affect society. According to Wals’ (2014) findings, Higher Education Institutions (HEI) are deeply interested in education for sustainability (incorporating sustainability in disciplines, learning processes, courses, curricula) and yet very little in organizational sustainability, even though, according with Adomßent (2013), organizations is the meso level of sustainability. Exploring universities’ transformative potential for sustainability bound learning in changing landscapes of knowledge communication. Organizational change management for corporate sustainability is a fairly new topic with limited research (Lozano, Ceulemans and Scarff Seatter, 2015), being organizational learning the most important topic for further research (Ceulemans, Molderz and Van Liedekerke, 2015).

Moreover, Sustainability reports (SR) are poorly addressed by non-profit organizations (Hahn and Kühnen, 2013) as NGO, or HEI; in fact, in the latter, SR is still in its early stage (Lozano, 2011) despite the fact that, as Lozano and Young (2013), and
Disterheft et al. (2014) point out, more HEI have been engaged in incorporating SD into their curricula, to be a model of sustainability (Sylvestre et al. 2013), defining implementation models, application of sustainability assessment tools (Verhulst and Lambrecht, 2015) and mainly offering mandatory, optional courses or enabling their students to take classes in other faculties (Lozano et al., 2015a).

Courses have been among the main strategies (Barth and Rieckmann, 2012, Lozano et al. 2015a, Verhulst and Lambrecht, 2015, Lozano et al., 2015b) and a challenge to integrate sustainability into all the curricula (Cebrián, Grace and Humphris, 2015). Although courses are a useful strategy, this is incomplete since it is necessary to consider that the curriculum refers to the relationships between educational objectives and everyday life in education institutions (Braslavsky, 2003). Curricula, management and outreach activities are a complex network of learning experiences (Cortese, 2003) for individual or collective subjects, and precisely, organizational learning is one of most underreported topics linked to sustainability reports in higher education (Ceulemans, et al., 2015) and organizational change management for corporate sustainability has limited reported teaching (Lozano et al. 2015a).

To sum up, there are three interacting spaces for learning: The formal curriculum, the informal curriculum, and the hidden curriculum (HC) (Galam, 2014). The HC, also named unwritten, covert, latent or moral curriculum (Lee, 2014; Casado-Vicente, 2010), or shadow curriculum, is where the social interactions within the school are underlined (Kentli, 2009). HC involves that which is not openly intended but which students learn regardless (Lee, 2014); HC affects professionalism building (Kittmer et al. 2013). Regarding sustainability learning, HC contributes to social production-reproduction (Acar, 2012); it communicates culture, values, ethos and implicit and/or explicit messages (Van Deven et al., 2012). These elements are identified in waste containers as well as in the way decisions are made, meaning HC is an important place to build graduates’ profile, so if no attention is given to it, a loss of credibility can arise as it happens with professionals promoting a healthier lifestyle who nonetheless are smokers themselves (Rosselli et al. 2001).
At the same time, the sustainable HEI would be incomplete without due regard to well-being (Sayce et al. 2013) as part of sustainability (Mont et al. 2014), where interaction and social cohesion are part of welfare (de Haan, et al. 2014), so decision making by collaborative system is unyielding and will entail more social activity and more social competences. Even though it is important to bear in mind that decision-making is frequently ill-defined (Khorshid, 2010), it is beneficial to begin opening spaces where horizontal decision-making will prevent, as much as possible, personal fall outs.

2.1 Horizontal Decision Making

Decision making (DM) by the leader is the best because it is the fastest (Yang 2010), but as Mager and Nowak (2012), and Evers et al. (2016) recognize consensus, collaborative DM, convergent DM (horizontal DM sensu lato) grant a sense of responsibility, develop negotiation skills, improve organization and social learning, promote teamwork, and therefore it is expected, it pay to create more functional schools toward sustainability. But in order to achieve this goal, HEI should design process for public and/or academic participation as a strategy for sustainability and as a principle of sustainability.


