Green Economy: Pragmatism or Revolution?

Perceptions of Young Researchers on Social Ecological Transformation

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ABSTRACT

The Green Economy is a strategic development concept of the United Nations incorporating a broad array of potential meanings and implications. It is consequently subject to academic conceptualisation, operationalisation, reflection and criticism. The aim of our paper is to conceptualise a subset of the multi-faceted and at times polarised debate around the implications and applications of Green Economy, and to provide reflective grounds for approaches towards the concept. By using qualitative content analysis and a participatory approach, we investigate perceptions of young researchers from various disciplines working on issues related to Green Economy. The spectrum of disparate perceptions observed among the respondents is accommodated within a two-dimensional model. The dimensions are 1) the degree and nature of desired societal change in relation to the current economic model and set of institutions; and 2) the role of research in delivering such change. We discuss the model in light of the existing literature.

KEYWORDS

Green Economy, pragmatism, radicalism, value pluralism, social ecological transformation.

INTRODUCTION

Political agenda-setting at the global level often includes broad and overarching concepts that many decision-makers agree upon in general, while allowing for a wide range of interpretations. This appears to be the case with the concept of Green Economy (GE), presented at the 2012

United Nations (UN) Conference on Sustainable Development as a vehicle for sustainable development and poverty eradication. The UN Environmental Programme (UNEP) proposed a universal GE definition as an economy that results in 'improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities' (UNEP 2011, p. 2). UNEP's concept, however, has also been criticised as a 'red herring' due to its focus on economic growth and its inability to resolve 'the basic contradiction between ever-expanding human activity and a finite world' (Spash 2012, p. 98). This imposes the question on whether GE is a sufficiently transformative concept to enable actual sustainable development, understood as a truly just and durable mode of organizing and managing social ecological systems. We define the current system as growing international liberal market capitalism, while an alternative system is negatively defined as being opposed to the current one.

The GE discussion poses a double challenge to science. On the one hand, researchers from different backgrounds take part in the discussion, posing an internal challenge of interdisciplinary communication and collaboration, e.g. between social and natural scientists. On the other hand, the GE concept requires both academic operationalisation and societal implementation, posing a trans-disciplinary challenge for science-policy interaction. To face these challenges, researchers will need to reflect upon the content and meaning of GE and their own role in it (cf. Farley, 2012). In other words researchers need to ask themselves: To what extent should research engage in (current main-stream or alternative) policy-making, politics and societal action? What conceptual frameworks and language are to be used for which purpose? Which consequences from which (inter-)action and conceptual usages can be expected?

During the 2014 Thor Heyerdahl Summer School (THSS) on Environmental Governance, hosted by the Norwegian University of Life Sciences (NMBU), a small group of early career and

graduate researchers discussed multiple connotations and individual perceptions of Green Economy, as well as the role of scientists in and beyond science. The authors of this paper, participants of the THSS themselves, saw an opportunity to engage with other researchers in a deliberative space to better understand predominant framings and interpretations of GE among young scholars. Our paper is the outcome of such participatory research. Our research question was: *How do young scholars perceive the GE concept, the need for societal change, the potential of GE for realising such a change, and the role of research in promoting this change?* This appears to be a very timely topic for sustainability research (Spash, 2016).

To capture different understandings of GE, we presented a definition to participants without implying the contested notion of economic growth as a starting point: 'the GE is a strategic concept to help address distributive problems within planetary boundaries'. We used a qualitative approach to analyse the data, gathered through questionnaires and a focus group. This paper continues in the following manner: in section 2 we describe the research methodology; in section 3 we present findings from our empirical investigation; in section 4 we discuss our findings and their implications; in section 5 we draw conclusions.

METHODOLOGY

This article is based on a qualitative content analysis of written data, obtained through questionnaire responses and the transcription of a focus group discussion. Our ontology is therefore phenomenological, as we consider subjective perceptions as valid data. Traditional content analysis is employed to determine the absence or presence of certain keywords, phrases and concepts. We adopted an inductive approach by deriving and defining codes and categories from data, rather than from theory (Mayring, 2000). This approach is appropriate for describing a

phenomenon (assumed or existing) in absence of a suitable theory (Kondracki and Wellman, 2002; Mayring, 2000). In our case, no clearly predefined categories were available to describe the relation between research(ers) and GE.

Our sample includes the participants of the THSS on Green Economy, held in June 2014 at the NMBU. The course admitted 24 participants (including the authors of this paper), who were selected through a competitive process. Formal requirements for being selected for participation in the Summer school included enrolment in PhD studies and proven academic quality. The main concern when screening motivations was whether candidates' interests and research topics were compatible with the overall theme of the Summer school, namely GE. Selected participants had different academic backgrounds, ranging from social sciences to natural sciences; the participants represented a total of 20 different nationalities, including Africa, the Americas and Europe. According to course organiser Arild Vatn, GE was chosen as the course theme because it evokes varying ideas and framings, generating contrasting opinions, while still focusing on the relation between economic processes and nature. The leading idea of the Summer school was thus not built around a fixed understanding of GE, but it was rather designed to maximise deliberation. Invited speakers from different disciplines also had widely varying understandings of, and positions towards the concept of GE.

Given our involvement in the course, we had the chance to gain in-depth understanding of the participants' positions and ideas. A key component of our research was in fact the participatory and self-reflective approach. To be transparent on the knowledge generation process, we have synthetized the key phases in the development and consolidation of the categories and model (Figure 1).

