Building a Research Culture from Scratch at a University of Technology

Dr. Bernadette J Johnson

Vaal University of Technology
bernadette@vut.ac.za

Professor Alwyn H Louw

Vaal University of Technology
alwyn@vut.ac.za

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Abstract

Universities of Technology in South Africa have emerged from a low research base. Despite this, it is argued that it is possible to develop a research culture at such institutions especially through Research Communities of Practice. This is evident from the data analysed of Research Capacity Development Programmes hosted at the institution from 2008 to 2011. The results show that a research culture is emerging at the institution but that for a research culture to be institutionalised, institutional attributes need to be strengthened. Of particular importance is the development of the research leadership of Heads of Department.

1. Introduction

Building research in "new universities" (Cheetham 2007; Lewis & Simmons 2010) such as polytechnics or in departments or faculties (Pratt, Margaritis & Coy 1999; Sunder 2008; Hill & Haigh 2012) lacking in a rich research tradition requires the vital development of a research culture. Emerging from a low research base, South Africa's universities of technology (UoTs) (similar to polytechnics in the UK), are challenged in their activation and development of a research culture. Professor Cheetham, Pro-Vice Chancellor: Research at the University of Western Sydney, a new university, stated when addressing the institution's Senate that:

> *Culture is whole behaviour that has essentially been learned or cultivated. You only have to think of our own cultures in music, art and science...the moment we stand still,…fail to keep learning,…to keep cultivating, our knowledge and experience falls behind the status quo. The fact that this "culture" has to be learned makes it…more difficult to change…; especially if it has become entrenched...remained static/uncultivated for some time (2007,4-5).*

A similar tendency is evident within South Africa's technikons, which from 2004 became universities of technology (UoTs) or "New Generation Universities". Technikons and their predecessors, the colleges for advanced technical education, were focused on imparting technological skills to prepare students for industry. Staff at these institutions focused on transferring their technology expertise to students for employment in industry. In this way teaching was very similar to teaching in primary or secondary schools in which research is not required to impart knowledge (Cheetham 2007,3). Neither basic nor fundamental research was undertaken at these institutions, but rather at established research universities. Where research was undertaken in technikons, the focus was on applying knowledge and not on the generation thereof. This epistemological difference fundamentally distinguished universities from technikons in South Africa. Over time, reproducing existing knowledge and skills meant that a complacent non-research culture became entrenched within institutions. Without movement and development staff and institutions stand still and thereby risk becoming irrelevant in the global knowledge economy.

Becoming UoTs in 2004, due to the transformation of the South African Higher Education system, meant that technikons had to undertake research on a larger scale to live up to being recognised as universities. Building research cannot be limited to producing research outputs but needs to be recognised as a cultural movement focused on knowledge creation as the prerequisite to becoming a university (Farahbakhsh 2013,019-024; Muller n.d.,88). As the director of one of the research centres in Cooper's (2011) study indicated: "…to transform a specific environment from teaching to research is a major goal. It soaks up so much energy you won't believe it" (188). However, the major gap in

the policy discourse which remains an issue is that the epistemological foundations of UoTs were not part of the higher education transformation discourse. System and institutional restructuring tended to be focused upon changing the system from a fragmented apartheid higher education system into a single coordinated system (Higher Education Act; Mthembu 2013) and not on understanding the role and purpose of the different types of higher education institutions. As a consequence there is a dearth of knowledge in understanding the research capacity development in the context of a UoT.

Becoming a university implies the generation of knowledge and thus developing a research culture. This article is informed by the quest to gain an understanding into how a research culture can be developed in a New Generation University? The study reports on data collected about Research Capacity Development Programmes (RCDP) from 2008 to 2011 at a single institution. Data collection consisted of institutional data on the profile of academic staff at the university, evaluation questionnaires to participants in the RCDP and documentary analysis of RCDP reports and related institutional documents. From the findings of this study it is argued that without understanding the requirements to enable the development of a research culture, institutional RCDP initiatives will be insufficient to enable the institutionalisation of a research culture.

2. Conceptualising "Research Culture"

"Culture" comes from the Latin word cultura "to cultivate". Culture refers to patterns of human activity and the symbolic structures that give such activity significance. It is a deep and holistic expression of human activity learnt over time. It is deeply manifest in our choice of dress, music and recreation (Cheetham 2007,4). In this way, culture influences all our choices, including personal choices and how we display these choices. Referring to organisational culture, Pratt, Margaritis and Coy (1999) state: "Culture is the commonly held and relatively stable beliefs, attitudes and values that exist within the organisation" (4; Muller n.d.,89).

