Combining the capability approach and Max-Neef's needs approach for a better assessment of multidimensional well-being and inequalities: a case study perspective with vulnerable teenagers of the region of Paris (France)

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Abstract :

Few works have tried to articulate the Capability Approach originally developed by Amartya Sen and the Fundamental Human Needs approach developed by Manfred Max-Neef. The goal of this paper is precisely to combine those two approaches in order (i) to build a truly multidimensional framework for assessing well-being and inequalities and (ii) to capture the complexity of human well-being from freedom of choice to needs satisfaction. To test this new framework we have conducted an empirical experimentation with vulnerable teenagers (15-17 years old) living in the suburbs of Paris (Dammarie-les-Lys, France) who suffer strong social exclusion and education difficulties. We have organized participatory workshops and then a questionnaire survey with the vulnerable groups and with a control group in order to assess subjective well-being inequalities. The results clearly demonstrate that the group of vulnerable teenagers suffers inequalities in all dimensions of well-being that we tested. These dimensions correspond to the nine axiological needs (*Subsistence, Protection, Affection, Understanding, Participation, Leisure, Creation, Identity, Freedom*) and the four existential needs (*Being, Having, Doing, Interacting)* that Max-Neef identifies in his matrix. Addressing inequalities in all of these dimensions clearly help to operationalize multidimensional well-being assessment. Regarding the theoretical side, on the one hand, our tentative for articulating the two approaches allows us to introduce the two categories of axiological and existential capabilities, to better link the concepts of capabilities, functionings, satisfiers and needs and finally to debate further the idea of a list of well-being dimensions by offering a matrix of ten capabilities. Moreover, the fundamental human approach is complemented by integrating freedom of choice into the conceptualization and assessment of well-being. This allows investigating the potential causes of needs deprivation by using the different parameters that condition the acquisition of capabilities.

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1 Introduction

Only few works (Cruz, 2006; Rauschmayer et al., 2011) have tried to articulate the Capability Approach (noted CA) originally developed by Amartya Sen (1992, 1999, 2009 among others) and the Fundamental Human Needs (noted FHN) approach developed by Manfred Max-Neef (1991). However, one could say that Sen and Max-Neef pursued a similar goal i.e. to develop an alternative to the monetary and utilitarian well-being assessment framework of neoclassical economics but their respective analytical frameworks differ. In this article we highlight the fact that if the Max-Neef's needs approach gives us precise information about the possible lacks of well-being (unsatisfied needs) it does not provide a structured frame to identify the causes of well-being deprivation (i.e. why people can not meet their needs). We demonstrate that it is precisely where the articulation with the CA is very useful as the CA highlights the different parameters people need to satisfy their needs i.e. resources, rights and conversion factors. In this perspective capabilities can be considered as a pre requisite to enable people to meet their needs and experience well-being. Consequently, by combining the CA and the FHN approaches it becomes possible to build up a new framework for the integrated assessment of human well-being (noted HWB) ranging from freedom of choice to the satisfied needs.

First, this article looks at the possibility of combining the two approaches to build a unique integrated framework for the analysis of HWB in a multidimensional perspective. Second, it aims at the empirical operationalization of this new framework through the assessment of well-being and associated inequalities of a vulnerable group of people. To test this new framework we have conducted an empirical experimentation with vulnerable teenagers (15-17 years old) living in the suburbs of Paris (Dammarie-les-Lys, France) who suffer strong social exclusion and education difficulties. We have organized participatory workshops and then a questionnaire survey with the vulnerable groups and with a control group in order to assess subjective well-being inequalities.

Within the CA literature the topic of education and children/young's well-being has been already widely explored (just to cite a few works: Walker and Unterhalter, 2007 ; Otto and Ziegler, 2010 ; Biggeri et al., 2011, Hart, 2012). According to Biggeri and Santi (2012), in a CA perspective children are social actors endowed with agency and autonomy (according to their maturity), who are able to express their points of view and priorities. Children independently, from different backgrounds and contexts are able to conceptualize relevant capabilities (Biggeri, 2007). Several lists of children's capabilities have already been established (see for examples Biggeri et al., 2006; van Ootegem and Verhofstadt, 2012 ; Wust and Volkert, 2012 ; Trani et al., 2013). However, as far as we know, none of the work already achieved within the CA has tried to connect with the FHN approach.

The paper is structured as follow. Section 2 presents the two approaches, their differences and complementarities. We then discuss the possibility of combining them into a unique framework. Second 3 presents the particular method we developed to set up a series of participatory workshops and then a small-scale survey. Section 4 presents the results of the workshop and the survey we conducted. Section 5 conclude the paper by offering a discussion articulated around three points; investigating the tension between individuals abilities and social constraints; linking capabilities, needs and life-skills to improve education in a human development perspective; debating the opportunity of building a matrix of ten capabilities.

2 Capabilities and fundamental human needs: in search of possible complementarities

In this section we briefly present the CA's main features regarding well-being assessment. Then we introduce the Fundamental Human Needs (FHN) approach. Finally we discuss the possibilities of combining these two approaches.

2.1 Capability approach[2]

The CA is an attempt to renew the assessment of human well-being in a manner that can stand up to utilitarian and resourcist approaches. Indeed, in the CA, well-being has to be assessed in terms of the freedoms and opportunities "to be" and "to do" what people have reason to value (Sen, 1999). Thus, human development is defined as the process of extending the real freedoms that people enjoy i.e. enhancing people's capabilities (ibid). Capabilities correspond to the various options that a person can choose, according to his or her values, in order to achieve expected life-styles. Capabilities are composed of a bundle of achievable functionings. Functionings can be elementary i.e. related to nutrition, health, life expectancy, or more complex, such as taking part in the life of a community and having self-respect (Sen, 1999). Hence the CA, and more generally, human development, is multidimensional, with a focus on the intrinsic importance of various aspects of quality of life rather than the accumulation of goods (see among others Sen, 1999; Alkire, 2002; Robeyns, 2005).

Figure 1 The basic sequence of the capability approach (adapted from Robeyns, 2005 and Bonvin and Farvaque, 2008)
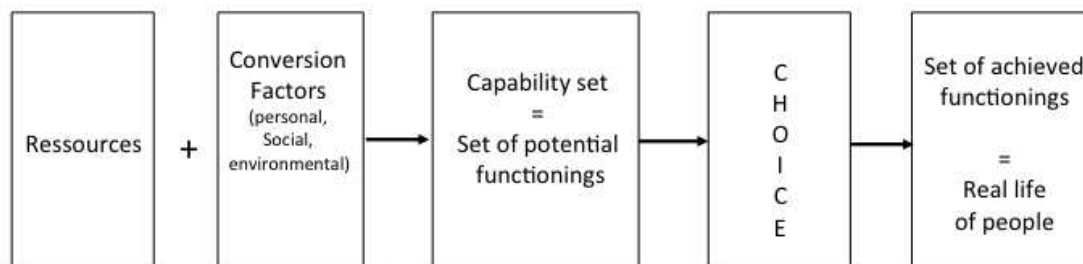
As the figure shows a person's capabilities set depends on his or her access to resources (here resources should be understood as endowments, such as manufactured goods and services, but also non-material goods, such as human and social capital) and on his or her conversion factors. A person's capacity to convert resources into functionings relies on personal conversion factors (physical and psychological characteristics, etc.), social conversion factors (institutions, customs, public goods, gender, role, etc.) and environmental conditions (changes affecting climate, river flow, etc.) (Robeyns, 2005). Therefore, the CA does not only take into account the resources people have access to, but the broader context that allows them to transform these resources into well-being achievements. It is important to note that the capability concept operates via a notion of freedom (i.e. positive freedom) that encompasses both potential choices (i.e. the set of achievable functionings) and realized choices (the set of chosen and achieved functionings). So, in a CA perspective poverty can be conceived as a lack of choice. In sum the CA sheds light on the ontological roots of well-being i.e. on the parameters that condition the freedom to achieve well-being of a given person or group.

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[2] As far as it is a paper for the HDCA conference it is not necessary to provide a detailed presentation of all aspects of the CA. We just present its main features regarding well-being assessment. For further details see Sen (1999 and 2009), Robeyns (2005) for a complete review of human development see Alkire (2010).

2.2 The fundamental human needs approach

First of all, it is absolutely necessary to differentiate the FHN approach developed by Manfred Max-Neef (1991) from the so called « basic needs » approach[3]. This approach was associated with the idea of considering poor people as « patients » waiting international or aid from the State. Sen strongly criticized this approach and he precisely developed the CA to promote the idea of poor people being agents instead of being passive recipient of aid. Max-Neef (1991, p16) also noticed this problem: *"A prevalent shortcoming in the existing literature and discussions about human needs is that the fundamental difference between needs and satisfiers of those needs is either not made explicit or is overlooked"*. It is essential to make that difference for both epistemological and methodological reasons, otherwise there is a confusion between the "end" and the "means" of development (ibid). As Max-Neef (1991, p17) explained: *"…it follows that, food and shelter, for example, must not be seen as needs but as satisfiers of the fundamental need for Subsistence. In much the same way, education (either formal or informal), study, investigation, early stimulation and meditation are satisfiers of the need for Understanding"*. In this perspective one could say that Max-Neef's concept of satisfier is close to Sen's concept of functioning.

