Differentiation in the Curriculum in Developing Innovative and Engaged Graduates: The Case of a University of Technology, South Africa

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Abstract

The paper seeks to examine the role of universities of technology (UoTs) in pursuit of a differentiation agenda as a curriculum strategy used to accommodate a diversity of students and enable them to participate in higher education, in alignment with the National Development Plan (NDP) and other policy on higher education transformation. Clearly, there is a need for the creation of an integrated higher education system that can develop students' abilities to enable them to address socio-economic issues. Qualitative data were generated from literature and from a respondent group of eight lecturers, two heads of departments and twelve students from different faculties in one university of technology. Respondents were purposively sampled. Individual interviews were used for academic staff while focus groups were used for students, with both using semi-structured questions. Content analysis was employed by systematically sorting and categorising data into emerging common themes. It was found that a differentiated curriculum approach could embrace a diversified host of students and expose them to different curriculum approaches. Programmes offered should include both knowledge and skills, enabling them to become employable, innovative, and able to change their lives. It was concluded that for students to be able to apply knowledge meaningfully and to address socio-economic, political, environmental, and other challenges that affect them, a differentiated education system is critical. The study proposes that universities of technology need to maximise their efforts and strategies to use curricula to develop responses to the range of national development needs

and to reach out to a diverse student population. Higher education is also expected to give more support to universities that lack resources and to increase the number of higher certificate programmes that articulate to diplomas and advanced diplomas as a way of widening access. The study further proposes that different curriculum strategies and blended approaches be encouraged to ensure that students with different learning needs are catered for so that universities may produce holistically developed, innovative and engaged graduates who will be able to take part in the socio-economic growth of the country.

Introduction
Sulisworo (2016) posits that good human resources contribute to a better economy and living standards. Imbalances in South Africa, however, reveal that transformation and educational policies have not impacted sufficiently on the socio-economic growth and development of most of the population (Keeton 2014). The NDP (National Planning Commission 2011) emphasises the massification and differentiation agenda to drive the curriculum transformational mandate of the education system. Yet, the socio-economic conditions of most of the population show no significant changes. Education and curriculum changes have impacted positively on the socio-economic environment of East Asian countries such as Hong Kong, Korea, and Taiwan, for example (Awan *et al.* 2011), and have been shown to contribute to changing the lives of the people in these countries. The assertion is that education systems and curriculum designs throughout the world have shown some link between social and economic progress and enhanced global competitiveness in many countries (Wakeling & Savage 2015). However, there seem to be some constraints in South African higher education that impede a differentiated education system from embracing students from diversified backgrounds sufficiently to enhance their growth and development (Vadra 2017). Differentiation is linked to participation and success rates in higher education; yet the white and Indian youth cohort are participating in higher education in great numbers whereas the same cannot be said about many young blacks and coloureds (Council on Higher Education [CHE] 2018).

Differentiation and transformational changes were expected to strengthen the education system and improve curriculum strategies in the higher education landscape, as well as to redress almost a century of imbalances in South Africa that gave rise to social inequalities (Luckett & Shay 2017). However, differentiation and diversification have not addressed the systematic changes intended to improve the development of people from poor socio-economic backgrounds sufficiently (CHE 2013). The White Paper on Higher Education (DoE 1997:7; DHET 2013) points towards the accommodation of students from diverse backgrounds and responsiveness to socio-economic needs through access to knowledge in higher education. Yet a host of students are not adequately reached in order to root out inequalities such as those related to physical and epistemological access. The assertion is that curriculum design seems not to be doing enough to develop students or to enable them to change their lives (Pinar 2010). This implies that students from poor backgrounds are not sufficiently catered for to access knowledge and skills that will enable them to engage with the world and function effectively in the world of work.

Conversely, higher education (HE) is expected to add value to the public sphere, thus curriculums should be used towards uplifting communities and to contribute towards students' holistic development (Luckett & Shay 2017). To that effect, the differentiation mandate of HE is expected to provide students with the knowledge and skills needed in the professional and social space while also developing their ability to view the world critically (CHE 2013:19). Previous education systems have used memorisation as a curriculum strategy: this was shown to be an unreliable method in enabling students to engage because they fail to remember much of what has been drilled into their brains (Sousa & Tomlinson 2011). Improved curriculum strategies, including programmes that accommodate the needs of diversified groups of students in universities of technology, are therefore necessary. According to Young (2011), curriculum is the starting point for the improvement of teaching and learning, which implies that students' success and progressive development relies on the design of curriculum to promote a broader participation and meaningful learning (DoE 1987). Furthermore, differentiation at institutions of higher learning is deemed necessary to capitalise on institutional strengths in order to respond to the socio-economic needs of the society (CHE 2018). The paper thus seeks to explore the extent to which differentiation and curriculum can play a role in reaching out to a diverse group of students and to improve lives.