[FIGURE 1]

After introductory lectures, during the first days of the Summer school, participants were invited to discuss ideas for collaborative research. Us authors formed a collaborative group, exchanging ideas. The starting point was that the Summer school could be an excellent opportunity to better understand the variety of perceptions and positions on the GE from participants with varying expert backgrounds. We decided to conduct a participatory and qualitative study of diverse perceptions of the GE concept, methodologically observing discourses, taking notes, and inductively developing a conceptual framework to capture opinions. During the course, we noticed that some definitions, keywords and concepts under the overall theme of the GE were repeatedly brought up in the discussion, and related to visions for societal change, and role of research in such change. Particular keywords we noticed included 'revolution', 'evolution', 'radicalism', and 'pragmatism'. Based on these key words, we started to formulate an initial idea of our model. We proposed semi-structured questionnaires to all participants, except the authors (N=20). Respondents had approximately 36 hours to provide written answers anonymously. The questionnaire included questions concerning personal perceptions of the GE concept, the nature and extent of necessary societal change and the role of research in delivering such change. We deliberately refrained from introducing the four key categories named above at this stage, to check whether they would again come up in the responses. A first unpolished understanding of our categories and model was developed only after a preliminary analysis of the questionnaires, where we were able to relate the key categories to the two dimensions of societal change (about systemic visions for desired social ecological systems) and the role of research (as transition facilitator or knowledge provider), both from an explicitly individual perspective.

During the second week of the course, as a follow-up of the questionnaire, we organised and moderated a focus group discussion of about 2 hours, involving all participants (N=20). Focus groups, coupled with questionnaires, allow to explain and explore survey results more in-depth (Kitzinger, 1995). We explained the aim of the focus group in order to structure the discourse and introduced of the five key terms, namely: 'status quo', 'pragmatism', 'evolution', 'radicalism' and 'revolution'. We tried to verify whether our understanding of these concepts based on a preliminary analysis of the questionnaire responses, coincided with those held by the participants. Participants were invited to freely associate these initial words with concepts, ideas, discourses or even names of individual researchers, names of THSS lecturers were used as 'surrogates' to identify or symbolise particular visions or ideas. We did not explicitly introduce the dimensions of "societal change" and "role of research", to see what associations the participants would develop during the discussion. To this end we added 'status quo' as a key term to inspire comments regarding the current social ecological system. When deliberation started, some participants demanded definitions of the key terms. We explained that the aim of the discussion was not to give a definition, but to develop a joint understanding of these words together. During the course of the focus group deliberations several understandings and interpretations of the keywords and their relation to societal change, the role of research, and the status quo were given by the participants. Many further concepts and ideas were suggested, and the entire exercise was interactive, while we merely moderated and documented the discussion. We recorded different levels of loquacity among the participants, but overall each participant actively contributed to the discussion. We believe the familiarity acquired during the course with the main concepts and the other participants was key in enabling an open debate.

The following analytical process included a second, and more thorough reading of the questionnaire responses and of the transcribed group discussion to develop appropriate codes and categories (Coffey and Atkinson, 1996; Morgan, 1993; Morse and Field, 2005). A code is a word or short phrase capturing the essential meaning of a portion of data. Based on their relationship, codes can be grouped into categories. In content analysis, codes and categories need to be defined as precisely as possible to assure that different analysts obtain the same results. Regarding this, the context needs to be analysed in terms of existing syntax and available semantics – all latent ambiguity or probable intentions must be treated with care (Berelson, 1952). We repeatedly examined the data and this phase was supported by a review of relevant literature. The coding list was revised and refined within an iterative process (Gioia et al., 2013), until the final version emerged (see Appendix). We included in the analysis the number of times (counts) that a code was mentioned in the questionnaires and / or group discussion. Individual codes were then assigned to four categories: 'values', 'Green Economy', 'societal change' and 'role of research'. By gathering codes assigned to these concepts, we could identify a pluralistic, but sound range of possible meanings for each of the concepts. Furthermore, both 'societal change' and 'role of research' were further developed into other four sub-categories: 'revolution' and 'evolution', and 'radicalism' and 'pragmatism'. We thus conceptualized a pragmatic and a radical view of the role of research, and an evolutionary and a revolutionary view of desired societal change[1]. By placing both 'societal change' and 'role of research' on one dimension each, we created a 2x2 matrix. Such dimensionality allowed us to place individual positions

[1]The concept of status quo, which we had introduced during the focus group, was not relevant in this context, and it was not introduced in the model since we have developed an understanding of evolution that it is rather based on the current system. The dimension that mostly qualifies for status quo in the current model is that of the 'radical evolutionist' (see section 3).

within one of four quadrants of the matrix and furthermore position the GE concept within the same matrix, since participants had given their understandings of GE.

To ensure reliability and validity we adopted the following measures: 1) questionnaires were administrated in English, a language common to, and understood at a high level of fluency by all respondents; the focus group was also entirely conducted in English; 2) the discussion group was recorded and transcribed; 3) data was independently analysed twice by the different authors; 4) some keywords or quotes from the data are presented in the results section for transparency; 5) anonymity was assured to all respondents. Respondents' answers regarding specific topics varied according to different experiences and attitudes towards disclosure, but we assessed the quality and quantity of data to be sufficient for the purpose of this analysis.