Focus groups, dialogue groups, workshops with experts, and reflection forums support horizontal decision; they are mediated almost always by Delphi technique (DT). DT is the most used technique and although it is an inclusive technique (Reagan et al. 2006), it is sensu stricto centered in experts (see Xu and Wu 2011; Pope et al. 2012; Mirsadraee et al. 2012), with very few examples of consulting the opinion of different groups (Disterherft et al. 2014), in which case subgroups are independently coded.
DT has high variability and flexibility of descriptive statistics (Hung et al., 2008; von der Gracht, 2012): median, 85% (Boote, Barber, and Cindy, 2006); median, 80% agreement (Langland et al., 2008; Jünger et al. 2012; Jünger et al. 2013); mode 75% agreement (Chakravarti et al. 1998; Alonso et al. 2010); 70% (Dahmen et al., 2008); media (Kamioka et al. 2013); Graham, Regehr and Wright (2003); averaging aggregation function, (Beliakov, Calvo and James, 2014); 67% (Bouzarour-Amokrane, Tchangani and Peres, 2015); Chi square, Wilcoxon coefficient, Spearman correlation, Kendall coefficient, Cronbach’ Alpha (Tastle and Wierman, 2007). DT has turned into a weak and questionable technique (Hasson and Keeney, 2011 cited by von der Gracht 2012; Reagan et al. 2006).

Taking into account the latter weaknesses, other horizontal decision techniques have been designed based in analytic hierarchy process (AHP), multi criteria or fuzzy (see Reagan et al. 2006; van den Hove 2006; Boroushaki and Malczewski2010; Liu et al., 2012; López-Cruz et al., 2013), that seem to make results of different research efforts comparable and replicable, and also to minimize the effect of emotions and the time consumed by the process (Zhang et al., 2011; Kerr and Murthy 2009; Sánchez Anguix et al., 2013).

The case of Systemic perception software “Guide 4.0” \(^1\) is the result of Delphi analysis modifications. It lets the reduction of number of consultation rounds and the augmentation of statistical filters. It was developed by Conraud (2002) and based on the systemic analysis of perception proposed by the developer himself. The purpose of this software is to carry out a methodology of a category-based sensitivity analysis based on the development of a filter of statistics parameters directed towards the characterization of the Clearly Expressed Satisfactions (CES) and Typical Deviation of participants’ opinions (Conraud, 2002). For deeper information see Conraud (2002). The software groups the researched items into families based on the degree of agreement and it fulfills the principles

\(^1\) A powerful and unique toolkit for the dialogue management and support to collaborative decision for all the stakeholders Made by C3 consensus Enterprise ( http://en.c3consensus.com/index.php/software-solutions )

of clarity and simplicity; it avoids heated debates, and shows, in real time, the results of the
degree of agreement or disagreement reached in a clear and graphical way.

3. Method

The action plan for sustainability was the excuse to exercise horizontal decision and
teaching sustainability principles from HC. It was convenient to guarantee anonymity, to
ensure that specious persuasion did not occur (von der Gracht, 2012), to ensure that all
participants had an equal voice regardless of peer pressure, social status, seniority,
personality, and interpersonal dynamics (Jünger et al., 2012: 2), and also to avoid personal
relationship erosion and what Gluker et al. (2013) alerted: that the process itself could
eventually lessen the desire to participate.

The experience was carried out in a Research center that offers two masters and a Ph.
D program in environmental science and sustainability. The center has a ten-member
advisory committee (local and federal authorities, nongovernmental association presidents,
and representatives from industry and the academia). The center’s enrolment is 25 students,
attended by a faculty of 45, including those academics performing administrative jobs, and
22 people on staff. Cleaning services are outsourced. The research center studied is part of
the second most prestigious HEI in Mexico.