Literature Review
Transformation and Differentiation
Emanating from the transformation process in South Africa has been the creation of different types of institutions, namely traditional universities, comprehensive universities, and universities of technology, to diversify and contribute towards the socio-economic and human development (CHE 2016:151). Universities of technology (UoTs) emerged as a result of the post-apartheid transformational process of a differentiated higher education system and are thus expected to discharge the mandate of a differentiated curriculum to students from different backgrounds (DoE 1997). Notably, the aim in embracing differentiation and diversification agendas is not to focus mainly on national aspects and to drift away from knowledge found in higher education, which is compatible to global standards, but the aim is rather to improve access to education (Walker & McLean 2013). Unifying the education system is thus seen as the best strategic plan to address national needs and to bring different stakeholders on board; furthermore, to address the different curriculum needs in order to improve the socio-economic progress of the people and the country in general (DHET 2013). According to Margison (2016b), differentiation directs the path of higher education expansion and the adoption of curriculum approaches that encourage a broader participation in the education system worldwide.

A transformed curriculum and a differentiated system do not only imply integration and conceptualisation of different types of universities, but also imply accommodating different students from different backgrounds (Walker & McLean 2013). According to the CHE (2013), evidence reveals that progression and achievement of students has not been impacted significantly. As argued by Giroux (2014), differentiation and poor access have been compounded by the attention placed on the commercialisation of the public university, which deviates from the narrative of levelling the playing field and removing education deficits hindering the socio-economic progress of the disadvantaged groups. The expectation of a transformed education system in pursuit of differentiation is to place people first and to contribute towards development and growth. However, differentiation has instead taken the route of promoting the ranking system of universities (CHE 2016:41). Thus, progress with regards to developing and accommodating students from different backgrounds is not seen to be enough (CHE 2016). The bone of contention is

whether transformation that accompanies the differentiation and social justice agenda are prioritising the core business of institutions of higher learning, namely, research, community engagement and most importantly teaching and learning strategies aimed at developing students (Collini 2017; Marginson 2016a). Research has shown that even though diversity and good performance are striven for, inequalities still exist (Bygren 2016). This implies that curriculum has not been widened enough to accommodate different categories of students to enhance development and innovation.

According to Ansell (2015), education and the manner in which curriculum is conveyed are important for the nation's development. This implies that the curriculum needs to be used to provide students with knowledge and skills for personal development, acquisition of analytical skills and holistic development. As posited by Lightweis (2013), differentiation takes another angle, focusing more on the competitiveness of research-intensive universities to attract funding, instead of focusing more on improving student access and curriculum approaches to develop engaged and innovative students who will use their knowledge and skills to contribute to change. The researcher thus argues that universities of technology can offer possibilities for differentiation to be realised, since they differ from comprehensive and traditional universities due their focus on specific programmes that they offer, such as technology, entrepreneurship, innovation, theory, and applied science by drawing students from different backgrounds to access knowledge and skills. Since the level of entry in UoTs allows students to register with a lower matric score than that of research-intensive institutions, there is an implication that they can expand the differentiation agenda on a horizontal level (Lightweis 2013) which is closer to the call for participation and social justice.

To the researcher, the view is that universities, particularly universities of technology, offer different programmes ranging from certificates and diplomas to degrees and doctorates that can afford a diversified cohort of students the opportunity to access higher education at different entry points. The researcher further argues that a meaningful way to reach out to a diverse student body is to open access and use curriculum to enhance learning while also giving support and motivation that goes beyond teaching strategies. At the same time, Sousa and Tomlinson (2011) suggest that a differentiated curriculum should engage students in the process of learning and that the focus should be on understanding the importance of content rather than merely rote memory.

Involvement of Different Stakeholders and Use of Different Approaches

As asserted by Marginson (2016b), universities are supported by both the government and the private sector to encourage more enrolment and research. However, they are not to be turned into elitist structures that perpetuate inequalities and deviate from the transformation and differentiation agenda. Clearly, differentiation made higher education move away from being the proverbial ivory tower and moved towards creating a relationship and working closely with different stakeholders such as the government, private sector, and communities in order to provide new knowledge, promote innovation and contribute towards growth (Marginson 2016b). This means that various partners and ways of communicating knowledge are necessary to improve the teaching performance and approaches that assist in addressing the needs of many (Murphy & Jensen 2016). A differentiated curriculum strategy is seen to be an effective means of engaging students in the course of learning (McCarty et al. 2016). The offering of different programmes in higher education, besides opening access, also demonstrates an important role in aiding the differentiation agenda (Weingarten *et al.* 2013).