RESULTS

The qualitative analysis of the data obtained from the questionnaires and the focus group resulted in several codes, sorted into four categories: 'values', 'Green Economy', 'societal change' and 'role of research'. The latter two categories furthermore include two sub-categories each, respectively 'revolution' and 'evolution', and 'radicalism' and 'pragmatism'.

The 'values' category includes 22 codes. These include the recognition of 1) 'social equality and social justice' issues (count 38) that evolve around unsustainable production-consumption patterns (materialism), land and human rights, (corporate) power, conflicts and wars, intergenerational justice, (rising) inequality and poverty, (increasing) privatisation and/or economisation, and North-South relations; 2) 'ecological and environmental problems' (count 26) e.g. biodiversity and habitat loss, and climate change; and 3) the need for research to be independent and to attend to multiple responsibilities, for instance, 'knowledge generation' (count 26) and 'teaching and (facilitating) the learning processes' (count 20). While respondents

have their own specific set of values, values and problem statements could sufficiently be generalised into commonly understood aspects related to sustainability and research.

Opinions and perceptions of GE, however, were more diverse. 'Green Economy' includes 12 codes. GE is largely understood in terms of a 'three-pillar model of sustainability' (count 18) and as a 're-enforcement of the current political and economic structure' (count 15) involving a variety of stakeholders (count 14). These statements include descriptive understandings, as well as personal value judgments. GE is seen by some as a way to promote 'growth without damage' (count 11), motivated by 'good intentions' (count 7); and an instrument to pursue dialogue with 'stakeholders'. However, others stressed that GE is 'not innovative and critical enough'(count 9), 'unrealistic' (count 6), a 're-branding of old ideas' (count 4) or 'contradictory' as there could be no continued growth within ecological boundaries (count 4). This diversity in notions concerning the GE revealed considerable division between those who consider themselves to belong within the 'circle of GE' and those who place themselves outside of it (Figure 2).

During our research we identified two dimensions for which the respondents differ most. The first dimension is 'societal change', which includes codes related to respondents' perceptions of the degree and nature of perceived necessary societal change in the face of environmental and social problems. This category is divided in two sub-categories, namely 'evolution' (8 codes) and 'revolution' (12 codes). The second dimension is the 'role of research', which relates to respondents' perceptions of the role of research in the promotion and realisation of societal change. This category is divided in two sub-categories, namely 'pragmatism' (8 codes) and 'radicalism' (9 codes). Based on the two categories 'societal change' and 'role of research' and on the four sub-categories, we captured the perceptions of participants regarding the degree and nature of research and necessary societal change in a bi-dimensional model

(Figure 2). The horizontal axis, identified by the extremes 'evolution' and 'revolution', describes the nature of desired societal change. The vertical axis, identified by the extremes 'radicalism' and 'pragmatism', refers to the attitudes participants have towards scientific contributions in societal change.

The words we used to describe the extremes on the axes have several meanings and long etymological and philosophical traditions. They arose in the discussions during the course and were frequently repeated by several participants (see section 2 for the derivation of key categories). Their meaning and conceptual implications were long discussed during the focus group. Based on the codes resulting from our data and with the auxiliary use of the Oxford Dictionary (2014), we derived the following definitions of the extremes within our model which identify a pluralistic but a sound range of possible meanings for each of the concepts. 'Revolution' refers to an intended change towards an alternative economic and institutional system defined as being structurally different from the current one. It is seen as 'fundamental change'. 'Evolution' refers to an incremental and self-organising change within the current system. 'Radicalism' is characterised by a critical attitude and a certain non-negotiable set of values and their defence. Some respondents e.g. referred to it as a 'critical assessment of our options'. 'Pragmatism' is etymologically bounded to its action-oriented connotation, especially focused on feasibility. For instance, one respondent suggested that 'Trial-and-error is better than doing nothing'.

[FIGURE 2]

Radical evolutionist: '*Radical conservatives actually exist'* (participant in the focus group discussion). This quadrant includes a radical defence of values that are present in the

current system, such as economic growth and capitalism. From a radical evolutionary perspective, ecological and sustainability problems stem from a not yet perfected global capitalist system. Consequently, problems cannot be solved but through the more consistent application of means within the current system. Arguments associated with this position are built around unified and mainstream theoretical visions of a capitalist world. Change takes place through self-organising techno-industrial progress or through social innovation. In this view, a free market and the abolishment of subsidies will dramatically increase demand for the most (e.g. energy and resource) efficient solutions and innovations; damages will be minimised and benefits maximised through ongoing commodification of services and pollution rights. Social inequality can be minimised as the wealth of the rich will trickle down to benefit the others. Research strategies from a radical evolutionary perspective are similarly based on the assumption that the current pattern of economic growth could solve social and ecological problems. Rather than aiming to fundamentally criticise the capitalist system, a researcher in this perspective would argue that the current system is not capitalist enough, and he/she would be inclined towards the study and application of technological innovations, market-based solutions, free trade and the eradication of governmental intervention.