To define the action plan for sustainability, all the participants (decision group) were
convened via email, phone call and in person. Then an 8-hour breakfast workshop took place
where, based on Bui’s proposal (as cited by Carlsson et al. 1992), and Munda’s Work (2002
cited by van den Hove 2006) the following steps were taken:

1. Rapport. In order to promote smooth environment, greetings opened the session, then,
the attendance, the facilitator and the supporting staff were introduced and the
theoretical frame and the objectives were presented.

2. Problem definition: As every HEI and in accordance with its mission, vision and
curriculum, the Research Center should have a plan of action for sustainability. From
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this situation the following questions arise: Which sustainability variables are the most important from the community’s point of view? and therefore, should they be primarily taken into consideration to develop the action plan?

3. Definition of variables and dimensions. Following Munda’s work (2002, p.17 cited by van den Hove 2006), equal weight was assigned to all variables and dimensions. The 37 variables chosen belonged to environmental, personal-social, economic, academic, research, and philosophical dimensions of DS (Gutiérrez Barba and Martinez Rodriguez, 2009). This step was taken pre-workshop. A 37 items questionnaire was developed.

4. Decision group selection. From principle of inclusivity, equity and collaboration, the decision group was integrated by students, faculty members, administrative staff, support personnel, alumni, advisory committee’s members, and cleaning staff.

5. Alternatives selection. The 37 items questionnaire was administrated. Every participant evaluated each item with a cero-ten scale (following Yang, 2010) in two categories (importance and commitment). Ten was the highest value for each of the categories. It was an anonymous questionnaire and auto paper-pencil administration. No communication with the rest of the participants was asked in order to avoid socio-psychological pressure among them, and to minimize the intergroup and intragroup effect.

6. Responses process. All responses were entered and processed in Software “Guide 4.0”.

7. Feedback. Software reports were shown to audience and a session of comments and suggestions was held.
Participants were given no tokens, so as to achieve authentic participation. The research method has the limitation of sector representation; it could be improved by selecting equal quantity or percentage of members according by sector size.

4. Results

Twenty-seven women and 33 men attended the breakfast-workshop; most of them belonging to faculty and the minority from alumni. Software reports used a three-color signal code: green for agreement, yellow for partial dissenion or disagreement, and red for total rejection (total dissenion or disagreement). Table 1 summarizes the results, concerning each and all of the 37 variables and the two criteria consulted. Agreement was reached for the majority of the topics (green circles\(^3\)). Regarding the importance, community reached agreement of each and all of the issues considered, except for variable Env 12, “Percentage of materials recycled in the Center”. Regarding commitment, Environmental dimension is the most solid and important, just variable “Waste (generation and disposal)” (Env 11) shows dissenion. In the opposite side is the Economic dimension with all the variables in dissenion situation. The rest of dimensions (Academic, Research, Philosophical, Social) are in the middle.

<table>
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<tr>
<th>CODE</th>
<th>ACADEMIC DIMENSION (Acad)</th>
<th>Importance</th>
<th>Commitment</th>
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<tbody>
<tr>
<td>Acad 1</td>
<td>Masters and Ph. D programs certified by CONACYT</td>
<td><img src="green.png" alt="Green Circle" /></td>
<td><img src="green.png" alt="Green Circle" /></td>
</tr>
<tr>
<td>Acad 2</td>
<td>Editorial line related to sustainability</td>
<td><img src="green.png" alt="Green Circle" /></td>
<td><img src="yellow.png" alt="Yellow Circle" /></td>
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</tbody>
</table>

\(^3\) In broad sense, red circles express full agreement of rejection, but in this case, it is considered as disagreement.
Acad 3 Continuing education programs related to sustainability

Acad 4 Dissemination of results related to sustainability

**RESEARCH DIMENSION (Res)**

Res. 5 Multi and interdisciplinary projects (diversity of disciplines towards meta-sustainability, network work)

Res. 6 Multiple source funding

Res. 7 Inter-institutional projects (academic partners)

Res. 8 Projects for regional development (marginalized population, poverty)