Organisational contexts give expression to culture or sub-cultures in an institution. Similar to individual choices and practices, organisational patterns of behaviour and choices in structures and activities give expression to the larger organisational context. Clark (cited in Dill 2012) states that universities are "culturally loaded organisations" with discipline-based cultural typology captured in their distinct "sagas" expressed through the stories and belief systems developed over time.

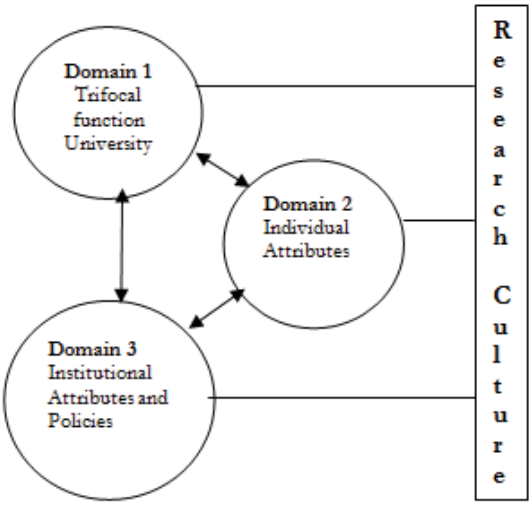
In educational institutions in which no or a low research culture or practice is evident, a situation which may entail repetition of existing knowledge and skills may, over time, reproduce a stagnant culture in which inquiry and critical discourse may not be valued (Cheetham 2007, 3). In these contexts, consideration must be given to the larger internal organisational context that might militate against building an inquiring organisational culture. This may entail the state of the physical environment, the disposition, attitudes and perceptions of staff, the level of academic programme offerings, the academic profile of staff and leadership support for research.

Bland and Ruffin (1992 cited in Pratt et al 1999,4; also cited in Salazar-Clemena & Almonte-Acosta n.d., 4; cited in Muller n.d.,91-95) refer to 12 factors that are evident in high-performing research environments, one of these being, research culture. Other factors are clear goals for coordination, research emphasis, positive group climate, decentralised organisation, participative governance, frequent communication, resourcing, group age, size and diversity, appropriate rewards, recruitment emphasis and leadership in both research and management.

In an organisational context, the development of a research culture requires various levels of organisational change. Schein (in Madu, n.d.,1-9) describes these as firstly, he most visible level of culture created by surroundings, behavioural patterns and everyday intenal organisational workings (Muller, n.d.,89).Secondly, the next level of culture is the operationalization of organisational values, evident in daily behaviour, and thirdly,the deepest level of culture is the 'taking on or blending' of organisational and individuals' beliefs (Madu, n.d.,1-9; Muller, n.d.,89).

Salazar-Clemena & Almonte-Acosta (n.d) propose a framework for the development of a research culture composed of three domains and their interrelations.

Figure 1: Framework for Understanding Research Culture in Philippine HEIs (Cited in Salazar-Clemena & Almonte-Acosta (n.d,5)



Domain 1 is concerned with the three missions of the university: teaching, research and community service (also referred to as community engagement). Domain 2 is concerned with the individual's "knowledge, skills, values and attitudes that the faculty members possess relative to the conduct of research" . Domain 3 is focused on what the institution puts in place to enable research. Interrelations of these domains comes into sharp focus with reference to research performance and assessment (Auranen & Nieminen, 2010; Billot, 2011) particularly research incentives (Auranen & Nieminen, 2010) and the development of the entrepreneurial university (Dill, 2012).

To become a "university", research needs to be lived implicitly (Billiot, 2007,37-45) not only through undertaking research projects but also through developing the scholarship of teaching and learning. Healey (2000) argues that: "The scholarship of teaching involves engagement with research into teaching and learning, critical reflection of practice, and communication and dissemination about the practice of one's subject" or "discipline-based pedagogic research". Visser-Wijnveen, Van Driel, Van der Rijst, Verloop & Visser (2010) further demonstrate, from academics' views, five profiles of the teaching and research nexus as, to teach research, make research results known, show what it means to be a researcher, help conduct research and provide research experience.

