Towards a Social Ontology
Understanding Stakeholder Perceptions

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Abstract

Successful implementation of Sustainable Development (SD) in Higher Education cannot be achieved through distinct knowledge and operational silos. Rather, the storyboard of success shows the importance of stakeholder contributions. However, achieving a consensus among stakeholders has proven to be a herculean task when power relations are uncertain. Such lack of consensus accentuates a need for the evolution of an SD based social ontology within a University system. As a first step towards achieving such ontology, it is imperative that the perceptions of these stakeholders are gauged and understood. This is the central objective of this study. In this study, the Central University of Technology, Free State (CUT) is used as an exemplar to explore the existence of diverse stakeholder perceptions and the impact of such on the attainment of expected implementation outcomes. This study obtains data through semi-structured interviews from identified stakeholders within the CUT. Observations from the data confirmed the prevalence of diverse perceptions on the definition

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of sustainability and the components of SD as well as its expected outcomes. The findings from this study would assist in the evolution of an SD based social ontology within the University by harnessing the identified perceptions of the various stakeholders.

Keywords
Higher education institutions · Social ontology · Stakeholders · Sustainable development

1 Introduction

The role of Higher Education Institutions (HEI) in engendering Sustainable Development (SD) within the society has been elucidated in relevant literature (Cortese 2003; Krizek et al. 2012). Such roles originate from their time-honoured positions as institutions situated at the forefront of knowledge creation (Stephens et al. 2008). HEIs are regarded as microcosms of the society (Lozano et al. 2013). They provide a platform for applying suggested solutions to societal challenges. Issues concerning SD have continued to reverberate within society. Owing to the previously stated reasons, HEIs are being increasingly looked upon to provide society with the wherewithal to achieve successful SD implementation. Such demands have led to the adoption of various initiatives such as the Education for Sustainable Development (ESD) mantra, amongst others. Central to this mantra, is the modification of extant curricula, as it pertains to teaching, learning, research and university operations, to suit the attainment of SD requirements. HEIs in Sub-Saharan Africa (SSA) region seem to have secured a buy-in into this agenda. This is not only evident in the plethora of HEIs that signed up to the 2009 declaration entitled 'Sustainable Development in Africa-The Role of Higher Education' at the 12th General Conference of the Association of African Universities (AAU) in May, 2009 (Escrigas et al. 2011), but also in the preponderance of HEIs which have since expressed their aspirations to become Sustainable Universities (SU). In such HEIs, this aspiration has transformed from mere aspirations to policy statements. Also, the development of implementation frameworks has been observed. Although the participation of the Central University of Technology, Free State (CUT) in the aforementioned declaration is unclear, its aspiration to become an SU has been buttressed by its announcement of a strategic vision, a policy, and the subsequent inauguration of the Sustainability Implementation Framework (SIF) (CUT 2012). Through these mechanisms, which were inaugurated in 2011, CUT set itself up for the advancement of SD within its campuses. However, five years into the implementation of the ten year strategic plan, implementation at CUT has continued to suffer from under-reportage of performance.

Contemporary literature buttresses the significant impact of stakeholder commitment and involvement in achieving successful implementation varying initiatives (Yang et al. 2009). This implies that the commitment of various stakeholders within CUT is imperative for securing expected SD implementation performance. There is a need for the development of a shared understanding of the SD agenda at CUT. The absence of such understanding has been identified as a barrier to the adoption and implementation of organizational objectives (Ralph and Stubbs 2014; Sammalisto and Lindhqvist 2008). The bid to develop this understanding among stakeholders is often negated by the multiplicity of perceptions, which drive the development of diverse understandings about a particular phenomenon within a community. To resolve such issues, especially as it pertains to the implementation of an agenda, there is a need to evolve a social ontology among stakeholders in CUT. In other words, this study seeks to contribute to the evolution of an SD based social ontology among distinct stakeholders in CUT. It intends to achieve this by exploring the existing perceptions of these stakeholders on the SD agenda with a view to identifying and explicating common grounds identified from the narrative emanating from such an exploration. It is expected that the identification of commonalities from the divergent perceptions of these stakeholders will contribute immensely to consensus building regarding what SD entails for CUT and how it can be actualized.