Res. 9 Awarded researchers

Res. 10 New researchers training

**ENVIRONMENTAL DIMENSION (Env)**

Env. 11 Wastes (generation and disposal of solid, dangerous, and electronic wastes)

Env. 12 Percentage of materials recycled in the Center

Env. 13 Water (access, consumption, and quality)

Env. 14 Electrical power and fuels (Consumption, vehicular efficiency, energy savings, use of alternative energies)

Env. 15 Responsible consumption (paper, tonner, pens, cleaning products)

Env. 16 Air (quality)

Env. 17 Vegetation

Env. 18 Environmental-friendly or green purchasing

**ECONOMIC DIMENSION (Eco)**

Eco. 19 R & D Financial resources (allotted budget and self-generated)
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Eco. 20 Distributive equity
Eco. 21 Technological transfer (number of patents)

PHILOSOPHICAL-POLITICAL DIMENSION (PHI)

Phi. 22 Human resources hiring (procedures, mobility, full time)
Phi. 23 Incentives and awards (to promote sustainability practices)
Phi. 24 Effective communication
Phi. 25 Horizontal decision making and corruption index
Phi. 26 Critical spirit
Phi. 27 Interdisciplinary (In contents, discipline representation in projects and proposals)
Phi. 28 Complexity (contents)

SOCIAL-PERSONAL DIMENSION (Per)

Per. 29 Health (Body Mass Index, Blood biochemistry and parasitism, personal relationships, stress, coffee and tobacco addiction, food habits, sick building syndrome)
Per. 30 Diversity and opportunity equality (by gender, age, minorities)
Per. 31 Civil safety (fires, earthquakes, bombs)
Per. 32 Improvement (training, improvement and evaluation programs)
Per. 33 Surroundings (areas, spaces, equipment)
Per. 34 Equity and diversity (in administrative positions, different capacities assistance, no discrimination)
Table 1 is incomplete for understanding the community’s point of view about commitment, therefore, Table 2 shows supplementary information to explain the degree of dissension (yellow circles) regarding the commitment for each variable, and it is represented by the length of the yellow arrows. As an example, variable Aca 2 (associated to editorial labor) has a commitment central value of seven, and a dissension proxy (“noise”) between 5 and 8, which means a stable dispersion value (three units between minimum and maximum values). Bigger arrows mean greater dissension or disagreement.

Since just one variable (Env 11) showed dissension, Environmental aspects are among the family of data that according to Table 2 show great satisfaction and therefore would not require subsequent special attention. On the contrary, philosophical aspects were the ones with greater uncertainty, or dissension (see Table 2), except for Phil 26 “critical spirit” whose total agreement was full (see Table 1). The greatest dissension was for communication and Horizontal decision making (Phil 24, Phil 25), Complexity (Phil 28), Surroundings (Phil 33), and Equity (Phil 34) (see Table 2).

Table 2. Variables and level of commitment’s disagreement

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<th>Var</th>
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5. Discussion

On the one hand, Universities’ transition to sustainability involves deep changes in what is done and how it is done (Hoover and Harder, 2015), which includes decision-making processes, strategic planning initiatives and collaboratively envisioning the future (Moore, 2005 cited by Hoover and Harder, 2015). In other words, they are related to organizational change, and considering it is very difficult to generalize about such changes (Trowler, 2008...
cited by Hoover and Harder, 2015). It is necessary to document the study of cases as this one, to contribute to better understand the processes of organizational change.

On the other hand, Universities as educational institutions, deeply value learning, therefore it must be unyielding the proposal of Cortese (2003) to consider curricula, operations and outreach activities as a complex network of learning experiences, even though, on the subject of sustainability HEI are more concerned on meeting indicators and indexes proposed to measure sustainability, than on sustainability itself. In all fairness, it is important to commend the existence of statements which alert about the importance of considering, firstly, the institutional commitment and the indicators of sustainability, lastly. Institutional commitment considers horizontal decisions and dialogue as unyielding requisites of a symbolic dimension of sustainability. Progress has been made in the dialogue between internal and external stakeholders, although these still belong to traditional groups: lecturers, tutors, course directors, industry leaders (see Figueiró and Raufflet, 2015’ Review).