Transformation and differentiation can make it possible for different needs to be addressed and for students from diverse backgrounds to have equal access to higher education. However, in the case of Brazil, for example, transformation did not translate into reducing challenges faced by students from poor academic backgrounds (Arum, Gamoran & Shavit 2007). In the case of India, education as a public good is promoted by the Indian government, even though such a project contributes to some financial strain and deficiencies in resources that ultimately compromise quality. In developing countries where the private sector also accepts a role (Stromquist & Monkman 2014), the financial strain is not felt by the government and standards are maintained. This implies that for differentiation to be realised, close cooperation is needed between the private sector, the government and civic society to ease the institutional financial burden and curriculum needs of students with varying career paths.

Curriculum and the Workplace

Luckett and Shay (2015:2) assert that for higher education to be valued as a 'public good', a curriculum should provide students with knowledge, skills and competences that can enhance people's moral and personal development,

including their capacity to function in the real world. Thus, the curriculum cannot be differentiated without being relevant to the socio-economic needs of the people as well as promoting good ethical standards. Wiliam (2011) notes that a bad curriculum well taught and assessed is a better experience for students than a good curriculum that is badly used and well assessed. In essence, what matters the most is how the curriculum is taught; secondly, what is taught; and lastly, how it is assessed. In other words, what is important are the strategies that facilitators use to implement the curriculum; this is what enables students to learn and apply their knowledge and skills. For example, work-based learning followed at UoTs makes provision for students to apply knowledge and skills in the real world and to reflect on new experiences (Beard & Wilson 2013).

Some researchers argue that curriculum differentiation prioritises specialisation in a skewed manner and increases skills for the current vulnerable economic system, favouring global competition where the priority is placed on relevant skills needed by the market, while at the same time creating a deficit in conceptual knowledge (Ntshoe & Selesho 2016). Other authors are of the opinion that though differentiation attempts are made through an all-encompassing curriculum to develop students holistically, it focuses on graduate attributes that enable them to become employable to be able to respond to the socio-economic needs of the country (Costandius & Bitzer 2015; Withering & Bitzer 2020). The assertion is that a differentiated system can cater for students' socio-economic backgrounds and can create opportunities for their holistic development (CHE 2016). This implies that creating sufficient opportunities for students' development, including the acquisition of graduate attributes, is key towards enhancing students' chances of being employable (Bitzer & Botha 2011). Furthermore, workplaces do not need students who are ill-prepared; they need students with appropriate knowledge and skills who are able to solve problems, think critically, communicate effectively and are also innovative (Bitzer & Botha 2011). According to Okay-Somerville and Scholarios (2014), elitism that considers universities on the basis of their status puts graduates that have been produced from those universities at an advantage to attract employment, much more so than those who are from universities at the lower end of the hierarchical ladder. In this regard, curriculum offers hope in navigating through the sad narrative of removing some imbalances impeding the improvement of the socio-economic conditions of communities.

Curriculum and Differentiation

As Awan *et al.* (2011) point out, an education system has a major impact on a country's development, which implies that continuous curriculum renewal and differentiation is necessary. According to Pillay (2015), curriculum incorporates a number of formal and informal activities that determine the success of graduates in terms of holistic growth and employability. These include content, units, timeframes, assessment, educational purpose, and ways in which the teaching and learning processes are aimed at contributing towards developing intellectual abilities and lifelong learning (Pillay 2015; Carless 2015). However, progress with regards to differentiation and national transformation still remains a challenge (Boughey & McKenna 2015). Arguably, differentiation can play a significant role in improving students' socio-economic status with new knowledge and enhanced learning (Munro 2012).

Different learning pathways can also enable students to use different, though appropriate learning opportunities that correspond with their capacity to learn as well as enabling them to apply knowledge, skills, and attitudes in response to continuously changing contextual needs (Tomlinson 2014). From an institutional perspective, curriculum differentiation and diversification are needed to initiate changes in the current higher education system. Consideration must be given to the individual student's unique ways of learning, which need to be nurtured, because diverse learning needs may require differentiation of teaching, which involves responding constructively to what students know, and includes respect for their individuality and their learning styles (Tomlinson & Moon 2013). This implies giving support to students in need and using varied curriculum strategies to communicate information for different students' learning styles, without reducing the quality of content. This may be in the form of repeating the lesson, engaging the student, using different types of assessment, and teaching strategies or academic support given by other senior peers who understand the subject (Dixon *et al.* 2014). Another strategy of differentiating as suggested by Wu (2013) is to provide the students with multiple options to understand information by giving them the opportunity to express what they have learned, unlike rote learning.