2 Literature Review

2.1 A Social Ontology for SD in HEIs

The term 'ontology' is derived from two Greek words, '*onto'* (being) and '*logos*' (study or science) hence implying, the science or study of being (Latsis et al. 2013). '*Being*' in this sense is used to refer to either entities or things that are in existence or what are to exist as well as what such entities have in common. Therefore, a social ontology can be referred to as a reflection of the shared beliefs and perceptions existing within a social entity (usually a community) pertaining to a social reality (Latsis et al. 2013, Edum-Fotwe and Price 2009). The applicability of the social ontology concept within a societal context is based on the presupposition that social reality evolves from a society's collective imposition of functions on physical reality (Searle 2006). This kind of function is referred to as a status function (Thomasson 2003). In presenting an instance of status functions, an example of a piece of paper which is collectively accepted within a society as constituting a medium of exchange, is rendered. However, three components are required to engender such reality, namely; collective intentionality, assignment of primary functions, and constitutive rules and procedures (Searle 2006).

According to Searle (2006), collective intentionality is not only used to connote intent but also beliefs, hopes, desires, emotions, perceptions, etc. shared by a group of individuals (collective). He reiterates the power of individuals to assign functions

to objects for specific purposes, even when the object did not possess the physical traits to carry out the assigned functions. Similarly, constitutive rules or procedures are rules established to ensure conformance to the social realities produced through collective intentionality and assignment of functions.

In affirming the significance of social ontology in understudying social realities within a societal context, Edum-Fotwe and Price (2009) reiterate that the concept serves to portray extant situations in a particular societal context albeit at an abstract level. Affirming that it highlights the kind of interactions among individual values which have led to these situations (social realities), they maintain that social ontology will enable an in-depth understanding of the attributes of individuals within that societal context. Their argument is premised upon the assumption that social realities do not evolve in a vacuum, but rather it results from the robust interaction of individual values within a particular societal context. This implies that the social ontology of a particular community is a mere reflection of the aggregate choices of the individual constituents of that community.

From the foregoing, it can be proposed that an HEI's desire to deliver on its expected SD outcomes can only be successful if there is shared understanding among various stakeholders regarding what these outcomes entail and how they can be achieved. This is especially so in HEIs that has been previously described as microcosms of the society with various stakeholder groups with diverse understanding of issues. Achieving such shared understanding is critical to the development of a social ontology on SD implementation at CUT.

2.2 Sustainability@CUT

Driven by the Higher Education Policy in South Africa, which is aligned with national strategic commitments to SD, CUT proceeded to state its aspiration in making significant contributions towards the attainment of SD commitments (CUT 2012). It is pertinent to note that these commitments are based on the global societal shift towards SD. In a show of its commitment to the sustenance of the ethos of SD, CUT in 2010/2011 embarked on a transformational journey towards becoming a Sustainable University of Technology (SUoT). This transformation was built around the following context specific features, namely; its place as a South African public institution, and its nature as a University of Technology (UoT). The former makes it imperative for CUT to adopt and support the national commitments and development aspirations of the government and citizenry of the South African nation, especially as it concerns making contributions to science, technology transfer, and education. The latter is concerned with the UoT's institutional context. This implies that the decision making apparatus at CUT would be centred upon:

- Granting of special consideration to the development and transfer of substantial contributions towards the attainment of global, regional, national and local sustainability through a modification of the extant curriculum;

- Engendering sustainability ethos as it pertains to its resource consumption and conservation practices with the intention of contributing to the reduction in institutional ecological footprint;
- Promoting institutional governance and management alternatives, which provide support for the enthronement of affordable, and durable risk mitigation solutions that can be transferred to other sectors of the society, in the conduct of their daily operations, and
- Adopting an integrated approach to SD progress through partnership arrangements.