Informed by the notion of research culture, the article aims to explore the process of stimulating and developing a research culture from a point where none existed before. Lewis and Simmons (2010,337-344) posit that the structure of research needs to be created within the historical, political and cultural context of the educational setting. The concern here is that even though research may be stimulated without it being infused into the institution's nerve system, initial stimuli are likely to be besieged by normative inertia.

While the creation of a research culture can be thought of as being constructivist in nature, which implies the individual's agency in constructing his or her identity, this may be constrained by institutional structures and cultures. Gidden's structuration theory (Giddens, 1984) is concerned with the relations between structure and agencies which are seen simultaneously as the moment of enactment of social processes through which "knowledgeable" human agents are produced who have internalised social structure (these are the rules of social interactions within the organisation) and have been able to put them into practice (Dison, 2007,94). While structure and agency are not necessarily distinct and isolated, they are also not always in unison. Without over-emphasising agency, this study is guided by a strong belief in the agency of individuals, their collective efforts and research leadership in creating critical mass and movement against stagnant cultures. Stoner, Freeman and Gilbert (cited in Muller, n.d.) support the interrelationships between the various role-players and describe organisational culture as a powerful force to bring about change but which can also play a role in 'resistance to change'. Understanding what is entailed in building a research culture may involve understanding what is required and what might inhibit its development.

According to the Organisation for Economic Cooperation and Development (OECD) research culture is:

... creative work undertaken on a systematic basis...to increase the stock of knowledge, including knowledge of man(kind), culture and society, and the use of this stock of knowledge to devise new applications (cited in Cheetham, 2007,4).

If culture is to be understood as patterns of meaning translated into beliefs and symbols, research culture is a creative, inquiring, challenging and continual learning system (Schein, 1984, 3-16; Muller, n.d.,89). When this becomes unquestioned assumed praxis, it permeates. Once research becomes part of institutional culture evident in staff talk, research activity and individual commitments, it can translate into shared behaviour (Billot, 2011,37-46; Roxa, Martensson & Alveteg, 2010, 99-111; Roberson, 2012, 885-904). Muller confirms (n.d., 90) that research culture needs to be evident in the overall institutional alignment.

Cheetham (2007) describes research culture as "learned behaviour from secondary school and is enhanced as we progress through our degrees and careers". The organisational research culture is a systematic, creative process to embrace the increase in knowledge for application and innovation in daily living. Research culture is a shared commitment to contribute to the achievement of the overall goals of the institution. It is an integrated collaborative process which guides behaviour and decisions in everyday life. The research culture is the structure that gives that behaviour significance and that allows us to understand and evaluate the research activity. The overall alignment of a research culture with the organisational goals will provide a foundation for shared commitment to attain the organisational goals (Cheetham, 2007, 5).

Kokt (2009, 30-39) states that research needs to be integral to academics' daily routine. A positive group climate for exchange and support needs to correlate with research performance and goal achievement (Muller n.d., 92).

Inside the university, research culture provides structure. It is the cultural structure based on what staff and student behaviour allows for knowledge transfer and dissemination. Research culture relies on collaborative engagement and is a multifaceted process to enhance and promote scholarship. Such a process would include institutional policies and systems to support and incentivise the development of research throughout the institution and within undergraduate studies for example through collaborative problem-based research (Garde-Hansen & Calvert, 2007) and postgraduate work (Studman & Tsheko, 2007, 76; Pollock, 2008) through, for example, work-based research (Johnson & Cooper, 2013). Dyason, Lategan, and Mpako-Ntusi (2010) share the importance of systematic effort and structure as they indicate that if individual research initiatives are in place, this does not necessarily mean that these initiatives will automatically translate into institutional research culture. Structure provides the cultural context to enable continuous development. Without researching and learning academics are at risk of their teaching diminishing imperceptibly and inexorably in social relevance. Critical across contexts is that culture entails socialisation in structural and cultural institutional dimensions. These include "traditions, customs and practices, transmitted knowledge, beliefs, morals and rules of conducts, as well as the linguistic and symbolic forms of communication and the meanings" shared by these communities, as indicated by Becher and Trowler (2001,47 cited in Dison, 2007, 95) and supported by Roxa, Martensson and Alveteg (2010, 99-111). Wenger's (1998) notion of Communities of Practice (CoP) and more specifically Research Communities of Practice (RCoP) (Hill & Haigh, 2012; Maritz, Visagie, & Johnson, in press) remain an accepted vehicle through which new behaviour, beliefs, traditions, values and knowledge exchange can be created (Roxa, Martenson, Alveteg, 2010, 99-111). Ng and Pemberton (2012) identify 20 ways in which the CoP model adds value to research development. These are presented in table 1.