The researcher maintains that certain elements of core curricula are insensitive to those students who have little or no prior exposure to technologies and skills. Such backlogs often lead to students not completing

their qualifications within the required time. To meet the demands and expectations of the full range of students, higher education needs to embark more strongly on horizontal differentiation, taking into account the learning needs of the diverse body of students within the same learning programme (Huismann, Meek & Wood 2007). In the context of UoTs, this has translated into the implementation of core curriculum programmes, including extended degrees, which aim to assist students with lower matric scores to access higher education (Shay & Luckett 2017). The expectation is for curricula to cater for different students in order to produce future leaders who will play different roles in the public, private and civic spaces (Baker-Shelly, Van Zeijl-Rozema & Martens 2017); hence, the need for an all-encompassing differentiated curriculum strategy.

Knowledge and Engagement in the Curriculum

In line with curriculum differentiation, Maton (2014) differentiates between epistemic and social knowledge: the former is referred to as factual knowledge, whilst the latter relies on the subjective experiences of individuals who assert themselves as legitimate knowers. Since curriculum facilitates knowledge acquisition, it can be used to bring change in the socio-economic progress of the country (Vadra 2017). The implication is that the theoretical concepts to which students are exposed through curriculum strategies in institutions of learning may contribute towards developing logic, which can contribute towards innovative thinking and engagement. To Young (2013), knowledge in the curriculum increases students' intellectual prowess and level of morals and enables them to come up with new innovative ideas that contribute towards solving current and future problems. Furthermore, Maton and Moore (2010) assert that each form of knowledge has a unique role and purpose, and that some forms of knowledge are epistemologically more powerful than others (Maton & Moore 2010). This implies that institutions of higher education are expected to open up opportunities for a diversified host of students and to equip them with knowledge that allows them to take part in the social and economic aspects of the country. Knowledge can thus be regarded as a tool to serve societies from where it is constructed and to embrace diversity (Muller 2015).

A curriculum with a philosophical orientation which embraces theory and context has two dimensions: it represents both the social value of knowledge and the objective nature of knowledge needed to improve students'

development and the socio-economic well-being of a nation (Maton & Moore 2010). Such differentiation can enable higher education to enhance the quality of student learning and improve the poor graduation rates of students from disadvantaged backgrounds (Luckett & Shay 2015). The vision of at least one UoT is to be an engaged university that focuses on producing quality social and technological innovations in the central region of South Africa. This is seen as an enabler for developing students to possess skills and knowledge that make them innovative and able to respond to contextual needs (Tomlinson 2014).

In summary, what seems to emerge from the literature is the differentiation agenda that widens access and enables a curriculum to accommodate a diverse host of students. This implies that a responsive and differentiated curriculum that clearly relates to socio-economic problems has the potential to develop people and change the socio-economic conditions of the country. The use of different curriculum strategies can enable students to employ their knowledge and skills to become innovative and to engage in civic matters, while also contributing towards the progress of the country. Different approaches, inter-university collaboration, benchmarking, the promotion of graduate attributes to contribute to employability, and social transformation are all key in enabling curriculum differentiation agenda.

Against this background, the present study examines the issue of curriculum differentiation at one South African UoT in order to determine its potential value in developing students and contributing towards socio-economic progress.

Aim and Objectives of the Study

The main aim of the present study was to examine the role of a differentiated curriculum approach at one UoT in response to student development and socio-economic growth. Linking to the main aim, the objectives for the study were:

- to determine the role of a UoT within the context of differentiation,
- to determine whether one UoT, through its programmes of learning, responds appropriately to regional socio-economic challenges, and
- to determine whether the implementation and assessment of a differentiated curriculum can develop students towards becoming innovative and engaged citizens.

Methodology

Research Design

A qualitative research design, guided by an interpretive paradigm, was adopted. The choice of an interpretive paradigm was influenced by participants' experiences of the object of study (Patton 2015). In employing phenomenological strategies to examine the world as the social actors experience it, interpretivism brings into consciousness hidden meaning, subjective views and perceptions, individual descriptions, beliefs, values and reasons when interpreting and analysing data (Patton 2015; Denzin & Lincoln 2012). The philosophical orientation of this view of the world is that reality is constructed from people's lived experiences and beliefs regarding how they interpret the world by responding to qualitative questions (Creswell 2013).

Phenomenology

In line with phenomenological strategies, the researcher elicited qualitative data from the subjective opinions of participants using interviews and the logical interpretation of their responses. Merriam and Tisdell (2016) argue that phenomenology does not follow a scientific inquiry which categorises the object under study into abstract laws as positivism does; it rather focuses on the social experience of social actors and maintains a subjective epistemology, and the ontological principle that knowledge is socially constructed.