CUT's SD commitment to attain its SUoT aspiration by the turn of the decade is encapsulated in Fig. 1. But, five years into implementation, studies investigating SD implementation across various facets of CUT's activities have reported bleak implementation performance (Awuzie et al. 2015; Awuzie and Emuze 2015). Findings from these studies indicate that Business as Usual (BAU) has continued. It appears that the transformation mantra does not enjoy the kind of support it requires to sustain successful performance from various stakeholder groups. Findings from these previously mentioned CUT focused studies have sought to align with extant studies concerning SD implementation in HEIs in attributing incidents of poor implementation performance to a plethora of organizational and financial factors (Ralph and Stubbs 2014; Stafford 2011; Svanström et al. 2012; Velazquez et al. 2005).

3 Methodology

This study adopts a case study research design. The case study research design is renowned for its efficacy in studies attempting to study a phenomenon within its natural context, hence its adoption in this study (Yin 2013). This aligns with the scope of this particular study, which seeks to explore stakeholder perceptions concerning SD implementation (phenomenon) within the CUT (context). The use of face to face semi-structured interviews contributed immensely to obtaining the perceptions of the identified stakeholder groups. As an elicitation technique, semi-structured interviews support the elicitation of the interviewees' weltanschauung as it pertains to the subject matter whilst enabling the interviewer to maintain some degree of structure (King and Horrocks 2010). Furthermore, it provided an insight into how these interviewees have come about developing such weltanschauung.

Considering the centrality of the interviewees' opinions to attaining the study's objective, the choice of this technique made it possible for them to serve as participants in the research. This enabled them to actively shape the course of the interview sessions through their responses instead of proffering passive responses. Also, the avoidance of the latter scenario prevented the interviewers from imposing their own version of reality on the interviewees.

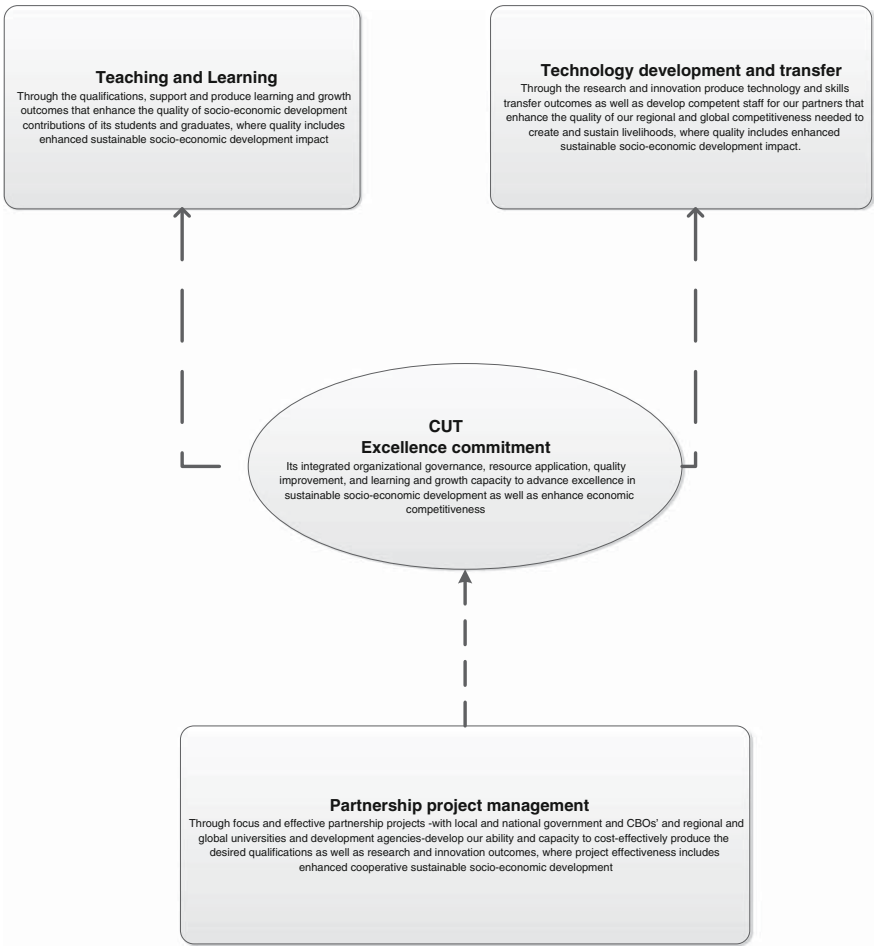

Fig. 1 Important elements of CUT's integrated commitment to excellence in sustainable socio-economic development. *Source* CUT (2012)