Finally, the FHN suggests that improvements in quality of life depend on the ability of individuals and groups to adequately satisfy their needs. And this ability is grounded on what Max-Neef calls "self-reliance" a notion which is close to Sen's concept of agency (Cruz, 2006). Max-Neef has developed a taxonomy of human needs that goes far beyond material needs. He distinguishes four categories of existential needs; *Being, Having, Doing and Interacting;* and nine categories of axiological needs; *Subsistence, Protection, Affection, Understanding, Participation, Idleness, Creation, Identity and Freedom*. Human poverty is then defined as the non-adequate satisfaction of one of those categories of needs. The combination of axiological (in column) and existential (in rows) needs creates a matrix that is used for multidimensional and participatory assessment of well-being. Table 1 presents this matrix.

Table 1 The matrix of fundament human needs and satisfiers (Max-Neef, 1991)[4]

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[3] The basic needs approach was criticized for three main reasons: (i) being to narrowly focused on material commodities bundles; (ii) being too paternalistic (iii) for neglecting the question of opportunities (see for further details Deneulin and Shahani (2010, p58)

[4] Originally the description of existential categories is not included in the table but in a note that accompanies the table.

| Needs according to existential categories / Needs according to axiological categories	Being (personal or collective attributes)	Having (institutions, norms, tools)	Doing (personal or collective actions)	Interacting (spaces or atmospheres)
Subsistence	1/ Physical health, mental health, equilibrium, sense of humor, adaptability	2/ Food, shelter, work	3/ Feed, procreate, rest, work	4/ Living environment, social setting
Protection	5/ Care, adaptability, autonomy, equilibrium, solidarity	6/ Insurance systems, savings, social security, health systems, rights, family, work	7/ Co-operate, prevent, plan, take care of, cure, help	8/ Living space, social environment, dwelling
Affection	9/ self-esteem, solidarity, respect, tolerance, generosity, receptiveness, passion, determination, sensuality, sense of humor	10/ Friendships, partners, family, partnerships, relationships with nature	11/ Make love, caress, express emotions, share take care of, cultivate, appreciate	12/ Privacy, intimacy, home, space of togetherness
Understanding	13/ Critical conscience, receptiveness, curiosity, astonishment, discipline, intuition, rationality	14/ Literature, teachers, method, educational and communication policies	15/ Investigate, study, educate, experiment, analyze, meditate, interpret	16/ Settings of formative interaction, schools, universities academies, groups, communities, family
Participation	17/ Adaptability, receptiveness, solidarity, willingness, determination, dedication, respect, passion, sense of humor	18/ Rights, responsibilities, duties, privileges, work	19/ Become affiliated, cooperate, propose, share, dissent, obey, interact, agree on, express opinions	20/ settings of participative interaction, parties, associations, churches, communities, neighborhoods, family
Leisure/idleness	21/ curiosity, receptiveness, imagination, recklessness, sense of humor, lack of worry, tranquility, sensuality	22/ Games, spectacles, clubs, parties, peace of mind	23/ Day-dream, brood, dream, recall old times, give way to fantasies, remember, relax, have fun, play	24/ Privacy, intimacy, spaces of closeness, free time, surroundings, landscapes
Creation	25/ Passion, determination, intuition, imagination, boldness, rationality, autonomy, inventiveness, curiosity	26/ Abilities, skills, method, work	27/ Work, invent, build, design, compose, interpret	28/ Productive and feedback settings, workshops, cultural groups, audiences, spaces for expression, temporal freedom
Identity	29/ sense of belonging, consistency, differentiation, self-esteem, assertiveness	30/ Symbols, language, religions, habits, customs, reference groups, roles, groups, sexuality, values, norms, historic memory, work	31/ commit oneself, integrate oneself, confront, decide on, get to know oneself, recognize oneself, actualize oneself, grow	32/ Social rhythms, every day settings, setting which one belongs to, maturation stages
Freedom	33/ Autonomy, self-esteem, determination, passion, assertiveness, boldness, rebelliousness, tolerance	34/ Equal rights	35/ Dissent, choose, be different from, run risks, develop awareness, commit oneself, disobey, meditate	36/ Temporal/spatial plasticity

Max-Neef explains that fundamental human needs are finite, identifiable and common to all humans but satisfiers may differ from one group or individual to another. Ultimately, people should be free to choose how to satisfy their needs according their values and aspirations i.e. they should be free to choose the satisfiers they value (Cruz, 2006). There is no one-to-one correspondence between needs and satisfiers. A satisfier may contribute simultaneously to the satisfaction of different needs or, conversely, a need may require various satisfiers in order to be met (Max-Neef, 1991). Max-Neef explains that the needs are non-hierarchical (except the need of subsistence) and open to revision. One might say analogously with strong environmental sustainability that the non-substitutability between the different dimensions of human development leads to a strong conception of social sustainability (O'neil, 2011; Boulanger and Ruwet, 2011). Such a conception of social sustainability severely limits trade-

offs and compensations between the dimensions of HWB. After this brief presentation[5], the next subsection discusses the possible complementarities between both approaches.

2.3 A possible combination of both approaches

In both approaches functionings or satisfiers are considered the basic brick of HWB. Consequently, functionings or satisfiers can constitute the stowage point between the two approaches. In this perspective, capabilities account for freedom of choice (potential functionings/satisfiers) and needs account for well-being satisfaction (achieved functionings/satisfiers). Figure 2 tries to capture this idea.

Figure 2 A possible combination between the CA and FHN for capturing both freedom of choice and needs satisfaction
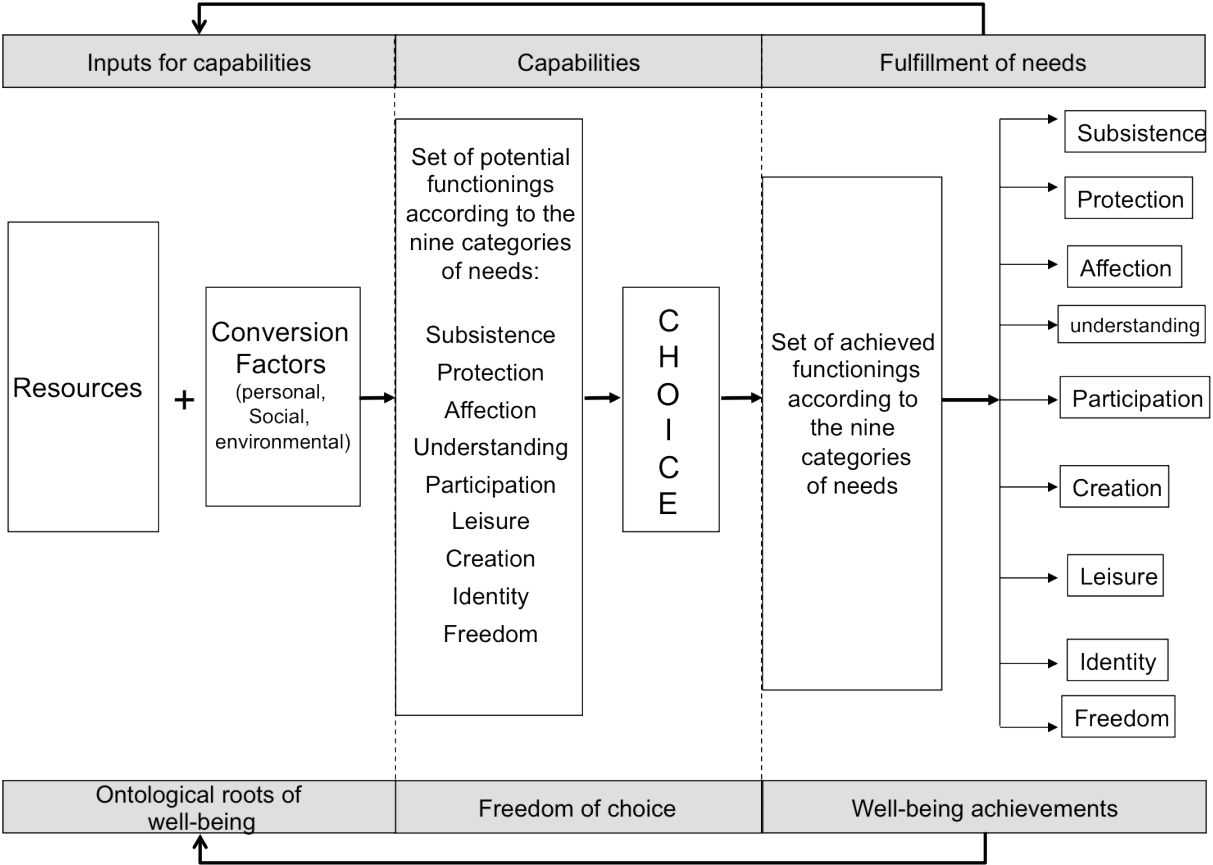
In this figure resources and conversion factors provide the input for the development of the person's capability set. The set of potential functionings defines the person's freedom of choice. And finally the set of achieved functionings correspond to well-being satisfaction, this satisfaction is captured by the concept of needs. In this view, needs correspond to well-being achievements, and capabilities correspond to freedoms of achievement. Building on Rauschmayer et al. (2011) it is possible to say that the development of capabilities is required in order to adequately meet needs, and the adequate satisfaction of needs improves the development of capabilities. By combining both approaches it is then possible to provide a dynamic conception of well-being.