So, to carry out the duty noted by Müller-Christ et al (2014: 136) of universities to become meeting places with doors and windows wide open to interactions with both the greater scientific community and society at large, the beginning must be the dialogue within the members of their own communities.

It is our opinion that the main type of culture at Enterprises (and in this broad sense, Universities belongs to) is far away from the negotiating culture At Universities, even though his primary role is set in the establishment of more liberating social structures (Trowler, 2008). This study can be considered as different from others since those do not involve non-experts; they only involve the concerned party, such as consumers or clients (Langlands et al. 2008; Boote, et al., 2006) or clientes (Melnick , Wexler, and Cleland, 2008). They are done in communities instead organizations (Nitsch, 2013).

This research takes place in an organization and it involves all concerned parties. As for existing studies developed in Educative Institutions and which consider democratic inclusion, the vision of diversity and equity is presented as access for students from low
socioeconomic backgrounds squemas and democratic inclusion of experts (Urquiza, et al. 2015) or “as many staff as possible” (Juárez Nájera et al, 2006), is what sets this research apart. In this study equity covers the opinion of the entirety of participants and the presence of as many of them was carefully sought regardless of their sectors. In other participatory planning exercises at Universities, at most, the inclusion of students and staff is considered (Lozano et al., 2015b) but not common people as in the present study. So, to our knowledge, this work is one of the first to consider both experts and common people equally, given the fact that the occurrences of a research center do not strictly affect cleaning staff (provided by outsourcing) nor alumni who eventually visit the facilities.

In this study, social participation acted as a vehicle for individual and community empowerment enabling the transition to sustainability O’Faircheallaigh (2010), participants responded not only to normative rationale mentioned by Glucker et al. (2013) in sense affectionation derived from the proposal arisen, but the consideration of all members are part of a community, as peers and with the same level of importance in opinion (equity, inclusivity principles).

To promote student centered curriculum is necessary to embed EDS in curriculum (Cebrián et al. 2015). In that sense, the breakfast-workshop was an action-learning strategy (specifically action and experiential learning); this type of learning is the most common technique employed that promotes student centered curriculum (Figueiró and Raufflet, 2015) but this present experience is more than that; it is a community-centered learning strategy and it altered the hidden curriculum and the traditional decision making schema, providing leadership-by-example toward a sustainable society as demanded by Dyer and Dyer (2015).

By recognizing all subcultures defining an organization, this workshop might be one of the first steps to strengthen cultural intelligence described by Imai and Gelfand (2010). Such a step would be, in addition, the first on the road to accomplish a community able to build consensus, equity, and to be used in intra cultural negotiations as part of HC.
Clearly, to reach consensus is costly and entails arduous negotiations (Gerraoui and Kuznetsov 2008), so it is desirable, in the first steps, to develop tools that facilitate the task, and to avoid the erosion of relationships inherent to the process. The technique used resembles Delphi, as long as it consults those involved and establishes a scale, but at the same time is different in four ways. In the first place, opinions come not only from experts *sensu stricto*; in second place, it doesn’t require several rounds; in third place, its implementation require low costs in time, effort, money, and finally, and most importantly, it shows qualitative agreement and enables the community to know the level of dissension and further task, discussions and agreements.

Regarding the internalization of the paradigms and principles of sustainability, Urquiza et al. (2015: 483) mention that “The internalization of sustainability in a HEI can be facilitated by the use of sustainability assessment tools, by benchmarking either in reference to other institutions or to a vision of successful sustainability development”. However, we can attest that sustainability is internalized through living by the principles, and that the statements are made by more than instrumental processes to meet indicators, thus the exercise documented on this research opens up a path to sustainability.