The interviewee recruitment exercise was preceded by an identification of stakeholders. A perusal of the SIF document revealed the various stakeholder groups who were responsible for contributing either directly or indirectly to the achievement of CUT's transformational aspiration. For this study, only stakeholder groups who had direct impact on the HEI's SIF were adopted. Accordingly, five stakeholder groups were identified. These groups consist of the following, namely; academic staff, non-academic staff, students, (postgraduate and undergraduate), University management staff, and Infrastructure Delivery Partners (IDP).

The categories of stakeholders listed above are to a large extent self-explanatory, perhaps with the exception of the Infrastructure Delivery Partners. Recently, CUT has been involved in a major infrastructural development exercise in its two main

campuses. IDP as used in this context refers to consultants, contractors and sub-contractors. The authors ascribed the same stakeholder status to staff of CUT's in-house Facilities Maintenance/Management staff for obvious reasons. For the sake of expediency, the student stakeholder group was delineated along undergraduate student and postgraduate student lines. The University Management staff consisted of staff members holding administrative portfolios pertaining to teaching and learning, research and operations.

In the aftermath of this stakeholder identification and categorization, the researchers proceeded on an interviewee recruitment drive. A mixture of purposive, convenience and snow-ball sampling techniques were adopted (Denzin and Lincoln 2008). Prospective interviewees were approached through a plurality of ways. For prospective interviewees belonging to the respective stakeholder groups with the exception of the students' stakeholder group, emails were sent to them soliciting their participation in the study as interviewees. The recruitment of interviewees lasted for a period of five months (June–October, 2015). The interviewee demographics are indicated in Table 1.

At the last count, a total of twenty-three (23) interviewees were successfully recruited and interviewed. The interview sessions ran concurrently with the recruitment exercise due to time pressures. Time constraints were experienced during the conduct of this study as there seemed to be a high degree of apathy among the stakeholders to the SD implementation process at CUT. For example, varying stakeholder groups were often not forthcoming in participating in the interview sessions. Therefore, the sample cannot claim to be truly representative when the representation of the non-academic staff is considered. However, this limitation does not undermine the credibility, trustworthiness and reliability of the findings based on the instruments applied in data collection and analysis—semi-interviews and Qualitative Content Analysis (QCA).

Questions asked during these interview sessions focused on gaining an insight into the perceptions of the identified stakeholder groups as it pertained to:

- Shared understanding of the dual concepts of Sustainability and Sustainable Development;
- Level of awareness of the CUT's Sustainable Development agenda, and
- Expected outcomes from CUT's Sustainable Development agenda.

The interview sessions lasted for an average of twenty-five minutes each. The interview sessions were tape recorded, with the permission of the interviewees and subsequently transcribed. Upon transcription, the identities of the interviewees were anonymised for confidentiality purposes. Thereafter, the transcripts were analysed thematically using QCA (Denzin and Lincoln 2008). The use of the QCA approach allowed for the defragmentation of the data originating from the interviews into manageable categories otherwise referred to as themes thus enabling easy analysis. In carrying out the analysis, the questions listed above were utilized as pre-set themes. Steps taken in the analysis included the reading and re-reading of the transcripts, the development of preliminary categories using the aforementioned