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[5] For further details on this approach (both theoretical and empirical) see Max-Neef (1991), Cruz (2006), Cruz et al. (2009), Guillen-Rollo (2010), Rauschmayer et al. (2011).

Even if both approaches are autonomous, thanks to this articulation, they are both complemented. On the one hand, Max-Neef's approach comes to complement the CA by allowing a clear specification of what are the fundamental constitutive dimensions of HWB, and by specifying that those dimensions are not substitutable one by another or by anything else. By introducing a clear distinction between needs and satisfiers it helps the CA to go further in the differentiation of ends and means. Indeed, as we will see in the discussion section, the clear distinction Max-Neef introduces between needs and satisfiers can help to better characterize the often blur difference between functionings and capabilities. On the other hand, the FHN approach is complemented by integrating freedom of choice into the conceptualization and assessment of HWB. This allows investigating the potential causes of needs deprivation by using the different parameters that condition the acquisition of capabilities. As a reminder these parameters are resources, rights and conversion factors (personal, social and environmental). In sum, the FHN benefits from the capability framework which allows tackling the issue of inequalities and injustice. Finally, the FHN also could benefit from the widely developed literature of the CA on human development.

2.4. Debating the question of choosing a universal list of human well-being dimensions

Inevitably this rapprochement brings the old debate about the list of capabilities i.e. which dimension should we choose to assess HWB. If Sen is reluctant to the idea of defining a universal list of capabilities (Sen, 2004), some other CA scholars have done it (see for a review Alkire, 2002, 2010). Nussbaum's list of ten central capabilities (Nussbaum, 2003) is probably the best known. Compare to Nussbaum, the Max-Neef's list allows making the connection with needs, his approach captures axiological and existential categories and that is consistent with the definition of capabilities, in terms of the freedom of being and doing what people value. The list (more accurately the matrix) has been largely proof-tested through participatory workshops in different countries and cultures. The list captures both individual and collective attributes and captures almost all other dimensions present in the other lists. Moreover, it has to be noted that the absence of list in the CA has rendered its operationalization difficult. Max-Neef (1991, p16) noticed: "*It is traditionally believed that human needs tend to be infinite, that they change all the time, that they are different in each culture or environment and that they are different in each historical period. It is suggested here that such assumptions are inaccurate, since they are the product of a conceptual shortcoming*". According to him, since we all belong to the same biological specie, all human beings share a common ground and this common ground of humanity are the fundamental human needs. In addition, his conceptualization of well-being also recognizes that the different cultures and even the different individuals have developed different ways/manners to satisfy their needs. He operationalizes this idea by introducing the distinction between needs and satisfiers. So in his approach, universalism is taken into account by the concept of needs, while cultural diversity and even personal heterogeneity are taken into account through the concept of satisfiers. Such reasoning makes possible to comprehend both the diversity of cultures within the unity of humankind and the unity of humankind within the diversity of cultures. In this sense, he joins Sen's speech on the importance of cultural diversity, but Max-Neef gives it a more concrete aspect.

3. Material and Methods

In this section we first present the context in which the study took place. We then describe the particular method we developed. This method comprehends two different phases: a series of participatory workshops and then a kind of questionnaire survey.

3.1. Context of the study[6]

We worked with students who were in the last year of the secondary school (15-16 years old) and belong to the 2011/2012 promotion of Robert Doisneau secondary school (public school) (Dammarie-lès-Lys, Ile-de-France). They were under the responsibility of Prof. Dominique Laurette. They were in a special education section called SEGPA. SEGPA sections are annexed to "normal" secondary school to accommodate students with social and educational difficulties. According to the French ministry of Education, the students who are oriented into SEGPA suffer from serious and lasting learning difficulties. They have not mastered all the expected knowledge and skills at the end of primary school. So they are for their majority oriented in SEGPA when they start the secondary schooling at the age of 11-12 years old. The secondary school is located in Dammarie-les-Lys a peripheral city of the Paris region (Ile-de-France). This city is recognized by French government as a sensitive urban zone "zone urbaine sensible" (ZUS) because of cumulating several urban problems such as low quality housing (council estate), high rate of poverty (monetary poverty rate 19.9% against 13.9% in France), high rate of unemployment (16.1% against 10% in France)[7], high rate of delinquency, etc. The secondary school is considered as an educational priority area "zone d'éducation prioritaire" (ZEP). Consequently it is endowed with more funds and enjoys a larger pedagogical autonomy.

3.2. Method

The operationalization of our combined framework in this context raised three methodological challenges: (i) we had to rebuild the Max-Neef's matrix of needs with the students in all its complexity because it does not exist in French; (ii) we had to adopt a participatory action research methodology that allows a high degree of empowerment of the students in order to be consistent with the philosophy of the SEGPA and CA; (iii) we had to find a solution to use the rebuilt matrix for well-being and inequalities assessment. The method we developed to tackle three challenges comprises two major phases. Phase 1 was about implementing participatory workshops with the students to rebuild the matrix of needs and identify potential causes of needs deprivation. Phase 2 was about realizing questionnaire survey in order to assess inequalities regarding level of needs satisfaction between the SEGPA group and a control group. Those two phases are described below.

3.2.1 Phase 1

Phase 1 was divided in three successive steps (rebuilding the matrix, assessing needs satisfaction and deprivation, assessing the impact of the workshop in term of students empowerment). In total we organized 6 participatory workshops from January to March 2012 with 8 male students aged between 15 and 16. They all belonged to the « building construction » orientation of the SEGPA and were under the responsibility of Pr. Laurette. During the workshops the researcher plays only a facilitator role and the teenagers take the

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[7] Those numbers come from the French institute of statistics (INSEE): http://www.insee.fr/fr/themes/comparateur.asp?codgeo=com-77152

central active part by building their own evaluative framework and data collection. We now describe each step in details.

Step 1. This first step consisted in rebuilding the matrix of needs with the words of the teenagers. We used the frame provided by Max-Neef as a starting point to trigger the discussion. We started by writing on the blackboard the three first needs (Subsistence, Protection, Affection) and the four axiological categories. A deliberative procedure has spontaneously emerged to fill the empty matrix i.e. to find the corresponding satisfiers for each of the matrix boxes. At the end of the session we asked them to give a definition for the three needs on which we had worked. We repeated this procedure three times for covering the nine needs. In three sessions of two hours we had completed the matrix. Due to time constraints, sometimes some boxes of the matrix remained empty. We organized a fourth session of two hours to fill the empty boxes and to review the whole matrix.

Step 2. The second step includes two sessions of four hours. The first session was devoted to scoring each boxes of the matrix (in a sense we use directly the matrix as a questionnaire) and the second one on the identification of possible causes of non-satisfaction of the students needs. We simply asked the students to score between 0 and 5 (0 absolute non-satisfaction and 5 absolute satisfaction) each boxes of the matrix. The words contained in the boxes describe a particular situation of well-being that the students had to score. Such a scoring enables to assess subjective well-being regarding the degree of satisfaction of the nine axiological needs and four existential ones. Finally, for each student we obtained a scored matrix of 36 dimensions describing 36 situations of well-being. For processing the data we calculated the mean of each cells and then by aggregation a mean for each needs. The results are presented in table 2 in the next section. Once the matrixes were scored, we stepped to the identification of unsatisfied needs and what would be the possible causes of non-satisfaction. The process of scoring the matrix was anonymous, so we were able to identify with the whole group which were the most unsatisfied needs. Basically, we identify the boxes with a score between 0 and 2 and then ask the group what would be the possible causes of deprivation. The identified barriers impeding satisfaction were written on a piece of paper by the student who suggested it and taped to the blackboard according to the categories that determine the person's agency. These categories were previously explained and formulated in a language that could be understood by the students (we spoke of access to natural resources, economic resources, rights, internal capacities and external barriers).