Sample and Sampling

The study sample was limited to a few selected cases that might impact significantly on the phenomenon under investigation (Awang & Noryatnti Muhammad 2012). The study population comprised eight staff members consisting of lecturers and heads of departments, and twelve students aged between 21 and 25, all of whom were purposively selected from different faculties and fields of study at one UoT in order to obtain rich data about the impact of differentiated curriculum delivery (Merriam & Tisdell 2016).

Methods

Data were collected through an interview schedule using semi-structured

questions relating to curriculum and assessment and analysed in terms of the participants' stated values (Patton 2015; De Vos *et al.* 2011). As a result, interviews and narratives from students and academic staff presented the researcher with rich, qualitative data regarding differentiated curriculum delivery (Merriam & Tisdell 2016).

Data Analysis

Interview data were captured electronically, transcribed, and analysed from content into codes, patterns, and emerging themes (Saldana 2016). The transcribed content was then evaluated and interpreted in relation to the relevant topical literature (Merriam & Tisdell 2016).

Results

In reporting the findings and results the following abbreviations are used to represent participants from different faculties and according to gender: 'L' represents a lecturer(s); 'Ho' stands for heads of departments; 'S' represents student(s); 's' represents the number of students; 'F' represents female participants; and 'M' represents male participants. Different faculties are represented as follows: 'E' for the Faculty of Engineering; 'Hu' for the Faculty of Humanities; 'M' for the Faculty of Management; and 'H' for the Faculty of Health.

The following salient themes emerged from the interviews overall: institutional support for students; soft skills, benchmarking, and partnership; varied methods of teaching and learning, theory, and practice; engagement with communities; and innovation and entrepreneurship. These themes will be discussed accordingly.

Theme 1: Institutional Support for Students

Literature indicates that UoTs have a mandate to discharge a differentiated learning experience for different students and which allows them a voice that enables them to have all their needs met (DoE 1997; Van Vught 2009). This is confirmed by the participants' assertions about a curriculum which is geared to serve the needs of different students. One participant (FLH) had this to say:

> *An engineer may be good in theory and other areas but lack the ability to communicate; other students may lack in numeracy whilst still others may lack in digital literacy; hence at the university of technology it is compulsory for all first-year students across faculties to enrol for the core-curriculum subjects to cater for different areas of lack.*

Elaborating on institutional support, one of the participants said that the academic support unit facilitates the processes of offering different support and motivation by assisting students with a variety of tools to improve their performance.

> *Assistance includes referrals for assistance on emotional or psychological problems or socio-economic problems that interfere with their performance (FLM).*

Other participants added that supplementary instructions are also provided to render assistance and support to different students through academic advising and supplementary instruction by senior peers (F&MLs/ EMHHu).

Several participants (FLHu/ MLM/ HEHu/ M&FLs) indicated that in four faculties, students from disadvantaged backgrounds and those with low matric scores are allowed access to higher education by enrolling for extended programmes or one-year certificates that articulate into diploma studies. Another participant (MLM) added that in certain departments, practitioners and professionals from industries are invited to present guest lectures as another way of making learning more diversified and practical in order to provide more understanding of content.

Another participant (MLM) said,

> *Students' ways of learning and understanding are embraced in incorporating different methods of delivery and linking content with what is happening in the world of work by inviting practitioners to deliver guest lectures to students.*

Theme 2: Holistic Development and Graduate Attributes
Literature indicates that graduate attributes complement a differentiated ap-

proach to curriculum to enable employability by enhancing skills needed to provide for people's socio-economic needs (see Bitzer & Botha 2011). Apart from individual tasks that promote self-mastery, holistic development of students is enhanced by the incorporation of graduate attributes which are also embedded in the assessment strategies to prepare and mould students to be able to fit in various roles.

One participant (ML/M) said that,

> *Curriculum design and assessment strategies incorporate the accomplishment of graduate attributes such as teamwork skills, critical thinking skills, problem solving and responsible citizenry to develop skills needed by the society and the labour market.*

Another participant (FL/M) stated that,

> *During formative assessment, students do group activities, oral presentations, or projects as a way of differentiating curriculum approaches and assessing them differently.*

Many students indicated that group projects are helpful, because as peers they are free to communicate and to contribute their different ideas. Others (F&MSs/M/Hu/H) indicated that they liked group work when it translated into action through group projects which accommodate diversity and provide students with the opportunity of working with others, as well as to express their thinking, argue amongst each other, resolve conflicts, and enhance their leadership skills in preparation for the workplace.