Table 1 Interviewee demographics

No	Designation	Code	Stakeholder group					
			Academic staff	Non-academic staff	Students (Undergraduate)	Students (Postgraduate)	University management staff	Infrastructure delivery partners
1	Maintenance manager	MM						X
2	Clerk of works	CW						X
3	General foreman	GF						X
4	Senior lecturer	SL	X					
5	Lecturer 1	L1	X					
6	Lecturer 2	L2	X					
7	Director (Academic unit)	DAU					X	
8	Infrastructure delivery consultant	IDC						X
9	Junior lecturer 1	JL1	X					
10	Junior lecturer 2	JL2	X					
11	Dean of faculty	DoF					X	
12	Sustainability advisor	SA					X	
13	Construction manager	CM						X
14	Technical assistant	TA		X				
15	Undergraduate student 1	US1			X			
16	Undergraduate student 2	US2			X			

(continued)

Table 1 (continued)

No	Designation	Code	Stakeholder group					
			Academic staff	Non-academic staff	Students (Undergraduate)	Students (Postgraduate)	University management staff	Infrastructure delivery partners
17	Undergraduate student 3	US3			X			
18	Undergraduate student 4	US4			X			
19	Undergraduate student 5	US5			X			
20	Postgraduate student 1	PS1				X		
21	Postgraduate student 2	PS2				X		
22	Postgraduate student 3	PS3				X		
23	Postgraduate student 4	PS4				X		

Source Authors' fieldwork (2015)

pre-set themes (Taylor-Powell and Renner 2003; Wildemuth and Zhang 2009). The responses contained in the transcripts were then coded according to the established themes. Thereafter, the themes were reviewed to ensure the suitable nature of the categorization applied.

4 Results and Analysis

In this section, the findings observed from the data are discussed in accordance with the pre-set themes.

4.1 Shared Understanding of Sustainability and Sustainable Development

CUT's desire to develop a social ontology towards SD implementation rests on the troika of collective intentionality, functional assignment and constitutive rules. A shared understanding among stakeholders concerning the phenomenon is central to an evolution of the aforementioned troika. This much was admitted to by three different interviewees, SL, DAU and SA. According to DAU, '…. *it takes us back to what I think the fundamental issue is,… do we have a shared understanding of SD*?" In furtherance to this, he advises "… *so I think what will be quite fundamental in your study, in my opinion, is what is the definition that you are providing with regards to SD and how are the people (stakeholders) responding to these endeavours*?" Corroborating DAU's assertions, SA identifies the need for proper education of stakeholders on what SD entails stating that "*proper education of your internal staff on what is meant by sustainability, because everybody understands it differently*". These statements by DAU and SA literarily set off the discourse on whether a shared understanding exists in CUT about the definition of SD.

In fact all the interviewees hinted of different definitions of the SD concept. Interviewees such as DAU, SA, CM, PS1, PS2, SL and IDC were able to describe SD as it obtains in the public space, although not without some reservations. For instance, whilst acknowledging the supposedly generic definition of SD, SL who doubles as an academic and a university management staff, in his capacity as a faculty research manager, insisted that his management position makes him see SD differently. According to him, "…*a research manager should look at sustainable research and from that side, I think that what we should consider is looking more into continuity of research, research applications, and the relationship between the research and the industry and the community…so these are the elements of sustainable development when it comes to research management side, from my own perspective*". He however admitted to an understanding of the SD mainstream definition when speaking from an academic position with respect to his specialism. In his own rendition when asked to share his own understanding of SD and sustainability, DoF maintained that the SD and sustainability from the CUT

perspective bothered on how to ensure a steady enrolment of students into the HEI. Additionally, he stated that the major difficulty was how to get this enrolment to provide for financial sustainability for the HEI. And as such, he advocated for improved program offering to the prospective students in line with the current realities of the employment market place.

In a similar vein, SA repeated the mainstream definition of SD by stating that "*Well, SD just like the Bruntland report states focuses on development, how are we going to develop for our current needs without depleting your resources so that your future generations can also be sustained. Sustainability for me is the process of our development, how do we start towards getting to that point of being sustainable. So that process is very important when we talk about SD and the development."* However, during the course of the interview, SA admitted that the prevailing perception within the CUT on SD was focused on the financial (economic aspect) "*Right now, people are just seeing sustainability as the financial element. You know like… We need to save. And it is not so much focused on the environmental and social, so right now, I am working with the team to get them to understand the importance of all three and not just one"*. However, during the course of the interview, interviewee SA was found to be hammering on the environmental and financial aspects of SD, mainly energy consumption and conservation as well as waste management, thus implying that this was an aspect she was keen on mainstreaming.