Step 3. At the end of the last session a questionnaire was distributed to the students so that they were able to self-assess the skills/abilities acquired or strengthened by participating in the workshop. The public school has certain educational objectives to reach, so we really wanted to show that our methodology helped the students to develop the skills that they were supposed to acquire before they finish the secondary school. We looked into the official documents and set up the questionnaire regarding the objectives that are nationally defined by the French ministry of education. We were also inspired by the life-skills approach (Hoffmann, 2005)[8]. The following table lists the skills/abilities that we tested through the questionnaire. The question was: "*do you think your participation in the workshop helped you to improve the following abilities?*". Four answers were possible: *yes, a little, no, I don't know.*

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[8]http://www.unicef.org/lifeskills/index_whichskills.html

Table 2 The skills/abilities potentially acquired or strengthened by the students' participation in the workshops

Life skills	Students' skills/abilities potentially acquired or strengthened during the workshop			
Learning to know	Being able to analyze a situation	Being able of scientific reasoning	Being able to argumentatively explain your point of view	
Learning to be	Being able to observe autonomously simple instructions	Did you learn to self-evaluate yourself?	Did you learn to be more persevering?	Did the workshop help you to improve your self-esteem?
Learning to live together	Being able to work together (team work)	Being able to respect other people	Being able to understand others persons' viewpoint	Being able to observe social rules
Learning to do	Being able to participate in a collective work	Being able to participate in a debate or dialogue	Being able to give a speech (in front of public audience)	

In addition to this set of questions we also asked if the relationship with the teacher has been changed.

3.2.2 Phase 2

The second phase consisted in extending the use of the rebuilt matrix to other group of SEGPA students in order to verify if it was understandable by students who did not participate in building the matrix and for gathering more data. Ten other SEGPA students of the same age and level scored the matrix. In the end, we totalized 18 scored matrix for the SEGPA group. In order to test the relevance of the matrix for assessing inequalities we had to look for a control group. We asked a professor participating in the generation biosphere program if he would be agree to ask his students to score the matrix developed by the SEGPA group. This control group gathers 16 students aged between 15-17 years old of the Assomption-Forges technical secondary and high school (Private school). These teenagers are also engaged in technical learning, but on the contrary to SEGPA students, they chose to do so. They do not present particular social or educational problems. They come from urban and rural areas. The professor asked them to score the matrix as the students from SEGPA did. For processing the data we calculated the mean of each box and then a mean for each category of needs.

4. Results

This section presents and analyzes the results of phase 1 and 2.

4.1 Results of Phase 1 (workshops)

4.1.1 Step 1: rebuilding the matrix of needs with the SEGPA students

From the beginning of the first session all the students played an active role in the workshop and that helped them to feel valued. At the end of the first session the students were very surprised of their own capacities. They ignored that they knew of all of those « nice and complicated » words they put in the matrix. They discovered gradually what they were capable of. In such workshops the process is as important as the result. In addition, their

French teacher was also very surprised and decided to use the matrix in her classes. She decided to undertake with her students the construction of a tree of thoughts where the needs constituted the branches of the tree and the satisfiers the leaves. The tree was exposed in the entrance hall of the secondary school. That was a mean to promote the SEGPA students in front of "normal" teachers and students. The following table provides a direct translation of the matrix they built.

Table 3 The matrix of needs built by the SEGPA students

	Being (feelings, I, we, everybody/all together, skills, etc.)	Having (to have things etc.)	Doing (Actions…)	Interacting (social and natural environment, sharing with Nature and other people)
Subsistence (what is necessary to survive)	-Being happy, to feel replete -To adapt -Being physically and mentally well -Being respectful, being balanced -Being generous	-Food -Water -Shelter -Material comfort -Planet Earth	-To eat and drink well, to enjoy ourselves -To take care of yourself -Find food -To talk/discuss -To help people	-To talk/discuss -Find food -Air -Planet Earth
Protection (what is necessary to feel safe)	-To be in a good health -To feel safe	-Police, -Politesse (manners, courtesy) -Respect -Law -Social security	-To recognize -To help people	-To feel good or comfortable -Ozone layer -Law
Affection (we need love)	-Being able to joke -Show solidarity -Being fair play -Being sincere, respectful -How do we look like -Being friendly	-Family -Video games -Friends	-Sex -To have children	-Being grateful -Enjoying life -To love -Friendship
Understanding (trying to understand Nature and people)	-Being coherent -Intuition -Imagination -Fair Play -Being audacious	-Coherence, -Public education -Compassion -Adaptation	-To interpret -To make yourself understood -To present one's arguments	-Language -To make yourself understood -Talking to each other -School
Participation (trying to participate to the natural and social environment)	-Being surrounded (by friends and family) -Being welcoming -Being critical -To commit oneself -Being courageous	-Obligations -Rights	-Association, -To cooperate -Have fun -Team play -Make love -To participate	-Talking to each other -Communication -Social center -Associations, the street -Meeting places
Leisure (to entertain and have fun)	-Being relaxed -Imagination -To enjoy yourself -Being passionate -Being curious	-Passion -Sports facilities -Games -Friends	-To rest, to have walk, to play, to talk -To make love -Watching TV -Invent	-Talking to each other -Skate Park, -Staircase -Halls of buildings
Creation (to create different things, to put life into something)	-Imagination -Being creative -Rationality -Being an artist -Being skilled	-Passion -Imagination, -Performance -Methods	-To build -To interpret -Fashion	-Nature, -The carpentry workshop -The workplace -Home, virtual creation (video games), creative spaces
Identity (to identify people or something)	-Profile -Being an artist -Being professional	-Performance -Identification documents -Symbols -Habits -Dignity, values	-To create your image -Habits	-Family -Character -Privacy -Sense of belonging -Place of birth -Maturity
Freedom (to have choices in life and responsibilities)	-Passion, Humor -Autonomy -Rationality -Tolerance -Being different	-Ideas -Choices and possibilities	-To appreciate -To go out -To meditate -To read -To commit oneself	-Humor -Expression -Tolerance -Meditation -Freedom of speech and information

It is very interesting to analyze where they decided to put the words in the matrix and why. Indeed, it allows discussing their values and conception of life. For example they put the satisfier "to make love" in the box Leisure/Doing and Participation/Doing. This satisfier does not appear in the Affection category nor "having a partner or boyfriend/girlfriend". Moreover, they put the word "sex" in the Affection/Doing box. After having discussed with their teacher, one possible interpretation could be that they think about sexuality without thinking about the partner with whom to engage a love relationship. By putting "to make love" in the Leisure/Doing box, one could infer that they have a ludic and individual conception of sexuality which is not situated in the relationship with the other. On the one hand, that could

be perfectly normal because teenage and puberty are particular difficult periods in the construction of the self. On the other hand, if this conception endures and forges the adult attitude to sexuality that could be a problem. This article is not the place to discuss all the choices of the students and undertake in depth psycho-sociological analysis but this example gives a good idea of the kind of discussions and reflections that can be triggered by filling the matrix.

4.1.2 Step 2: Assessing the level of needs satisfaction and identifying possible causes of deprivation

The following table reports the results obtained when we asked the group of SEGPA students who participated in the workshop to score each boxes of the matrix. The more the color is dark, the more the level of satisfaction is high, the more color is clear, the less the level of satisfaction is high (see the legend below the table).

Tableau 4 Average level of satisfaction of the SEGPA students who participated in the workshop (needs are ranked according to their level of satisfaction) (n=7, this day only 7 upon 8 of the students were present)

	1-Interacting	2-Having	3-Doing	4-Being
1-Affection				
2-Subsistence				
3-Leisure				
4-Protection				
5-Participation				
6-Freedom				
7-Identity			*	
8-Creation		*		
9-Understanding			*	

* : the asterisks indicates the box with the lowest percentage of satisfaction

Legend	
Rate of satisfaction ≤ 40%	
40% ≤ Rate of satisfaction ≤ 60%	
60% ≤ Rate of satisfaction ≤ 80%	
Rate of satisfaction ≥ 80%	

The needs of Understanding followed by Creation and Identity are the less satisfied. One would expect that the need for Understanding would be the less satisfied because they are young people with learning difficulties but, as we will see later, we found the same result with our control group. The box Understanding/Doing is the less satisfied of this row. It comprises some satisfiers such as: *to interpret, to make yourself understood, to present one's arguments*. It is surprising to see that the second less satisfied need is that of Creation because those students are involved in a technical learning that allow more practical creativity than regular learning. The box with the lowest level of satisfaction of the whole matrix corresponds to Creation/Having and contains satisfiers such as: *having passions, method, performance, imagination* etc. So we can infer that the students are not able to develop such kind of

functionings. The three most satisfied needs are Affection, Subsistence, and Leisure. It is surprising to find Subsistence as one of the most satisfy needs because they are considered as income-poor students. The comparison with the control group will give us some insights for interpreting this result. If we now analyze the existential categories, the most satisfied need is Interacting and the less satisfied is Being. These results confirm the intuition of their professor Mr Laurette. According to him, they are constantly interacting, they are unable to focus, to concentrate on themselves and finally to be themselves. They need to be able to experience inner peace in order to discover who they really are. He argues for the creation of a place dedicated to silence within the secondary school and he often starts his classes with one or several minutes of silence.

After having assessed the degree of satisfaction of the needs, we collectively identified some of the barriers that render their satisfaction difficult. The table 5 reports the different barriers identified by the students.