Pragmatic evolutionist: '*Revolution and a new system will not come timely enough. Let us try to pursue change within the current system, until something new arises'* (participant in the focus group discussion). The 'pragmatic evolutionist' believes that efforts should be directed towards mitigating the failures of the current system, with flexibility, experimentation and practical, workable solutions. Stances can include strategies of internalisation of externalities, policy mixes in regulation, economic instruments, technological innovation and social creativity. In this context, 'acting on solutions' concerns the identification of feasible solutions within the

current system and their application, requiring no fundamental change in current power and institutional structures. The concept of path dependency, as in adaptive change, concerns the path of least resistance when improving the system. The main strategy consists in working with and within the current system and making positive contributions to politically feasible options. This allows for a plurality of visions and elasticity to compromise. There might be a perception that improvement is necessary, but a systemic change is not intended. Research strategies from a pragmatic evolutionary perspective assume the inevitability of capitalism and economic growth, at least on the short- and medium-term. However, in this perspective social and ecological problems are also inherent to the current system. The research in this perspective is to address these inherent ills through the creation and application of solutions that enhance the resilience of the current system.

Pragmatic revolutionary: '*Pragmatism and evolution will bring us to the boundaries of pragmatism, entering radicalism'* (participant in the focus group discussion). The 'pragmatic revolutionary' explicitly seeks for an alternative system, but also believes that there is no singular and valid vision, but a plurality of these. This requires a need to compromise in deliberation. Underlying this stance could be the idea that abrupt and fundamental change will lead to violence and should therefore be avoided. A new system should be reached through a context-dependent, adaptive and systemic strategy. Existing instruments are not sufficiently innovative to deal with the inherent and deeply rooted problems of current institutions. Visionary processes and spaces have to be created. This calls for intentional change and the acting on feasible solutions that lead to fundamental change and ultimately to an alternative system. For this to happen, current power and institutional structures need to be challenged and changed, e.g. by engaging unconventional agencies in deliberative processes. A pragmatic revolutionary

277 researcher would combine fundamental critique of the current system with deliberations of
278 possible alternatives, perhaps actively creating spaces for deliberation beyond academia.
279 Transformations do not need to happen quickly, in fact, slower, deliberatively reflected
280 transformations are preferred. The end-state of incremental changes, however, should represent a
281 fundamentally different system from the current capitalist system.

282 **Radical revolutionary:** '*I totally don't want to extend this past to the possible future that*
283 *we have'* (participant in the focus group discussion). The 'radical revolutionary' is characterised
284 by a non-negotiable set of values and seeks to fundamentally change the current system. The
285 current system is perceived as fundamentally flawed. The required change is drastic and
286 concerns changing the essential quality and structure of e.g. the industrial metabolism, and can
287 only occur through a unified front of progressive agents. The radical revolutionary seeks to
288 construct a unifying notion to replace the hegemonic economic system. To challenge and alter
289 power structures and dominant values of the current system, visionary spaces and places have to
290 be strengthened, where critical voices and visions of strong imaginative power are loud and clear
291 enough to set systemic change in motion. The radical revolutionary vision fits a research strategy
292 that shows the need for fundamental change and for options that fit in an alternative economic
293 and social order. The radical revolutionary researcher disapproves of the capitalist system, while
294 rejecting 'solutions' that increase the resilience and longevity of an inherently corrupt system.

295 Based on our sample, respondents seem to perceive GE mostly as an approach to
296 pragmatically improve the current system through incremental actions (Figure 2). It is worth
297 noting that we did not identify any of the participants as radical evolutionists promoting the
298 current system as the way towards sustainability. Three respondents could be identified as
299 pragmatic evolutionists wishing to adapt the current system towards sustainability. Five were

identified as radical revolutionaries promoting a disruption of the current system to advance an alternative one, rejecting approaches to incrementally green the economy. Twelve participants fall into the category of pragmatic revolutionaries that seek to reach an alternative and more sustainable system in an adaptive way. A portion of researchers was identified as not operating within the epistemology of GE: three of them would fit our understanding of pragmatic revolutionaries and three could be considered radical revolutionaries.

DISCUSSION

All respondents shared some common values, including the need to address interlinked ecological and social problems, and the need for research to be independent, provide options, guidance and solutions to policy-making. This is not surprising considering that our sample was not random, but included participants who already had an interest in, and understanding of, concepts such as sustainable development and sustainability. However, we recorded disparate opinions concerning and framings of GE as a concept. A generally cautious attitude towards GE was recorded among our sample of young researchers. It was generally perceived as a 'new' framing for sustainability that may bring along some (incremental) stimuli for change, but not oriented to fundamentally changing the system and therefore does not provide for those favouring an alternative system. The young researchers in our sample also had different opinions of the necessary societal change and the respective role of research. Individual researchers may wish for a different system or keep hope for the current one, whether driven by personal conviction or a spirit of compromise.

In the model we presented, each quadrant shares some common features with other quadrants, either in terms of perceived need for societal change or in terms of the perceived role

of research. GE is mainly located in the pragmatic evolutionary quadrant and only partly overlaps with the other three quadrants. This means that for each quadrant there is, at least potentially, a portion of researchers that do not operate within the epistemology of GE. This is confirmed by existing critical literature on sustainability and GE, summarized later on in this section. The categories are, however, not mutually exclusive. Hybrid positions may exist among the various categories. In particular, an affinity may exists between the radical *revolutionary* and the pragmatic *revolutionary*, or between the *pragmatic* revolutionary and the *pragmatic* evolutionist, or between the pragmatic *evolutionist* and the radical *evolutionist*. However, even though they share a tendency for a radical attitude, the radical evolutionist and the radical revolutionary may have very different ideas on what kind of societal changes are needed, subsequently there may be least affinity between these two positions. The absence of radical evolutionists in our sample can be explained by the fact that our sample was biased towards values for strong sustainability and for a respective system change, as well as pragmatism.