Conversely, stakeholders within the IDP group displayed an understanding of the concept which was also at variance with most of the opinions previously espoused by representatives of the other groups. Majority of the stakeholders in this group indicated a grounded knowledge and understanding of SD, but expressed their willingness to champion it, only if the client (in this case CUT) demands for it through proper specification in project documents. Interviewees in this category were mostly representatives of consulting and contracting concerns to whom certain functions concerning the delivery of built assets at CUT had been outsourced. In a nutshell, they implied their willingness to abide by the existing social reality construct in CUT, despite their personal experiential knowledge. This was evident in CM's assertion where he described himself as a Sustainability/Sustainable Development champion by stressing that "…*I have spent the last 18 years in the UK so sustainability has been pretty much at the top of my agenda. I am a qualified BREEAM assessor, and I was sustainability champion for three corporate organisations over there, so it's quite a high for me*". However on his present engagement at the CUT, he states "…*I mean it's at the top of my agenda but the problem is that it is not at the top of the client's agenda or perhaps most clients' agendas certainly in South Africa yet."* Similarly, GF insisted that aspects that were specified in the project contracts such as ensuring an estimated 30 % spend within the CUT's local environment was being adhered to.

From the perspectives of the students, undergraduate and postgraduate students alike, as well as TA, and CW, the term SD was associated with the need to ensure greater efficiency in energy and water usage at CUT. Obviously, this notion is as a result of the communication emanating from the quarters with authority pertaining

to SD matters at the CUT (Djordjevic and Cotton 2011). Such communication always expressed concern on the inefficiencies experienced in the areas of resource consumption, particularly energy and water.

Summarily, it can be deduced that diverse understanding of SD exists among CUT's stakeholders. Perhaps, this is a significant contributor to the low implementation performance levels being experienced, therein.

4.2 Level of Awareness of the CUT's Sustainable Development Agenda

According to Mader et al. (2013), optimal levels of awareness concerning transformational concepts such as SD are central to the entrenchment of such ideas into the organizational fabric of HEIs. Without such degree of awareness, securing the buy-in and commitment of stakeholders and attainment of successful implementation may be difficult. It was therefore astonishing to observe that majority of the stakeholders interviewed claimed knowledge of the concepts of sustainability and SD, their varied definitions notwithstanding, as well as the existence of CUT's SD Charter; but they feigned ignorance on what its components and the SIF entailed. Also, three of the undergraduate student interviewees, US3, US4, and US5 who were carrying out their studies within the realm of the built environment at CUT affirmed that their knowledge of the concepts was as a result of their research topics. DAU whilst affirming that there was a limited knowledge concerning what actually constituted SD, reiterated that this was not peculiar to the HEI's stakeholders. He stressed that "*….so it is fair to say as a general observation, people have a limited observation of SD and I think that this is primarily due to its origination in the public space and generally, how it is being communicated*". He maintained that given the seeming dominance of environmental issues in the communication of SD, a greater proportion of individuals tend to neglect the concept, owing to its inability to take care of the social and financial (economic) aspects of their daily lives.

Certainly, this constitutes a major challenge to the development of a social ontology. It is obvious that CUT's SD charter has fallen victim to organisational encumbrances occasioned by ineffective communication. For the avoidance of doubt, the core statement of the SD charter as stated in its policy document indicated that as an SU, CUT aspires to "*….become a teaching, research and learning environment which maximizes and mainstreams environmental, economic and social sustainability in all its operations and educational activities*" (CUT 2012). Also the SIF provides a guideline of implementation with associated outcomes. Of interest in the plethora of deliverables was the desire to train/hold induction of at least 800 staff and students on SD matters over a three year period, 2011–2014. This would have accelerated the integration of the SD principles into the fabric of CUT to support shared understanding of the relevant concepts. Unfortunately, observations originating from conducted interviews indicate that this has not been done and as such, the attainment of a shared understanding among the stakeholders remains an aspiration.