Table 5 Collectively identified barriers that impede the satisfaction of some deprived needs.

Categories	Identified problems	Needs affected
Natural resources	-A polluted planet -Absence of forest	-Subsistence/interacting -Leisure/interacting
Economic resources	-Lack of money -Lack of time	-Subsistence/doing/having -Participation/having
Rights	-Absence of national identification documents (immigration problems)	-Protection/having
Internal conversion factors	-Empty head -Fear to be attacked -Bad physical health -Fear to go to meet new people -Impossibility to pursue advanced education[9] (I know that I could be capable of but I fear to be ridiculous there)	-Understanding /being -Protection/ being -Protection/ being -Affection/interacting -Identity/Being
External conversion factors	-Bad taste of the food in the school restaurant, I'm always hungry after lunch -We don't feel protected by the Police and we fear abuses of power -We never participate enough	-Subsistence/Being -Protection/Having -Participation/Interacting

Many things could be said regarding this table. We chose to discuss here the two barriers named « *impossibility to pursue advanced education* » and « *empty head* » because they allow investigating further the tensions between individual abilities and social constraints. The way the students have named these two barriers (as well as "*We don't feel protected by the Police and we fear abuses of power*") is the crude verbalization of the discrimination and injustices of which they suffer. Making the distinction between internal and external conversion factors allows investigating the articulation between individual skills (S-Capabilities) and social opportunities (O-capabilities)[10]. Indeed, the students have hesitated a lot, when classifying the problem "*impossibility to pursue advanced education*", between the two categories of "internal capacities" and "external barriers". Moreover, they specified between brackets "*I know that I could be capable of but I am afraid to be ridiculous there*". The fact that they put this problem into the category of "internal capacities" demonstrates that they have internalized the social discrimination they suffer from. In addition, they also mentioned "empty head" in this category of barrier. Such a way of verbalizing the problem is an

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[9] They refer to being able to go to regular high school and university.
[10] This terminology was introduced by Des Gasper (2002).

indicator of the high degree of social exclusion and social stigmatization to which these teenagers have been exposed. This way of formulating these two barriers and their classification into the category of "internal capacities" means that they consider that the main problem comes from themselves. This interpretation is supported by the testimony of the headmaster of the secondary school to whom we show our results. According to her: "*With the new paradigm of 'equality of opportunities' claimed by the French ministry of Education, if you are not successful at school or more largely in the society this is your fault and this has a terrible impact on your self-esteem and self-confidence. Nowadays, if you are not good enough to adapt yourself to this society, this is your fault. This is you, as an individual, who bears alone the responsibility of your failure not the society because the political system supposedly postulates equal opportunities and rights for every citizen. The myth of 'equality of opportunity' makes you internalize the failure"*. This testimony is corroborated by the analysis of Peugny (2013) who explains that under the two paradigms of "equality of opportunities" and "meritocracy" that predominate in France, individuals are conceived as accountable agents who have to carry alone the burden of their difficulties. Social antagonisms are denied and each individual is erected as responsible for his/her choices, successes and failures.

4.1.3 Step 3: Assessing the degree of students' empowerment through life-skills improvements

As we explained in the Method section, at the end of the last session we asked the students who participated in the workshop to fill a questionnaire in order to assess the impact of attending the workshop on their life-skills. The following histogram presents the results.

Figure 3 Impacts of the workshop regarding the improvement of students' life-skills (n=6, this day only 6 students were present)
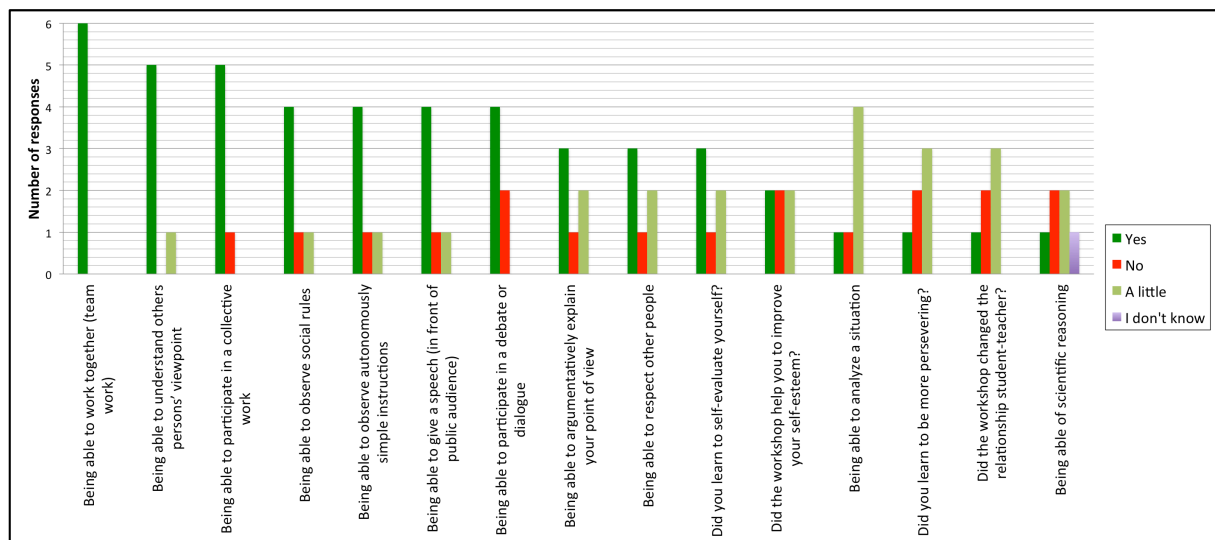
The figure shows very positive results. These results confirm that the objective of empowerment was reached. The life-skill "Learning to live together" is the most improved. Three of the four most improved abilities belongs to this category: *Being able to work together (team work), Being able to understand others persons' viewpoint, Being able to observe social rules*. This is very encouraging because those abilities are required for cooperation, tolerance and social cohesion. The life-skill "Learning to do" is also well improved. Results regarding the improvement of the two other life-skills ("Learning to be" and "Learning to know") are a bit lower but still very encouraging. For example, if we look at

the question about self-esteem four upon six students thought that their participation in the workshop has improved or slightly improve their self-esteem (only two answered "no"). The least improved skills is "*being able of scientific reasoning*". That is not surprising because it is the most difficult ability to develop. However, the results are encouraging because three upon six students gave a positive answer to this question (one "yes" and two "a little"). The modification of the relationship with the teacher occupies the penultimate position but it is still a promising result because four upon six students answered positively to this question (one "yes" and three "a little").

As a conclusion of this first part of the results section, we would like to quote one student who said, when we asked each of them to give their final impression of this experience: "*Before the workshop we were a collection of individuals gathered together in a classroom, now we are an united team*". He wanted to say that before this collective experience they were a mere collection of individuals gathered in the same room by the force of circumstances and now bonds have been created between them. They constituted a group who worked on collective project: rebuilding the matrix with their hands and brains.

The next sub-section presents the results obtained when we distributed the matrix to another SEGPA classroom and to the control group (as a reminder the control group is compounded of students of the same age but without any particular social or educational problems).

4. 2. Results of Phase 2 (survey)

We first present the results regarding the ranking of the different needs according to their level of satisfaction. Then, we compare the level of needs satisfaction between the SEGPA group and control group in order to assess inequalities between the two groups.

4.2.1 Ranking of the needs according to their level of satisfaction

As a reminder we asked the two groups to score each boxes of the matrix between 0 and 5 according to their level of satisfaction (see appendix 1). Then we have process the data by calculating the mean of the level of satisfaction for each category of needs. The results are presented in the following tables.

Table 6 Ranking of the axiological needs according to their level of satisfaction

Control group (n=16)		SEGPA group (n=18)	
1-Leisure	85,0%	1-Subsistence	74,4%
2-Affection	81,6%	2-Affection	71,7%
3-Subsistence	77,8%	3-Leisure	66,4%
4-Participation	75,9%	4-Freedom	65,0%
5-Identity	75,3%	5-Protection	63,6%
6-Protection	75,0%	6-Identity	61,1%
7-Freedom	74,7%	7-Participation	60,0%
8-Creation	71,9%	8-Understanding	59,4%
9-Understanding	70,6%	9-Creation	54,4%

The table shows very interesting results. Indeed, for both groups the three more satisfied needs are the same (but not in the same order): Leisure, Affection and Subsistence. Moreover, the two least satisfied needs are also the same (not in the same order) for both groups: Creation and Understanding. However, due to the very small scale of the sample, it is impossible to conclude whether it is a trend or simply due to chance. Nevertheless, this result could be considered as a hypothesis to be tested on a larger scale sample. The sample is to small to conclude but the fact that the two least satisfied needs are in both cases Understanding and Creation directly questions the educational system, especially if these results could be confirmed by a larger scale survey.

The following table presents the ranking of existential categories according to their level of satisfaction.