Theme 3: Blended Learning, Various Subjects, and Partnerships

Another lecturer participant said,

> *Blended learning is another mechanism of reaching out to various needs of students to vary curriculum approaches to allow students to participate in the learning process through different platforms.*

In this regard, Baloyi (2013) asserts that different universities of technology have institutionalised e-learning. Differentiation is reflected in the

integration of maths, science, and art subjects to enable students to follow different career pathways.

> *'In that way most students did do maths and science to gain access in social sciences', said one of the participants (FL/H).*

Differentiation and broader participation of students through various subjects that enable different pathways are also reflected by Boy (2013), who supports the integration not only of science, technology, engineering, and mathematics (STEM) subjects but also the move to STEAM, which includes Art subjects. Another participant (FL/Hu) said,

> *As part of a differentiation system students are not only exposed to content but are also expected to apply knowledge in the real world which is conveyed through projects/assignments that they do in communities to apply their art knowledge in drawing and designing skills.*

Another participant (MLM) stated that,

> *Partnerships and agreements are also done with government and SETAs, and the university encourages lifelong learning amongst employees.*

Elaborating on the issue of partnerships, one participant (FL/H) said,

> *In our programme partnership and benchmarking activities with global countries are done by third-year students as a way of differentiating curriculum approaches to allow students to compete with other students from other countries by writing an examination set by an international body in alignment to global somatology standards.*

Another participant (FLM) mentioned that, for students to participate in their education in a broader context, differentiation also enables them to be involved in exchange programmes that allow curriculum portability, enabling them to use curriculum and continue with their studies whilst in other global countries.

Another (FHo/M) participant said that,

> *Funding from both government and the private sector allows for research, and the offering of different programmes particularly science and engineering programmes is another mechanism of enhancing differentiation to enhance national goals.*

Theme 4: Varied Methods of Teaching and Learning

Literature confirms the importance of people in influencing and improving their social space where knowledge emanates. Thus, Maton (2014) supports the importance of considering scientific principles to improve the social space, which is made possible using various teaching and learning approaches in attempting to understand abstract knowledge as well as accommodating different students' learning styles. Also, Huismann *et al.* (2007) emphasises the importance of considering the diverse needs of different students.

Some of the students indicated that not all lecturers use a variety of teaching and learning techniques or give examples that relate to their reality when presenting content, which makes it difficult for them to understand content. Others indicated that teaching and learning opportunities such as discussions, group work, and the integration of technology enable them to understand content and to think critically as they engage with others. One student said,

> *The use of different strategies by lecturers in classes assists us to understand content better than just writing tests and I prefer sessions where we are free to debate issues and voice our own views (MS/M).*

Several the students said that they preferred doing projects or problem-solving activities in which they worked in groups, whilst others indicated that they preferred action-related activities or listening to the lecturers. Some said that the use of case studies stimulated their learning by bringing relevance to the context, which improves their understanding (M&FSs/MHuE, FS/Hu).

Some of the lecturers indicated that curriculum differentiation also involves using different ways of assessing students to accommodate the needs of different learners (M&FLs/EMHHu). Other lecturer participants indicated that the use of briefs is also a curriculum strategy that enables students to learn in different ways and to reflect critically on themes covered in the curriculum

and engage effectively with the content (ML/Hu).

Another participant stated,

> *Giving students the opportunity to communicate and share their thoughts with their peers makes the curriculum approach different in the sense of encouraging understanding and eliminating memorisation (FL/H).*

A further lecturer participant emphasised that,

> *In embracing transformation and diversity in HR Management, work integrated learning (WIL) is now integrated in the curriculum including the increase of simulated case studies to respond to student learning styles. Also, the practice of presenting more theory followed by a written examination has changed (FL/M).*

One of the students (MS/E) said,

> *Through problem-solving activities, we designed for our project we learned to take our problem outside the classroom and learned from experts and those who are working in logistic units about practical processes involved in issues around compliance with policies as a social justice issue.*

Theme 5: Engagement with Communities and the Application of Knowledge

Literature indicates the need for science to complement the knowledge society must solve problems (Wheelahan 2012). Service learning and Work-Integrated learning are used to tap into experiences communities have in conjunction with scientific knowledge as a mutual learning exercise, and as part of a differentiated education system to benefit both students and communities, also to respond to contextual issues. The following excerpts support this view. One of the participants (FHo/H) said,

> *Service learning is used as an interactive tool for students to interact with patients and learn about patient care, patient confidentiality and*

professional ways of how to communicate patients' results. In that way those already in the field help them to apply the theory they have learnt in the classroom.