From a quantitative point of view and as Beliakov et al. (2013) stipulate, the method used reflected the group’s opinion in both agreement and disagreement. Summarizing agreement and disagreement of the variables, it is possible to conclude that a discreet and qualified consensus was reached, considering the typology of Eisenhardt (1990 cited by Yang 2010) based on number of variables with full agreement. Assuming that having faculty members who are experts on sustainability would have caused the organizational culture to move from an authoritarian paradigm towards a participative one, as described by Escotet (2006), is wishful thinking.
Until now, there is an agreement within this community in which practically all the variables are important, even though there is also an agreement demonstrating that the community will not become involved (except when it comes to environmental variables). All the latter derives from the data of having more disagreement (23 variables) than agreement (14 variables) on the commitment criteria. Also, it is notorious the immediate necessity to discuss symbolic aspects of sustainability; more forums for collaborative learning and discussion must be created so that the future of the Center will be closely linked to social leadership.

The fact that environmental topics are the variables with more agreement within the community reflects that the mission of the Center has been assimilated. Contrary to the findings of Lozano et al. (2015a) regarding waste as the environmental topic with the most importance in campus, in our study it is precisely waste is the only topic that shows disagreement on the commitment aspect. This response is logical since the management and production of waste entails a sacrifice or relinquishment to comforts, which according to Davis’ et al. (2011) proposal about the theory of commitment and sacrifice, it represents an element of behavior. As commitment is a powerful predictor of behavior (Davis et al., 2011; Rahman and Reynolds, 2016), in this case, it is possible to predict only “pro-environmental” behavior but not “sustainable behavior”. Further empirical research is needed to observe pro-environmental behavior.

Aspects such as water and electricity saving have been important and entail sacrifices regarding their use, meaning, according to Davis et al (2011) within the context of this community, that its decision making takes into consideration the well-being of the environment. Following Mickaël’s statement “The costlier (in time, cognitions, etc) the act is to the individual, the more he will commit to it” (2014:731), and given the fact that these topics represent a larger investment in time, cognitions and habits, it would be fair (after the proper actions are taken) to expect an increment in the community’s commitment towards such topics. Further research, however, is recommended.
One criticism derived from these results is that despite having highly qualified staff on sociology, education, economics and other fields in the Center, the notion of sustainability is, to some degree, naïve since the environmental aspects were almost hegemonic, which leaves us to ponder on the future and the challenge for other areas of sustainability can permeate within the community.

The latter, especially after observing that in the philosophical-political and socio-personal dimensions only the following variables do not require further information and conceptual debate: Phil 26 (Critical spirit), PER 29 (Health promotion), and PER 32 (Improvement). For the rest of the variables of these two dimensions further explanation and conceptual debate must be considered.

In fact, with the aforementioned exception of Phil 26 (“critical spirit”), the highest values of dissent for any variable were found on variables of the following dimensions: communication (Phil 24), complexity (Phil 28), Surroundings (Phil 33) and Equity (Phil 34). There is a reflection here: sustainability is a philosophy of life but there is also a philosophy behind sustainability which must be discussed. As a last comment on this dimension is the fact that horizontal decision-making (Phil25) was the topic with the highest noise, meaning that it received opinions that covered the entire range and the highest level of dispersion (1-10). It would be interesting knowing after this exercise of horizontal decision-making what the community is thinking, since, paradoxically, the horizontal decision making has been presented as an element of sustainability within a community that has strong disagreements in such an aspect.

On the other hand, the challenge of a better holistic integration of Sustainable Development into the Systems (Ramos et al, 2015) is still approached in this Center in the same manner as in the majority of HEI.