Table 7 Ranking of existential needs according to their level of satisfaction

Control group (n=16)		SEGPA group (n=18)	
1-Having	79,2%	1-Interacting	66,9%
2-Being	77,1%	2-Having	65,4%
3- Interacting	75,1%	3-Being	63,5%
4-Doing	74,3%	4-Doing	60,2%

The most satisfied existential need is Having for the control group and Interacting for the SEGPA group. In both cases, Doing is the least satisfied existential need.

### 4.2.2 Inequalities regarding the level of needs satisfaction

One of our goals was to test the matrix as a tool for investigating well-being inequalities. To do so, we now investigate if there is a difference between the average levels of satisfaction of needs between the two groups. As far as the teens from the control group do not suffer from any particular social or educational problems, we can formulate the hypothesis that their average level of needs satisfaction should be higher than the SEGPA group. The following figure 3 presents the inequalities regarding the difference in the satisfaction of axiological needs and figure 4 presents those regarding existential needs.

Figure 4 Inequalities regarding the satisfaction of axiological needs
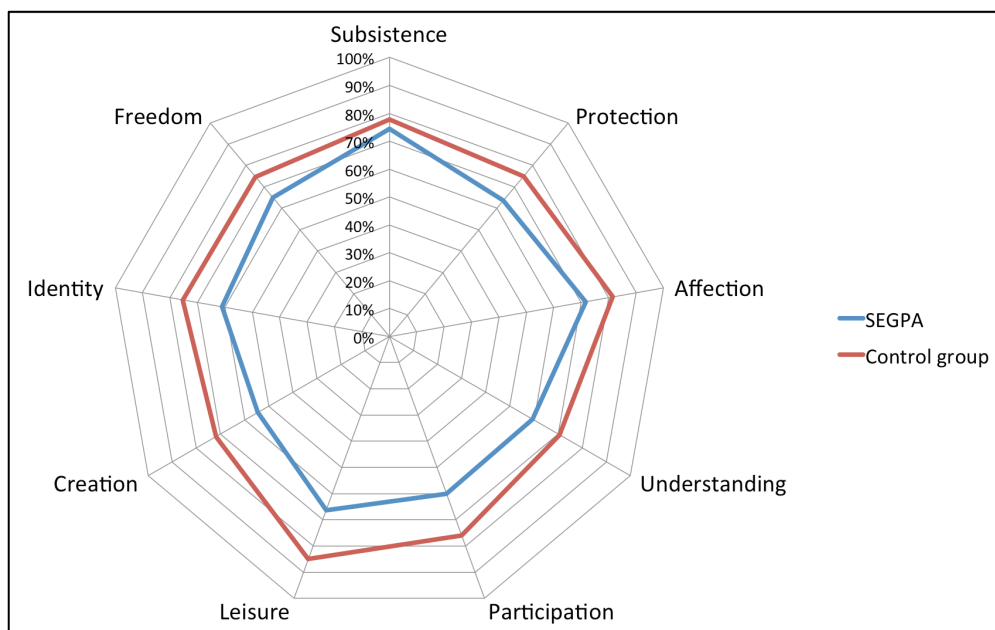
A first look at the two radars (fig 4 and 5) can prove our hypothesis because we see very clearly that the average level of satisfaction is higher among the students of the control group than that of SEGPA group. This result holds for all categories needs of both types axiological and existential. The differences regarding the degree of satisfaction between the two groups is the lowest for the need of Subsistence (74,4% against 77,8%) and the highest for the need of Leisure (66,4% against 85%). One could say that the inequality burden is not so much on the Subsistence (Subsistence is the category of need where there is the most words with a material consonance) but rather on access to Leisure. Such a result would be in coherence with Kalaora's study (1993) about the difficult access to leisure of poor populations. However, SEGPA students ranked the need of Leisure among their three most satisfied needs. So, on the one hand, it corresponds to the need for which the difference of satisfaction with the control group is the highest and, on the other hand, it is one of the three most satisfied needs. This result can be explained when comparing the maximum and minimum average rate of satisfaction of the two groups. The maximum rate of satisfaction of the control group is 85% and only 74,4% for the SEGPA group. If we now compare the lowest rate, it is of 70,6% for the control group against 54,4% for the SEGPA group. So, the lowest satisfaction rate of the control group (70,6%) is of the same order of magnitude that of the highest rate of satisfaction of the SEGPA group (74%). If we compare the aggregate mean of satisfaction rate between the two groups, there is a difference of 12,4 points (76,4% for the control group against 64% for the SEGPA group). Even if statistical tests would be required to conclude, in the light of these descriptive statistics we can say that the average level of needs satisfaction of the control group is clearly superior to the SEGPA group.
We now analyze the inequalities regarding existential needs.

Figure 5 Inequalities regarding the satisfaction of existential needs
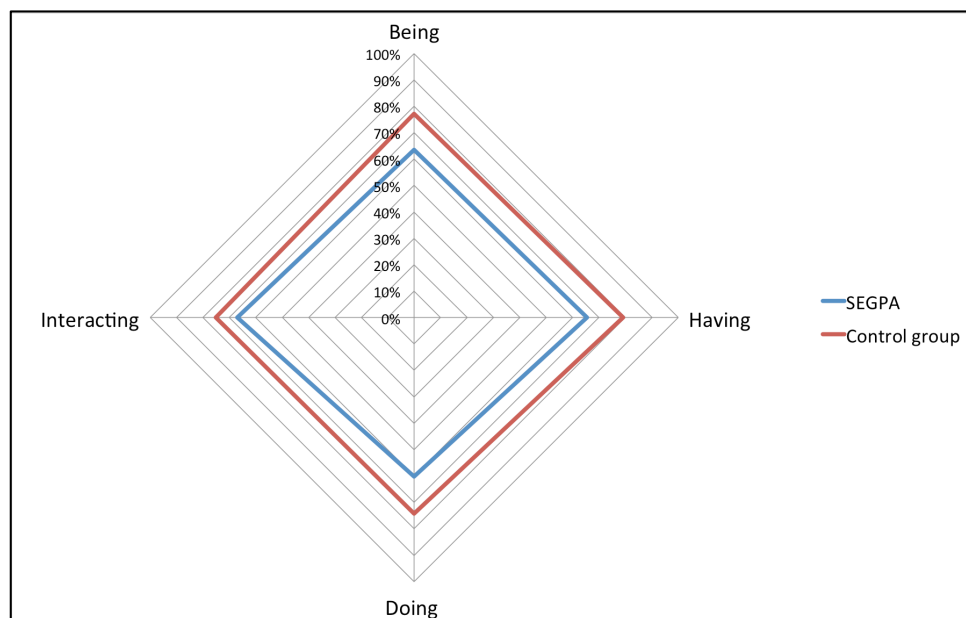
Regarding the existential needs we find the same trend. The level of satisfaction of the control group is higher than SEGPA group in all of the four existential categories. The maximum difference of satisfaction is on the category of Doing (14,1%).

As a brief conclusion of the Result section, we can say that if the average level of satisfaction of the needs of the control group is higher than SEGPA group, there is still a strong margin of progression since they have an average satisfaction rate of only 76%.

Moreover, these results renders possible the identification of working priorities to improve students' well-being by looking at the most unsatisfied needs e.g. "Understanding", "Creation" and "Doing".

5. Discussion

In this last section we first discuss, in the light of our case study, the tensions between individual abilities and social opportunities. Secondly, we examine the potential of linking the life-skills, capability and needs approaches in order to rethink education in a sustainable human development perspective. Finally, we debate the possibility of building a matrix of capabilities

5.1. Investigating the tensions between personal abilities and social constraints

According to Biggeri (2007), deficiencies in important capabilities during childhood not only reduce the well-being of those suffering from the deficiencies, but may also have larger societal implications. Our case study allowed us to shed light on the tensions that exist, especially for vulnerable people, between individual abilities to which personal identity is associated and the social context of opportunities within which they live. Indeed, the participatory workshops highlighted the insidious risk of internalizing external barriers due to repeated social discrimination against a particular group. Because of daily social discrimination (including at school, even if the SEGPA pedagogical team does all its possible to help them in front of the "normal" students) the teens end up thinking and defining themselves as "scum" and verbalizing the very bad self-esteem that they have of themselves through phrases like "*we have an empty head*". Consequently, they reduce their aspirations and refrain themselves to imagine better futures such as being able to go to the university or even being able to get the high school final diploma (French baccalaureate). Therefore, postulating equal opportunities in a context of strong social discrimination and unfair distribution of resources and conversion factors does not allow a real equalization of opportunities. Such a situation has harmful effects on the self-confidence and self-esteem of vulnerable people. This phenomenon plays a role in triggering or maintaining a vicious circle of unmet aspirations. These unmet and unreachable aspirations can generate frustration which can be transferred from one generation to another as demonstrated by Ibrahim (2011). According to Merle (2012), in France success at school is particularly depended on the social origin of the student's parents. France is ranked in the penultimate position regarding the correlation between the socio-economic origin of the parents and the success at school of their children (OECD, 2012)[11]. More generally, children's capabilities set are at least partially affected by the capability set and achieved functionings of their parents involving a cumulative path-dependent process (Biggeri, 2007) which can be responsible of social reproduction. This individual frustration and reproduction of inequalities have social consequences and plays a role in social fragmentation (Peugny, 2013).