Participant FL/M stated,

Bringing educational or social awareness is part of the engagement with the civic groups to share knowledge and one of the university's core roles. Students thus do service-learning activities by engaging in projects such as clean-up campaigns, to care for the environment.

Another participant (ML/Hu) added,

Graphic Design by its nature has social underpinnings and students are assessed on projects that raise awareness relating to social issues.

The participant further indicated that students design posters on HIV/AIDS and also on the campaign against women abuse, which creatively portray the rights and dangers facing communities and bring awareness about constitutional rights pertinent to communities in solving their social problems.

Participant (FL/H) mentioned that,

In Radiography, as part of the Work Integrated Learning, students make an impact on communities' socio-economic challenges through their patient-care management module. They first deal with the theory part of the module, and afterwards they are placed in institutions for practice where they engage with urban and rural communities to make comparisons and raise awareness about health issues.

Participant (FL/H) stated that,

In Somatology, students identify problems in surrounding communities and use critical inquiry and innovative ideas to reflect on issues such as saving resources. They apply theory to solve problems and also discuss their experiences, present their arguments, and are critiqued by their peers, lecturers as well other interest groups.

Participant (ML/Hu) added that,

> *Through community engagement projects, students assist in solving some of the community's problems. Second-year students designed stamps in commemoration of firefighting in one of the municipalities.*

A further participant indicated that, from household profiles that are done in one module, students learn how to identify community needs and to channel their needs to community development workers. Thereafter they submit a portfolio of evidence, reflecting on their individual experiences and the role they played in engaging with communities (FL/M).

Theme 6: Innovation and Entrepreneurship

Different abilities of students are stimulated through different programme offerings. The entrepreneurial hub also contributes by harnessing students' innovative and entrepreneurial abilities. Lecturers offering Business Management, Somatology and Logistics indicated that they are not only producing employable students, but they are developing entrepreneurs and innovators. By promoting entrepreneurship, lecturers encourage students to come up with innovative ideas to create their own wealth and to manage business risks (F&MLs/MHE).

Some students indicated that the Business Management module instils entrepreneurial skills. These skills are further reinforced when they do experiential training in real situations. They mentioned that, with the money they received from placement within the Somatology industry, they were able to start buying equipment and start operating side-line businesses such as doing facials, manicures and massages whilst furthering their studies (FSs/H). One student (MS/E) said,

> *Learning the theoretical principles and rules and applying these in real-life projects such as energy-saving prepared me to apply logic and to think of innovative ways of introducing a model which automatically switches lights off when not in use.*

Interpretation of the Findings

The findings of the present study established that the UoT under study is ma-

king some strides in promoting a differentiated curriculum agenda by allowing a broader participation in the education system as well as preparing students for the workplace because of the way it opens opportunities for diverse groups of students. For example, enrolment of students is done according to matric scores ranging from 24 to 30. Those with results below the threshold level are also accommodated through programmes that offer extended programmes or certificates. Students with disabilities are also catered for. Support and interventions are provided for diverse students with different needs and limitations, regardless of their educational or social backgrounds. This is done through the compulsory registration of core-curriculum modules by all first-year students in all four of the faculties which form part of their studies. Clearly, the performance and success of students is thus promoted through academic support, emotional and psychological support.

The findings further indicated that at the UoT under study, different curriculum approaches and technologies are employed to benefit diverse groups of students. Graduate attributes, different modes of assessment and work integrated learning are incorporated in the curriculum to address student diversity. Also revealed by the present study was engagement and assessments that allow students to internalise and engage meaningfully with learning content**.** The active involvement of students in projects, discussions, group work, problem-solving activities and interactive lecturing accommodates different learning styles including e-learning activities, which were all found to be useful in accommodating the learning experiences of different students and their different learning styles. Such strategies also prevented the domination of a single approach to teaching and learning. Since students can communicate their ideas for deeper understanding, rote learning is avoided. Furthermore, a balance of theoretical and practical modes of knowledge in curricula facilitated through WIL and community engagement or service-learning activities evidently contributes towards preparing students to respond to present-day socio-economic needs. Such curriculum approaches create opportunities for students to engage with civil society and communities, with businesses and industry, and encourage entrepreneurial possibilities. This implies that, amongst other things, the time allocated for learning tasks might need to be increased so that students can engage meaningfully in productive learning.

Even though students seem to be adequately prepared for the workplace by the institution, the promotion of a curriculum that enables

students to compete and collaborate with other global cohorts is another way of broadening participation in the higher education system. Partnerships, collaboration, benchmarking, and competition among universities create opportunities for students to enhance their chances for academic and personal success. This being said, the study results showed that only a small number of current programmes at the participating institution engage in collaborative efforts to ensure the quality of their standards and to learn the requirements for global citizens who are able to solve problems in varying situations.