Table 1: Value of Community of Practice

1. Autonomy and freedom to think beyond	6.Alternative perspective and cross-pollination of ideas	11. Time and energy saving	16.Networking, information sharing and updates
2. Sources of ideas	7.Overcoming intellectual isolation	12.An informal ground for learning and training.	17. Support and guidance
3. Sounding board	8.Move toward collaborative research	13.Fostering of tangible returns	18. Sense of belonging
4. Intellectual discussion	9. Response to research pressure	14. Driving research	19. Identity
5. Like-mindedness	10. Synergy and leverage	15. Opportunities to meet	20. Intrinsic fulfilment

(Cited in Ng & Pemberton 2012:9)

Other research capacity-building approaches include strengthening networks and collaboration practices (Tynan & Garbett, 2007; Lewis & Simmons, 2010; Smit, Williamson & Padayachee, 2013), offering workshops and capacity

building programmes (Dyason, Lategan and Mpako-Ntusi, 2010; Murray & Pollard, 2011) and research centres (Krishna, 2013).

Developing research culture is challenging globally. Challenges include improved research performance, improved quality and not just quantity of research outputs, determining the relatively desired relationship between teaching and research, strengthening collaborative practices and strengthening personal and organisational characteristics (Lewis & Simmons, 2010). Deepening the leadership of research culture remains critical as highlighted by Bland and Ruffin (1992) and Pratt et al. (1999) in their study on success in research culture development.

3. Research Methodology

The research was qualitative and descriptive. This implies that the focus in on studying the phenomena in its natural setting and providing in-depth information (Houser 2012,279; Botma, Greeff, Mulaudzi & Wright, 2011,108-122). The research allowed the researchers to engage with identifying the *how* of the research initiatives as experienced by academics (Houser, 2012, 417-449). The descriptiveness of the constructs and the trends allowed the researcher to describe and to ascertain explanations for these patterns happening within the 'movability' of VUT during the development of a research culture (Cilliers & Terblanche, 2010), implying the contextual nature of the study (Houser, 2012,420).

3.1 Research objectives

The research objectives were:

- to describe the experiences of the participants of the research capacity building initiatives
- to identify factors and characteristics that foster the culture of research at a UoT
- to provide recommendations for further research and strategic decisions with regard to research development.

3.2 Population and sampling

According to Polit and Hungler (1997,43), the population used in the research can be defined as the aggregate or totality of all the objects or subjects that conform to a set of specifications. The target population for this study was VUT employees.

The researchers used convenience sampling during the collection of the data. The sampling method was based on the availability and accessibility of the participants (Houster, 2012,183-187). The participants willingly participated in the sharing of the information with reference to their research capacity development experience at VUT from 2008 to2011, the initial period of RCDP initiatives. Confidentiality and anonymity of the participants was maintained.

Textual information and descriptive statistics, with specific emphasise on academic staff profile, were also gathered.

3.3 Data collection

Data were gathered relevant to exploring the three domains as discussed in the conceptual framework.

Data pertaining to Domains 1 and 2 were drawn from institutional documents and descriptive statistics from Human Resource Department staff records, and from Institutional Planning and the Research Office data were also collected to describe and summarise the population of VUT from 2008 to 2013.

Domain 2 was focused on academics' experience as expressed in their written formats on completion of the various research capacity development initiatives. These research development initiatives included the following: Women in Research, Creative Writing Workshop, Qualitative and Quantitative Methodology workshops and Research Methodology workshops. Group interviews were conducted after the workshops. This allowed the participants to share their experiences (Houser, 2012, 232-233). Participants were asked how they experienced the workshop and how the workshop had changed them.

3.4 Data analysis

Qualitative content analysis of the text was used. This allowed the researchers to make interpretations of participants' experience. The text as provided by the participants was used to provide a brief description of the experience of the participants. Standard descriptive statistics were used to describe and summarise the population of VUT from 2008 to 2013.

4. Context of the Study

The Vaal University of Technology was founded during 1966 as a College for Advanced Technical Education with 78 students, financed largely by ISCOR, at the time a state-owned iron and steel manufacturing company. As part of the restructuring of the higher education landscape in South Africa during 2004, the institution was renamed a UoT. As discussed by Louw and Moloi (2013) the institution is "moving towards becoming an entrepreneurial university in order to bring about practical solutions for the socio-economic needs of the surrounding communities".