According to Merle (2012) the standards, methods and procedures used in France to evaluate the students success at school are too often discouraging, stigmatizing or humiliating. However, the work presented here, which was realized with another "lens" than the classic standards set by the French ministry of education helps demonstrate the potential of these students by considering them as normal persons and by giving them importance, responsibilities and trust. As stated by their teacher "*those teenagers are not more stupid than the others, they just got less lucky*", they grew in less favored contexts. According to him the

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work they achieved for this study i.e. the amazing work they did for rebuilding the matrix and all intense debates we had about their values and values that prevail in the society, etc., demonstrated that "*they suffer from a social 'disability' not from any mental or intellectual disability*". They just suffer from a lack of opportunities to develop their full potential. Society clearly tells them that they are different. They are sidelined at the beginning of secondary school by the French education system when they are assigned to SEGPA sections at the age of 12-13 years old. Once they are in SEGPA, they know that their future possibilities are seriously reduced. Finally, as demonstrated by Peugny (2013) for the French context, it is the way society operates and establishes rules that is responsible for the reproduction of inequalities, not the poor or vulnerable individuals. This result reminds us the importance of investigating further the tensions between the individual and social levels within the CA.

5.2. Linking capabilities, needs and life-skills to reframe education for sustainable human development

According to Biggeri and Santi (2012) the standard educational system and context (such as classrooms) are relevant for enhancing learning but are not sufficient on their own. They add that other forms of education and contexts are necessary and should be mainstreamed in the educational systems. They specify that these forms of education are places where teachers and children collaborate with each other to grow in understanding not only of the material world but also of the personal, social and ethical world around them. The participatory workshop we organized offer a concrete example of what these other forms of education could be. According to Biggeri and Santi (2012, p375) "*Education, in a human development and CA perspective, should not be confined to learning mathematics or developing literature skills. On the contrary, it should also incorporate life-skills and should teach children how to be autonomous, how to cooperate and collaborate, and how to interact with others and with the world. In other words, the educational system should aim to expand children's real opportunities (i.e. capabilities) for present and future functioning*". We draw attention on the potential of using the capability, needs and life-skills approaches to develop such forms of education orientated toward sustainable human development and notably toward the social dimension of sustainability. The following table is a tentative to articulate the life-skills, capabilities and needs approaches in order to offer a renewed frame for sustainable human development education.

Table 8 Four dimensions for an education that fosters capabilities and promotes sustainable human development (adapted from Hoffman, 2005)

Life-Skills	Sustainable human development[12] requires:	The Capability Approach covers:	Fundamental human needs approach covers:
Learning to know	Recognition of the challenge of sustainability	Developing reasoning	Understanding, creation
Learning to be	The indivisibility of human dignity	Enhancing agency	Identity, leisure, freedom/autonomy
Learning to live together	Collective responsibility and constructive partnership	Building potential through social capital	Affection, participation
Learning to do	Acting with determination	Expressing basic and refined functionings	Subsistence, protection creation

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[12] Sen defines sustainable development as "*The preservation, and (when possible) expansion, of the substantive freedoms and capabilities of people today `without compromising the capability of future generations´ to have similar – or more – freedom*" (Sen, 2009, p.251-252).

This table could serve as a frame to develop new forms of education or even education policies. It helps to keep in mind what are the fundamental life-skills that the students should learn, what sustainable human development requires for being achieved in a given society and what are the capabilities to be developed in order to help the students to adequately meet their needs. As our results show and many other studies (OECD, 2012; Peugny, 2013) the French educational system clearly fails to meet such objective.

5.3 Toward a matrix of capabilities?

The rapprochement between the CA and FHN calls into question the old debate of providing a list of capabilities. For empirical operationalization this list is required[13]. Our case study showed the usefulness of such a list as a starting point for triggering discussions and then to assess well-being in a truly multidimensional way. The distinction introduced by Max-Neef between existential and axiological categories and between needs and satisfiers can help to improve the operationalization and clarification of the CA. Indeed, it helps in differentiating the formulation of what is a *functioning* and what is a *capability*. Many of the lists suggested by CA scholars mostly refer to functionings rather than to capabilities. As we saw *Education* is not a capability but a functioning or a satisfier (depending on the language we choose) required to develop the capability of Understanding. If we follow this distinction, Nussbaum's categories of central capabilities e.g. *Bodily health and integrity*, *Sense-imagination-though* or even *Play* read rather as satisfiers or potential functionings than as capabilities. Similarly, all the entries of Durraippah's list (2004)[14] are functionings and not capabilities. The rapprochement between the two approaches raises a couple of other questions. For example, should we remove the ninth need called "Freedom" in order to be consistent with the CA? Indeed, through the combination with the CA, freedom becomes constitutive of the conceptualization and assessment of well-being. Consequently, may be it would an incoherence to maintain it as an axiological category? Another question would be to analyze if the notions of resources and conversion factors of the CA do already account for the functionings/satisfiers that are captured by "Having" and "Interacting" categories. If we remove the two categories of "Having" and "Interacting" we would have a very elegant matrix of capabilities in terms of "Being" and "Doing", that would be perfectly consistent with Sen's original definition of capabilities. Finally, there is one dimension of well-being that is not captured by the Max-Neef's list which is the Spirituality/transcendence dimension. This dimension is present in several other lists of human development (see Alkire, 2002 and 2010), so we suggest that it could be added to the nine other dimensions.

Even if the previous questions need to be further debated, we have decided to offer a matrix of ten capabilities by complementing the students' matrix. We have reformulated certain words and also complemented it with some examples of functionings/satisfiers from the original matrix of Max-Neef and with examples from the Nussbaum's list. We have also

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[13] According to Alkire (2006) a list of dimensions is a useful "tool" to make sure that : « *some dimension that the community really values is not left out, either because people forget about it in the heat of discussion or because they presume that the facilitator is not interested (as in matters of faith or family), or because they are not used to talking about these issues in a group (such as culture or inner peace)* ».

[14] According to Duraiappah (2004), the 10 elements of well-being are 1) being able to be adequately nourished; 2) being able to be free from avoidable disease; 3) being able to live in an environmentally clean and safe shelter; 4) being able to have adequate and clean drinking water; 5) being able to have clean air; 6) being able to have energy to keep warm and to cook; 7) being able to use traditional medicine; 8) being able to continue using natural elements found in ecosystems for traditional cultural and spiritual practices; 9) being able to cope with extreme natural events including floods, tropical storms and landslides; and 10) being able to make sustainable management decisions that respect natural resources and enable the achievement of a sustainable income stream

reformulated the definition of needs and transformed it into the capability vocabulary. Table 9 presents this matrix.

Table 9 Toward a matrix of capabilities (doted lines indicate the categories that should be the object of further debate