5 Expected Outcomes from CUT's Sustainable Development Agenda

The bid to evolve a social ontology, normally originates from the identification of a collective expectation of certain outcomes (Bickhard 2008). Such outcomes will lead to improved buy-ins and commitment from members of a given community. Such expectations make it easier to engender behavioural change through constitutive rules and procedures. The identification of such outcomes makes the development of a social reality, which is centred on the attainment of these outcomes less challenging. As such, the interviewers sought to identify the expected outcomes of a robust SIF from the interviewees. One of the cardinal issue that was brought to bear as an expected outcome was the issue of Indoor Environmental Quality (IEQ). The interviewees from the undergraduate, postgraduate, academic, and non-academic groups stated that the IEQ in their lecture halls and the hall ways were inappropriate and did not conform to the guidelines for SD as described to them by the interviewers during the interview sessions. They opined that this led to increased usage of electricity as the ventilation was poor and the natural lighting was impossible. When asked if this was the case in recently completed buildings at the CUT, they affirmed that BAU is the norm. Members of the academic staff also inferred that the processes of staff recruitment as experienced by them did not accord considerable weighting to the prospective employees on the issue of attitude or understanding of sustainability and SD.

According to an interviewee, CM, little is being achieved in terms of integrating the SD agenda into the provision of built assets on campus. According to him, "*…So using this project as an example, the student accommodation, it's got some features you can call sustainable…But it could have had an awful lot more. It could have had solar on the top, you could have insulated it better, you get what I mean. Natural lighting would have been better, we could have upped the insulation for the sun but in fact this building when it was originally tendered had insulation inside the façade which was taken out for value engineering. So now you think to yourself, for the short term, for the project, for the build, you've saved some money but in the long term, you've got probably I can't remember the difference but probably three or four times the capital expenditure over the life of this building lost in the value of power consumption to heat because you've got to heat this up now half year when the Free State is freezing cold and we have radiant heating panels in every room in the accommodation which isn't really great.*" His statement indicates what the supposed expectations should be about a truly sustainable building. However, issues relating to initial cost outlays continue to deter the actualization of such buildings. This observation draws attention to the need for a shared understanding. It is apparent that this stakeholder had a different understanding of what SD is and what its outcomes should entail from what the client had on the same phenomenon.

6 Conclusion

The role of HEIs in fostering SD has been observed. HEIs being microcosms of the society have sought to transform themselves into SU and then share the knowledge created during the process with other sectors of the society. CUT happens to be one HEI with such aspiration. Because of its aspiration, CUT initiated an SD policy and an implementation framework (SIF) with a timeline of a decade. However, a social ontology has been described as imperative for SD implementation success. In consideration of the criticality of a common perception among various stakeholders to the evolution of a social ontology on SD implementation, this study explored the perceptions of various stakeholder groups within the HEI. The study observed that there was indeed a variety of perceptions regarding SD definition and/or understanding. The lack of shared understanding/interpretation may be impacting SD implementation performance at CUT. The study indicated that despite the presence of a policy that is supported with a documented framework, there is a low level of awareness among stakeholders regarding internal SD policy and framework at CUT. Furthermore, no common ground was identified among the various stakeholders interviewed thus implying the difficulty of achieving a social ontology. It is suggested that increased stakeholder awareness, and enlightenment should be adopted by CUT, if SD is to become second nature in the institution.

It is hoped that this study will contribute to the evolution of a social ontology, which will consequently engender the successful implementation of SD at the institution. Also, a paucity of studies into the impact of sociological factors on SD implementation in HEIs, particularly in SSA has been noted. It is expected that this study will provide the theoretical basis upon which such studies will be premised. Further studies pertaining to the development of a robust implementation framework based on a common social ontology among stakeholders within CUT and other HEIs in South Africa are advocated. Future studies should incorporate statistical computations through the use of alternative techniques whilst building on the findings of this study.

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