Several conceptual framings and positions found in existing literature relate to our model. Research has been conducted on the role of research in the context of sustainability (cf. Cash et al., 2003; Costanza, 1992; Irwin, 1995; Kates et al., 2001; Norgaard, 1989). This body of research can be differentiated between 'weak' from 'strong' sustainability: one revolves around the idea of substitutability between economic, social and natural capital, allowing for a dominant role of technological solutions to sustainability issues; the other assumes that substitutability is not just technically impossible, but also undesirable from a normative point of view (cf. Neumayer, 2003; Ott and Döring, 2004). A similar divide is also reflected in the debate between environmental economics and ecological economics (Bina and La Camera, 2011; Borel-Salading and Turok, 2013; Munda, 1997; Lorek and Spangenberg, 2014). In this context, there is a strong

call for applied, interdisciplinary, transdisciplinary and occasionally democratic science for sustainability (Cash et al., 2003; Costanza, 1992; Kates et al., 2001; Sayer and Campbell, 2004; Pielke, 2001) and for methodological pluralism (Centemeri, 2015; Noorgaard, 1989; Popa and Guillermin, 2014; Spash, 2009).

In particular, scholars have also distinguished between 'pragmatism' (cf. Littig and Griessler, 2005; Sayer and Campbell, 2004; Spash, 2009) and 'radical' behaviour (cf. Kemp, 1994; Adams, 2003; Ehrenfeld, 2005) in sustainability and environmental issues. In our understanding pragmatism can, but does not necessarily refer to the philosophical current of American pragmatism; however, it denotes a 'hands on' attitude that considers choices within an existent system. According to Norton (2005, pp. 63–64), pragmatism 'expects to arrive at a justifiable decision in a particular situation' and it is therefore context-specific, but not relativistic. Norton also states that 'A contextual approach eschews one-size-fits-all solutions (…) and it offers no dictates based on prior principles and rules, but offers rather a method'. Furthermore, pragmatism is a monitor-learning process based on scientific knowledge, as a means of adaptive management (Norton, 2005; Robinson, 2011). What we consider pragmatism may sometimes not be explicitly recognised as such (e.g. Adams, 2003; Ehrenfeld, 2005; Laufer, 2003), however it has explicitly been criticised from positions we understand as radical (e.g. Spash, 2009).Radicals, include a critical body of literature on the difficulties and complications related to sustainability concept, for instance, green capitalism (e.g. Sullivan 2009, 2013), green grabbing (e.g. Corson, 2012; Fairhead et al., 2012) and green washing (e.g. Laufer, 2003; Lyon and Montgomer, 2015; Walker and Wan, 2011). Furthermore, a critical body of literature emerged in response to the predominant utilitarian framing of nature, nature valuation and

commodification (e.g. Delige and Neuteleers, 2015; Knetsch, 1994; McAfee, 1999; Spash, 2008; Sullivan, 2013).

One of the main critiques to current sustainability research is that it does not provide 'knowledge that matter to peoples' decisions', fails to engage all relevant stakeholdersand lacks visionary and creative solutions (Wiek et al., 2012). This links back to the idea of societal change, and an emerging concept of transformative research. The concept of transformative research revolves around the idea that research can drive sustainability by promoting a shift of existing scientific paradigms (Wiek et al., 2012). Related research would, for instance include resilience approaches (Folke, 2006), used to describe the dynamics of social-ecological systems, and more broadly transition theory, that deals with system changes and regime transformation (Geels and Shot, 2007). On the debate evolution versus revolution, Arthur et al., (1997) presents economy as an evolving, complex system consisting of heterogenous, individual agents that mainly act and interact and evolve locally. With a strong focus on economic growth and investments in green technologies and infrastructures, the concept of GE seems to evade the discussion about societal transformation that is well beyond mere efficiency improvements (Jackson 2011). The GE narrative also excludes discussions about de-growth (Asara et al., 2015) and different types of science required for alternative systems (Burke and Heynen, 2015).Similar critiques have been highlighted by some of our respondents.

Based on the discussed literature, we attempt to identify relevant examples for each of the quadrants identified in our model. Radical evolutionists could be associated to traditional, neo-classical economy theory. On the other hand, the deep ecology (Næss, 1973) theorists belong to the radical revolutionary quadrant. The pragmatic revolutionary and evolutionist are the most similar categories, and include a great part of the ecological economics' research spectrum. In

391 particular, we could identify several ecosystem services' advocates (e.g. TEEB, 2010) as
392 pragmatic evolutionists. The resilience theory, critical natural capital approaches and
393 transformation theory, instead, better match the pragmatic revolutionary quadrant. It is possible
394 that pragmatic revolutionaries and evolutionists may find, through the concepts of ecological
395 economics and GE, common grounds to forward pragmatic, context-based solutions without
396 renouncing to unconventional thinking (about the role of Ecological Economics in forwarding
397 GE, cf. Richardson, 2013).