Existential capabilities / Axiological capabilities	**BEING** *Being able to acquire or to experience personal and collective attributes*	**DOING** *Being able to achieve individual or collective actions*	**HAVING** *Being able to access to or benefit from: (Rights, institutions, goods and services, etc.)*	**INTERACTING** *Being able to interact with the social and natural environment (locations, landscapes, etc.)*
SUBSISTENCE *Essential functionings to survive*	-Feeling happy -Being in good physical and psychological health -Being balanced -Adaptability	-To eat healthy -To take care of yourself -To rest -To aspire, to hope -Freedom of movement	-Healthy food -Good water and air quality -Job enabling personal and collective development -Material comfort (home, clothes etc.)	-Enjoying a livable planet -Enjoying a fruitful living environment -Talking to each other -Access to vegetable garden/ farms
PROTECTION *Essential functionings to feel safe*	-To feel safe -Being autonomous -Solidarity	-To recognize the others as human persons -To be able to identify what really matters in life -Helping each other	-Health care -Social security -Impartial institutions -Laws and rights	-Being protected from pollutions and natural disasters -Feeling comfortable -Benefiting from privacy
AFFECTION *Essential functionings to feel loved*	-To be accepted as I am -Kindness, generosity, -Compassion -Sincere -Humor	-To be able to show my feelings/emotions -To make love -To give birth to children -To love	-Family -Boy/girlfriend -Friends	-Access to meeting places -Experience interactions with non-human
UNDER-STANDING *Essential functionings to understand the others persons and Nature*	-Being rational -Being intuitive -Being consistent -Being critical -Being curious	-To be able to analyze -To study, to focus -To experiment -To learn -To understand	-Training/education -Scientific methods -Books/sources of liable information -Teachers/mentors	-Being able to explain to each other your ideas -Enjoying a school, university, museum etc. -Enjoying interactions with ecosystems
PARTICI-PATION *Essential functionings to be able to participate in the society*	-Being connected (opp. of isolated) -Being motivated -Developing agency -Developing team spirit	-To cooperate -To associate with other -To share -To communicate -To have fun	-Rights and obligations -Responsibilities -Commitments -Opinions -Job	-Enjoying community meeting places -Participating in collective actions -Participating in true democratic processes
LEISURE *Essential functionings for a pleasant entertainment*	-Feeling relaxed -Being imaginative -Being curious	-To rest -To have fun -To do sports -Invent, dream, aspire -To have a walk	-Hobbies, free time -Sports infrastructures -Games, parties, shows -Friends -Tranquility	-Enjoying Natural places, landscapes, -Enjoying City green parks -Enjoying cultural, recreational places
CREATION *Essential functionings to create, to give life to things*	-Being imaginative -Being intuitive -Sensibility -Developing artistic skills	-Building things -To interpret -To draw -To create	-Artistic method -Recognition -Artistic culture -Art tools -Art and science settings	-Enjoying Places of artistic creation -Enjoying home as a space of creation -Enjoying nature as a space of creation and inspiration
IDENTITY *Essential functionings to exist as a person, to belong to the human community and to the Earth*	-Developing self-esteem -To be respected and to be respectful -Self-confidence -Developing professional skills	-To develop your personality -To improve yourself -Personal and collective achievement -To learn to know yourself	-Symbols, landscapes -Customs/traditions -Dignity, values -Recognition -ID documents	-To belong to a community, -Territorial identity, feeling rooted in a place -To know your roots -Personal maturity
Freedom *Essential functionings required to have choices and responsibilities*	-Autonomy -Rationality -Being different -Tolerant -Open-minded	-To commit oneself -To disobey -To choose -To dissent	-Ideas -Choices and possibilities -Equal Rights	-Freedom of speech -Freedom of information -Tolerance -Temporal and spatial plasticity
Spirituality *Essential functionings for developing a spirituality*	-Being able to experience inner peace -Being sensitive to the world	-To meditate -To experiment	-Personal ethics and norms -Religious and laic moral	-Being able to live with concern for and in relation to other humans and non-humans

In reference to the matrix axiological capabilities can be defined as the real freedoms that people enjoy to adequately satisfy one of the ten needs. In other words, an axiological capability gather the set of potential functionings required to satisfy a particular axiological category of need. Existential capabilities could be formulated in terms of « power to be », « power to do » (« power to interact » and « to have » ?). As we saw in the conceptual section (Section 2), the notion of need is restricted to well-being achievements. For example the need of Subsistence gathers all the achieved functionings required to satisfy it. In conclusion, this combination could help to specify even more the definition of capabilities. Indeed, in this framework, capabilities are the individual and collective freedoms (set of potential functionings) that people enjoy to adequately meet the fundamental human needs. In this perspective, sustainable human development is defined as: *the improvement of people's capabilities to adequately satisfy their fundamental needs via, on the one hand, the equitable distribution of capabilities among the current generation and, on the other hand, via the transmission of freedom of choice across generations.* This definition reconciles human development formulated in terms of capabilities and sustainable development formulated in terms of needs.

Conclusion

The goal of the paper was to provide both a theoretical and empirical exploration of combining the CA and FHN.

On the theoretical side, FHN approach comes to complement the CA by allowing a clear specification of what are the fundamental constitutive dimensions of HWB. By introducing a clear distinction between needs and satisfiers it helps the CA to better characterize the often blur difference between functionings and capabilities. This rapprochement also allowed us to introduce the idea of existential and axiological capabilities. On the other hand, the FHN approach is complemented by integrating freedom of choice into the conceptualization and assessment of HWB. This allows investigating the potential causes of needs deprivation by using the different parameters that condition the acquisition of capabilities. More largely, through this rapprochement the FHN also could benefit from the widely developed and sound grounded literature on human development.

On the empirical side, our case study has demonstrated the heuristic power of this combination between both approaches. We first applied it trough participatory workshops and that enable us to assess the level of well-being of a group of vulnerable teenagers and also to identify the causes of well-being deprivation. We have shown that the tension between individual abilities and social constraints can result in the internalization of discrimination. Using our framework through workshops also allows to investigate deeply the discourse and values of the teenagers as well as empowering them. In a second phase, we used the matrix of well-being as a "questionnaire" to survey the inequalities regarding the level of needs satisfaction of the vulnerable group of teenagers and of a control group. We found inequalities in all dimensions we tested.

Even if further work is required, this exploratory study has shown the promising avenues of research that the rapprochement between the CA and FHN opens for a truly integrated and multidimensional conceptualization of well-being ranging from freedom of choice to the satisfaction of needs.

Acknowledgements

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Appendix 1

	Etre *Sentiments, compétences, qualités etc.* ***Est-ce que je suis / je sais être ?***	Avoir *S'approprier, bénéficier, etc.* ***Est-ce que j'ai / je peux bénéficier ?***	Faire *Accomplir des actions etc.* ***Est-ce que je suis capable / je peux ?***	Interagir *Avec son environnement naturel et social* ***Est ce que je peux interagir avec mon environnement ?***
Subsistance *Ce qui est nécessaire pour survivre*	• content, repu • me sentir bien physiquement et mentalement • solidaire, courageux, m'adapter • équilibré, prêteur .../5	• des aliments, de eau etc. • confort matériel (vêtements, argent de poche etc.) • un toit, travail .../5 • planète	• manger équilibré • prendre soin de soi • se reposer, espérer • aider les gens .../5 • me déplacer	• trouver de la nourriture • planète vivable (en bon état) • cadre de vie agréable • parler/discuter • air pur .../5
Protection *Ce qu'il faut pour se sentir en sécurité*	• en bonne santé • en sécurité • autonome .../5	• sécurité sociale, accès aux soins • le respect • la loi, des droits • la politesse .../5 • la police	• reconnaître les autres personnes et les choses importantes de la vie • aider les gens • anticiper .../5	• être protégé de la pollution • être protégé des intempéries (froid etc.) • la couche d'Ozone • être à l'aise • la loi .../5
Affection *On a besoin d'amour*	• être accepté comme je suis • être attentionné et recevoir de l'attention • amical • sincère .../5	• famille • compagne/compagnon • générosité, compassion • amis .../5 • jeux	• exprimer mes émotions • exprimer mes sentiments • faire l'amour • faire des enfants .../5	• être reconnaissant • solidarité • aimer, amour, amitiés • espaces de rencontres .../5 • humour
Compréhension *Essayer de comprendre les gens et la nature*	• rationnel • discipliné • adaptatif, intuitif (intuition) • cohérent, critique .../5	• éducation nationale • méthode • livres • informations .../5 • professeurs/mentors	• argumenter, analyser • étudier, me concentrer • essayer, expérimenter • interpréter .../5 • apprendre	• se faire comprendre • école, université, centres de formation • langage, se parler • musées .../5
Participation *Essayer de participer à la société et l'environnement qui nous entourent*	• entouré • accueillant • audacieux • actif .../5	• droits et obligations • responsabilités • convictions/opinions • travail .../5	• m'associer, coopérer • m'amuser • jouer collectif • participer, partager .../5	• lieux et espaces de rencontre foyers, associations, clubs, MJC • communication • se parler .../5
Loisir/divertissement *Se divertir en se faisant plaisir*	• détendu • imaginatif • me faire plaisir • curieux .../5	• passions, temps libre • équipements sportifs • jeux, fêtes, spectacles • amis • tranquillité, calme .../5	• me détendre, me reposer • m'amuser, jouer pour le plaisir • inventer, rêver, espérer • me promener • profiter de la vie .../5	• skate Park, • espaces naturels (forêt, lacs, etc.) paysages, espaces verts • parcs urbains, cours • centres culturels .../5

Création
Créer des choses différentes, donner vie à quelque chose
	• créatif
	• artiste
	• habile
	• imaginatif
	• intuitif .../5
		• passions
		• méthode
		• réussite
		• succès
		      .../5
			• construire
			• interpréter
			• la mode
			• dessiner
			      .../5
				• lieux de création (salle de répétition etc.)
				• chez soi
				• création virtuelle (jeux vidéo)
				• ateliers, l'entreprise
				• la nature .../5

Identité *Exister en tant que personne, appartenir à la communauté humaine et à la Terre*	• personnalité, profil • respectueux et être respecté • fier de ce que je suis • artiste .../5 • professionnel	• papiers d'identité • symboles • habitudes • dignité, valeurs .../5 • reconnaissance	• créer mon image • m'actualiser, m'améliorer • me développer, évoluer • m'intégrer .../5 • me connaître	• famille • intimité • appartenance • lieu de naissance • maturité .../5
Liberté *Avoir des choix dans la vie et des responsabilités*	• être différent, être autonome • tolérant • rationnel .../5 • humour	• idées • le choix (ou des choix) • volonté .../5 • responsabilités	• sortir, se déplacer librement • apprécier • méditer, lire .../5 • m'engager	• humour • tolérance • liberté d'expression .../5 et d'information

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