Although the results of the present study indicate that a differentiated institutional curriculum embraces student diversity through varied teaching and assessment approaches, some of the students from disadvantaged high schools might still be at a disadvantage. For instance, those students who had not previously been exposed to computers struggled to complete their qualifications on time, as the mode of teaching and learning is not differentially paced. For some students, translation of difficult concepts into different languages are aspects that contribute to their failure. What also became evident was that extended programmes open access for students' participation as well as a better grounding for access to articulation.

Literature revealed that diversification and differentiation have not effectively redressed inequalities in higher institutions. Instead, it has contributed to promoting a hierarchical gap and creating a categorisation of institutions into elite institutions and others that are at the lower levels of the hierarchy (see Marginson 2016b). The revelation is that at different institutions, even though higher institutions of learning are operating under a unified education system, attention was not given to resources and facilities which some lack, so that they would all start from a level that would allow all that needed to be changed to implement differentiation in a uniform way. Some of the institutions were expected to implement policies without being given enough financial support and they had to operate with poor infra-structural facilities, while others were at a level which allowed them to attend to the transformation and differentiation agendas without the challenge of resources. Such inequalities are seen to have inhibited the differentiation agenda and differentiation has not impacted immensely on development, innovation and growth as expected. Furthermore, the labour market selection processes also favour students who come from elite universities. Due to the focus on commercialisation and competition with regards to institutional ranking, which takes precedence over a people-first empowerment, South Africa is still facing

a challenge with regard to socio-economic growth. As a result, imbalances are still wide. Differentiation has also shown an increased competition in the attraction of funding. The focus on graduate attributes that enable students the opportunity to be absorbed in the labour market more readily is also affected by the mentioned imbalance.

Conclusion

It may be concluded that since there are different stakeholders who all want their needs fulfilled, curriculum differentiation and institutional differentiation in higher education is necessary. Thus, in order to sustain high standards and quality in higher education, policies around diversification and differentiation need to strengthen support to institutions that are at the lower levels of the hierarchy, in order to be able to advance the goals of a differentiated education system and contribute more towards innovation, massive development of students, and economic growth. Furthermore, UoTs, with their different missions, should be allowed to work on their strengths and performance in core areas and should not be measured with the same measuring stick as that of traditional or comprehensive universities.

It may also be concluded that different programmes and the variety of learning and blended learning curriculum approaches that are employed in the context of the UoT under study have in some measure enhanced learning and the level of understanding of diverse groups of students. The introduction of higher certificates in a specified UoT plays a role in advancing the differentiation agenda and in increasing the participation of students from disadvantaged backgrounds. This, however, still needs to be increased. It may further be concluded that the application of knowledge and skills through service learning and WIL have supported the differentiation agenda, since these activities give students an opportunity to engage with industries and other stakeholders to enable them to apply their knowledge and skills in the real world.

Furthermore, a conclusion may be drawn that UoTs are seemingly moving in the right direction through advancing the mandate of a differentiated curriculum by, *inter alia,* addressing inequalities and solving socio-economic problems. Also, the integration of graduate attributes and community engagement contributes towards enhancing a differentiated curriculum. Learning and teaching activities that challenge students to solve problems, to reason and to

engage with the real world, assist students to emerge as responsible and productive citizens who can function effectively in the civic space and the world of work. However, much still needs to be done to advance opportunities for more students to be able to match international standards. One might also conclude that curriculum differentiation, in response to social justice issues, needs to consider the promotion of multilingualism without compromising the learning of content knowledge.

It is thus recommended that institutions of higher learning that still lack resources and better facilities should be improved so that they can fulfil the differentiation mandate effectively and contribute more effectively towards innovation, economic growth, and social development.

Implications

The implications of the present study for a differentiated curriculum within the UoT context involve at least four issues. These are that it should,

(a) employ a variety of teaching and learning approaches that may be time-consuming, but most worthy of accommodating students with different needs in the longer term;

(b) invite different opinions and different learning activities that deepen student learning of curriculum processes and content – students thus do not have to learn the same content in the same ways;

(c) increase the time available to embrace the variety of learning tasks and activities to promote student engagement as engaged students are more successful than disengaged peers; and

(d) develop different knowledge types that are complementary, implying that varying ideas, emanating from different groups' backgrounds and perspectives, need to be supported by 'objective' knowledge based on theories and principles.

In the final analysis it is suggested that the differentiation of institutional curricula, particularly at UoTs, might be effectively promoted by employing a differentiated approach to students, their learning, the learning content, and the way student learning is facilitated.

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