398 Both our analysis and the literature review show that the concept of GE is subject of
399 multiple understandings and perceptions, without including the entire spectrum of sustainability
400 research. This is not an uncommon phenomenon in scientific research. For example, a study by
401 Sandbrook et al., (2013) suggested that perspectives of conservation professionals and academics
402 on the growing use of markets and market-like instruments in the context of biodiversity
403 conservation are far more sceptical than the positions articulated by the organizations they work
404 for. Finally, drawing from Torgerson (2001, p. 472) we argue that: "A central tension marks
405 thought about prospects for a Green Economy. […] The question […] is whether a functional
406 politics of system adjustment and adaptation is the right path, or whether a Green Economy
407 depends on a constitutive politics aimed at creating a system that is altogether different". While
408 fairly abundant literature exists on the issues discussed by this paper, we focused on empirically
409 observing young researchers' positions, and highlighting the differences and similarities, under
410 the GE as a conceptual lens.
411

CONCLUSIONS

We used qualitative research and a participatory approach in our study to analyse perceptions and attitudes of twenty young researchers working on issues related to Green Economy (GE). We identified a bottom line of crucial values that are generally shared by the respondents, including a common recognition of the need to address interlinked ecological and social problems, and the need for research to be independent, provide options, guidance and solutions to policy-making. We observed disparate and divergent opinions concerning GE and its potential to genuinely further sustainable development. We also identified a broad spectrum of opinions regarding the degree and nature of needed societal change and the role of research in the field of GE. We captured these dimensions in a four-quadrant model that includes four different ideological positions of researchers: Radical evolutionist, Pragmatic evolutionist, Radical revolutionary and Pragmatic revolutionary (Figure 2). We positioned the GE concept within the model as perceived by the participants. We also positioned the participants based on their preferred approach to solving sustainability problems. GE is not perceived as a particularly revolutionary concept, rather it is understood to incrementally improve the current economic and institutional system. In our model, GE is therefore centred in the pragmatic evolutionary quadrant. Most of the participants, however, were positioned in the pragmatic revolutionist quadrant; they aspire to a more fundamental systemic change through adopting pragmatic approaches.

We acknowledge that our sample was biased towards values of strong sustainability and a certain sense of pragmatism. This might explain e.g. the absence of radical evolutionists. It would be interesting and valuable to further extend this research to include a new dataset, and different types of scholars as participants. A possibility could be to conduct a similar qualitative

study on a different sample of researchers, or alternatively to follow-up this study with a more quantitative research on a broader sample. A broader sample may include young researchers from applied sciences, such as engineers or from business and marketing studies. Extending the sample to include senior researchers would also be of interest for two reasons: first, senior researchers probably have already developed and consolidated their opinions and attitudes towards GE; second, they have considerable leverage over current research lines.

It is not our intention to reduce or flatten the observed plurality of ideas and opinions concerning GE into crystallized positions. We recognise that these positions are far away from being bi-dimensional. On the contrary, individuals can move across different positions according to context and time. The four quadrants in our model is a stylised description of reality. The edges and discrepancies between quadrants are more subtle than depicted in this paper, while different positions can be, and in fact are, interrelated. Nonetheless, we believe this exercise can prove useful in visualising the theoretical landscape across which researchers in the field of GE move. This paper is meant as a moment of self-reflection on the meaning of research itself, and its role in contributing to deliver visions, strategies and instruments towards a more environmentally-committed, just and equitable society – for which GE appears to be only a partial solution.

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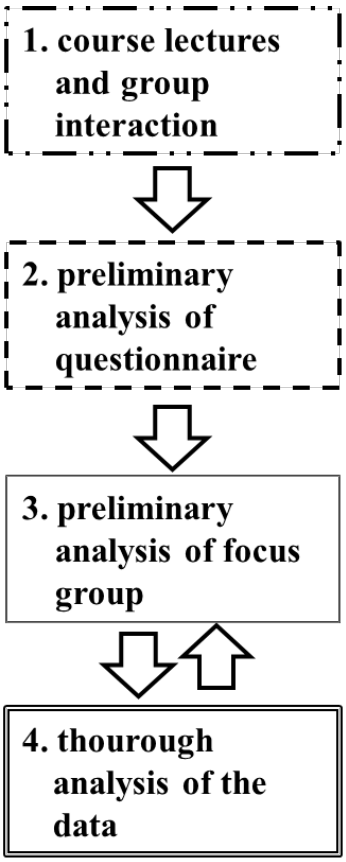

→ **acquisition of key words and concepts**

questionnaire development and completion

→ **preliminary formulation of categories**

focus group design and implementation

→ **consolidation of categories & model development**

iterative steps of analysis & discussions

→ **final model**

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636 **Figure 1.** Different phases in the development and consolidation of the categories and model. The arrows indicate
637 outputs, the numbers mean coarse steps in analysis, and processes are highlighted italic.