Likewise, knowing the topic of major importance for the community is one step ahead on the road to sustainability; the fact that it was decided by horizontal decision is another. However, new understandings and professional development on SD is needed as it occurs in
other universities (see Cebrián et al., 2015) as the inclusion of transdisciplinary perspective, which implies reflection (Lawhon, Manomaivibool, and Inagaki, 2010; Popa, Guillermin, and Dedeurwaerdere, 2015). It is a long way but the ‘call for humility, openness to others, a contextualization of our own knowledge, and a willingness to engage with and be moved by others’ (Lawhon, Manomaivibool, and Inagaki, 2010) which demanded reflection did have a first example in the workshop.

Although many benefits have been linked to the workshop, it is fair to mention that its execution was no simple matter. The faculty was dubious about the decision-making scheme because it was carried on jointly with other members of the community, for example, the cleaning staff. The doubts of the faculty focused on the effectiveness of the decision making process due to the asymmetric knowledge of the problematic and solutions. Despite these concerns, they attended and participated, meaning that future collaborative actions between these subcultures will strengthen the collaborative vision and equalitarian work between all parties, opening boundaries of what Hoover and Harder (2015) refer to as the territories, conflict and competition for sustainability belonging to the HEI cultures. In the present study, results were accepted by all parties.

6. Conclusions

Because of unequal life stories (academic and/or administrative expertise, hierarchy among others aspects), interests and roles, some attitude of resistance is present to accept decision making by horizontal way, nevertheless, this study documents the equitable participation on the horizontal decision making exercise between academic faculty, authorities, students, alumni, advisers and cleaning staff. It should be considered the main contribution.

This research presents an exercise of human resources training on sustainability from its operationalization in hidden curriculum, doubtless, an aspect that educational institutions should bear in mind.
The consensus methods proposed by Bui, and Munda were adapted, posing as problematic the variables that should first be taken into account in an action plan for sustainable development in a Research Center for Environment and Development. The level of importance and commitment for 37 variables of academic, research, environmental, social dimensions were investigated along with the philosophical issues of sustainability.

The environmental dimension federates the notion of sustainability. Conversely, economic, philosophical and personal-social issues are outside the attentional focus of the community and not linked to the SD, resulting in a naive notion of sustainability. From these results, we can draw a conclusion: environmental issues are the first with which to start the action plan.

It is considered that the high degree of agreement on environmental issues is consistent with the primary mission and vision of the center. Environmental issues are specific and very clearly visible (which we will refer to as structural dimension); it is interesting that some aspects related to the symbolic dimension such as the philosophical aspects arise, so it is a great challenge for the hidden curriculum and in general to consider it for the organizational culture.

Regarding the instrument used, it shows high adhesion to the community in the center, which gives it validity for purposes of participation and representation, overcoming the weakness of time consuming the exercises in traditional consensus, even though building consensus sensu stricto should be a priority for further exercises.

The principles of Neuvonen et al. (2014) were present: The widening use of human capital pivots the future human-centric society because everyone has something valuable to give, to do and to contribute to society. This principle is implemented equally considering the opinion of researchers and cleaning staff at a research center where hierarchy is much appreciated.

This study has several applications: First, the results can be the basis for the implementation of action plans for sustainable development in this Academic center and
example for others. Second, it is a strategy for strengthening the hidden curriculum and makes more visible its link with the EDS of the HEI. In third place, it is a strategy in order to create transdisciplinary and collaborative research and learning processes.

It is recognized that is necessary to provide more opportunities for collaborative dialogue and that this study opens a line for future research related to organizational change that not only has to do with what is done to move towards sustainability, but how it is made.

The present study has limitations. The first one is due to a self-report survey which recorded subjective perceptions of the importance and commitment of sustainable topics. The second one is related to the type of study, as it is a case of study, results must be used with caution with no generalization of findings.

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I am in debt with Miss Ney

References


carence de données et de divergence d'opinion en matière environnementale]. Ph D. Thesis. Sherbrooke University, Canada.


Horizontal decision for the design of the action plan of sustainability in universities
Blanca Estela Gutiérrez- Barba, Thierry Conraud