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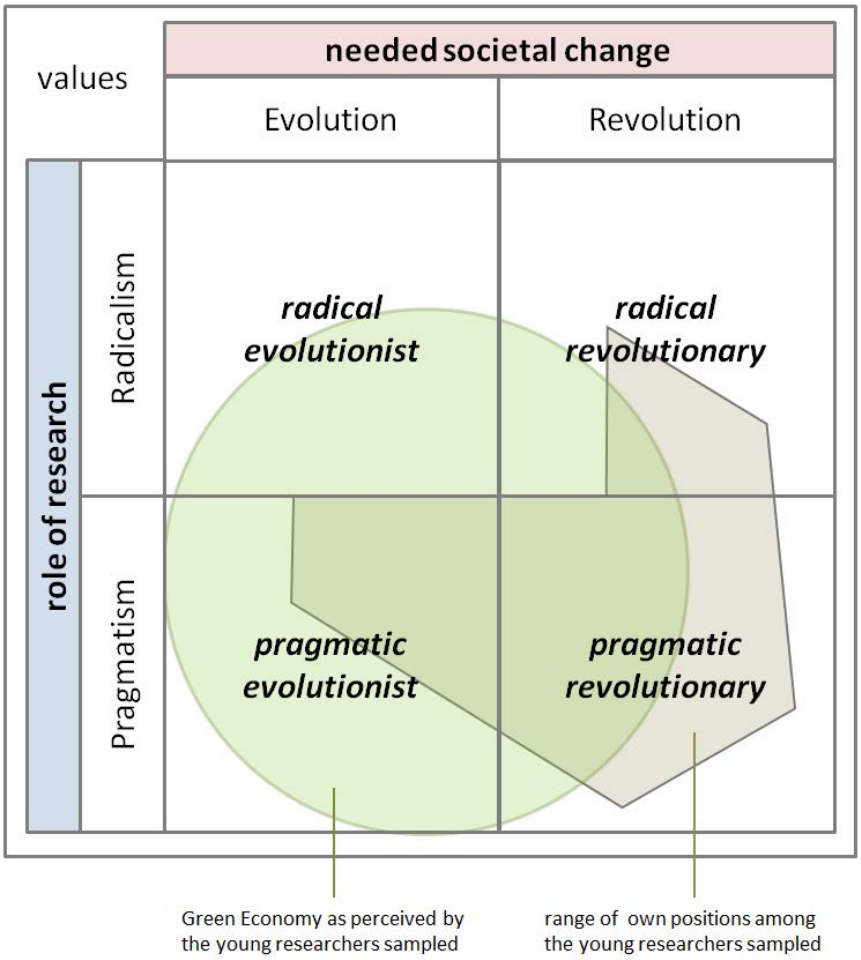

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640 **Figure 2**. Perceptions of young researchers (N=20) concerning the GE concept, the need for societal change, and the
641 role of research in promoting this change. The horizontal axis is the perceived need for societal change (Revolution
642 vs Evolution), while the vertical axis refers to attitudes towards the role of science (Radicalism vs Pragmatism). GE
643 is mainly perceived as an approach within the current system (evolution) and an action-oriented style of research
644 (pragmatism). Respondents (participants of the THSS) tended towards revolutionary and pragmatic positions.

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APPENDIX

Table 1. Codes and categories of the analysis. V=Values; GE= Green Economy; RS= Role of science; SC= Societal change; P= Pragmtism; Ra= Radicalism; E= Evolution; R= Revolution.

CODES	DEFINITIONS	V	GE	RS	SC	P	RA	E	RE
ACTING ON SOLUTIONS	Adopting an action-oriented approach.					•			
ACTIVISM AND RESEARCH	Should researchers also be activists? For example, being involved in politics and policy-making, relating to media.	•		•					
ADAPTIVE CHANGE	Working to ameliorate the instruments that we already have.					•			
AMBITIOUS	The concept of GE is too ambitious, considering the multiple challenges that it is called on to solve.		•						
ALTERNATIVE SYSTEM	An alternative system to the current one, which is able to address the same problems (i.e. environmental and social) using different instruments.								•
AMERICAN PRAGMATISM	The word 'Pragmatism' is sometimes used in debates and literature as stripped of the philosophical connotation belonging to American pragmatism.					•			
APPROPRIATE WORKING CONDITIONS	Researchers require appropriate salaries and long-term security, space, time and resources for good research.	•							
AWARENESS RAISING	The process of raising awareness concerning environmental and social problems and giving voice to silent stakeholders.	•		•					
BOTTOM-UP	A bottom-up approach to solving interlinked environmental and social problems e.g. local and context-specific experimentation.					•	•	•	•
CHANGE DIRECTION	In opposition to evolution, revolution is a more clear-cut change of direction.								•
CHANGE NOT QUICK ENOUGH	A new system will not come timely enough, so it is better to work within the current system, despite its intrinsic flaws, to change what possible.					•			
CONTRADICTORY	GE is a contradictory concept as there cannot be continuous growth within ecological boundaries.		•						
CRITICAL ASSESSMENT OF OUR OPTIONS	Understanding where we are and where we would like to go as a society: not simply a 'blind' and 'fast' approach to problems.						•		
CRITICAL VOICE	A critical approach toward the current system.						•		

DEMOCRACY IN RESEARCH	Multiple approaches / strategies versus a unified 'front' of researchers with a leading strategy.						●	●	●	●
ECOLOGICAL AND ENVIRONMENTAL PROBLEMS	The recognition of the existence of ecological and environmental problems (either mentioned specifically or generally) that need to be addressed e.g., biodiversity loss, climate change, etc.	●		●						
EVOLUTION CAN LEAD TO REVOLUTION	Evolution can eventually lead to a revolutionary change.								●	
EVOLUTION NOT NECESSARILY INTENTIONAL	Evolution is seen as an unfolding process, perhaps apolitical or lacking intentionality.								●	
FREEDOM OF EXPRESSION	The need for research to be independent and unconstrained or influenced by e.g. funding systems.	●								
FUNDAMENTAL	A change needed at the very core of the system.									●
GOOD INTENTIONS	It is accepted that GE is based on 'good intentions' or aims to do good, e.g., poverty alleviation and solving of environmental problems.		●							
GROWTH WITHOUT DAMAGE	A way to conciliate growth and ecological boundaries by adopting measures such as green technologies or re-thinking of employment.		●							
INCREMENTAL CHANGE	A change of the system that is gradual, but positive.								●	
INTERDISCIPLINARITY	Research should be based on, and stimulate communication and interaction between different disciplines.	●		●						
KNOWLEDGE GENERATION	Generation of knowledge regarding environmental and social problems, to work on providing possible solutions.	●								
KNOWLEDGE HUB - 'LEARNING AND TEACHING'	The bilateral process of learning and teaching that can be perpetuated through research, publication, lectures and conferences in different context (local-national), and includes the possibility to interact and engage with others.	●								
MEANINGFUL CONTRIBUTION	Desire by the researcher to contribute meaningfully to research, and ultimately to the world.	●								
MIXED FEELINGS TOWARDS RESEARCH	The researcher experiences mixed feelings towards research (e.g. anxiety, enthusiasm, passion).	●								
MULTI-SCALE	Different problems exist at different scales, and there is a need for a variegate set of solutions that is applicable in different contexts.	●			●					

MOTIVATE OTHERS	Among other reasons for doing research, there is the ability to motivate others and to be motivated in return.	•									
MORE IMAGINATION NEEDED	A more artistic approach to problem-solving is needed, rather than relying on the old 'toolbox' that we already have.							•			
NATURE AS AN ASSET	Nature is an asset and externalities need to be taken into account, e.g. markets.		•								
NEED FOR CHANGE	Need for change, but what type and how (e.g. transformative, adaptive, fundamental) is not specified.	•			•						
NEED FOR REVOLUTIONARY THINKING	Revolutionary thinking is needed in the field of economics to really face environmental and social problems.										•
NO IVORY TOWER	Science cannot be disconnected with society.	•		•							
NOT INNOVATIVE & CRITICAL ENOUGH	GE is seen as not innovative and critical enough.		•								
NOT NORMATIVE	GE is a political, non-normative notion.		•								
PATH-DEPENDENCY	Evolution is influenced by path dependency. It is an unfolding change based on previous events.									•	
PERSONAL INTEREST / SATISFACTION	Researchers conduct research for personal curiosity, intellectual gratification and achievement, income.	•									
POSITIVE CHANGE	Evolution, revolution, pragmatism and radicalism are all oriented towards a positive change.				•	•	•	•	•	•	
RADICALISM AND EVOLUTION=VIEWS	Radicalism and pragmatism are seen as individual 'views' or approaches, while revolution and evolution are both oriented towards an institutional change.					•	•				
RADICALISM CAN OPERATE WITHIN THE CURRENT SYSTEM	Radicalism can operate within the current system.							•			
RE-BRANDING	Referred to as GE, proposing old concepts in a different light to make them more appealing, without offering an actual solution.		•								

REINFORCE POLITICAL & ECONOMIC STRUCTURE	In the context of GE, a mechanism, method or language that obstacle a change of direction and reinforces the current political and economic system.		•						
REVOLUTION = VIOLENCE?	As a general understanding, revolution can be perceived as pursued true violent means. However this is not always the case.								•
REVOLUTION AND EVOLUTION= INSTITUTIONAL CHANGE	Revolution and evolution are both oriented towards an institutional change, in opposition to radicalism and pragmatism that are seen as individual 'views' or approaches.							•	•
SCIENCE-POLICY INTERFACE	The need / the role of science to provide information, solutions and guidance to policy-makers.	•		•					
SEEKING FOR SOLUTIONS	The responsibility and ability of the researcher to provide options / alternatives and seek for solutions to problems.	•		•					
SENSE OF RESPONSIBILITY / CALL TO RESEARCH	Conducting research also includes a sense of responsibility and duty, e.g. to 'give back' to society.	•		•					
SOCIAL EQUALITY AND SOCIAL JUSTICE	The recognition of the need for social equity and justice, including democracy, human rights, stopping wars and poverty, intergenerational justice.	•			•				
STAKEHOLDERS	Embracing dialogue with several or all stakeholders facilitating participation.	•	•						
THREE-PILLAR MODEL OF SUSTAINABILITY	Sustainability is traditionally defined as embracing three dimensions: economic, social and environmental.	•	•						
TOP-DOWN	Top-down approach to solving interlinked environmental and social problems, e.g. mainstream ideas, guidance to nations.					•	•	•	•
TRANSFORMATIVE	A change that is not path-dependent or adaptive, but can lead to an ex novo condition.						•		
TRIAL-AND-ERROR IS BETTER THAN DOING NOTHING	An action-oriented approach is preferred, despite its possible limitations, to a theoretical approach or a very slow change.					•			
UNDEFINED VERSUS CLEAR VISION?	In the context of a radical approach seeking for a revolutionary change, is there need for a clear vision, or is it acceptable or even beneficial to have no clear vision?						•		•
WHAT IS RIGHT	Adopting a normative position on what is the best change for all of society.						•		•

TO DO			
UNREALISTIC	GE is unrealistic because economic growth cannot be conciliated with ecological boundaries; it does not deliver realistic / achievable solutions.	•	
WORKING WITHIN THE CURRENT SYSTEM	Working within the current system, despite its intrinsic flaws, to change what is possible to change.		•

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