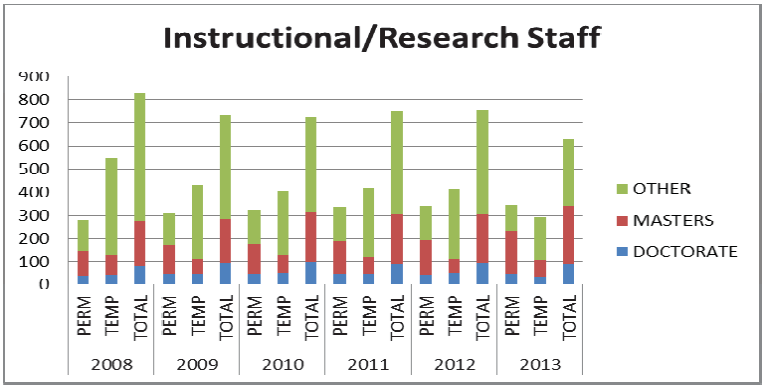
5. Result and Discussion

The results are categorised according to the three domains in the framework in Figure 1 according to. The results demonstrate the tension experienced by academics in developing their individual attributes, between the legacy of the institutional environment and the emergence of a new institutional environment.

5.1 Trifocal function of the University: Domain 1

The expansion of the University mission into Research and Community Engagement in addition to Teaching and Learning is assumed in the notion of a UoT. Embracing all threes missions is however in tension with its institutional legacies. It is in regard to this that impediments to the development of a research culture are evident at VUT. Firstly, most of the staff are temporary. The year 2013 was the first in which the investment in developing permanent posts within the institution started maturing, with permanent staff numbers overtaking temporary. The implication of this has been that it is very difficult to ensure a stable environment in which staff are invested.

Figure 2: Profile of Instructional/Research Staff at VUT: 2008-2013



Secondly, the number of staff with doctoral qualifications is small, with most staff with Master's or qualifications below Master's. The trend however shows that more staff are completing their Master's degrees.

Thirdly, the total number of academic staff is only slightly over 600 staff members with a student population of 22 000 students, indicating a high student/staff ratio. This indicates that pressure is predominantly on staff to teach and less on research. The extent to which more time is afforded by research may however differ across the institution.

Fourthly, the campus was initially built for 5000 students. Over time new investments have been made in infrastructure but this has remained inadequate in creating spaces that enable research culture development. The

architecture of the physical infrastructure/buildings is like a maze, with very few open spaces between buildings to allow for more space to breathe and develop. Except for a very small cafeteria which in fact is meant for student training in hospitality, there are no social spaces for engagement for staff across the institution. Lecturers tend to come in and out of the institution. Essentially the space was created to deliver training and not to stimulate debate and social interaction among staff to foster trust, understanding and collegiality. Tea rooms as a space for staff to recharge between lecturers are virtually absent (Informal discussions with academic).

Within this context, capacity developments which bring academics together to learn together and reflect collectively have contextual significance in the current technikon environment.

5.2 Institutional Attributes: Domain 3

In building individual attributes the institution has developed its attributes in offering research capacity development programmes. RCDPs were focused on getting staff to move, to inspire staff and to show them that research can be undertaken by all. Programmes are also offered to staff in their immediate contexts to enable research culture development. A number of initiatives have been put in place. These include the Hub and Spokes Model, which is focused on growing the next generation of scholars, the SANTRUST/VUT staff development programme which supports staff members who are studying towards their doctoral qualifications, and the Women in Research Initiative which provided focused and sustained support to women to develop their research careers. Other workshops are: Research Methodology, Creative Writing, Writing for Publication and Writing Funding Proposals.

The Hub and Spokes Model, the SANTRUST/VUT staff development programme and the Women in Research Programme are conceptualised within Lave and Wenger's Community of Practice Model (CoP). The CoP or the socio-cultural model of Situated Learning remains an important approach through which collective learning can be facilitated in a domain of shared interest, and critical mass can be created towards building a research culture, as discussed by Maritz, Visage and Johnson (in press).

According to Lave and Wenger (1991 cited in Dison, 2007),

Through a process of increasingly centripetal participation…they (newcomers) develop a changing understanding of practice over time from improvised opportunities to participate peripherally in on-going activities of the community….

In this sense the CoP model contritues to building research at VUT.

Institutional attributes and policies also had to be developed. These developments are cultural structures that give significance and ascribe value to research, but this does not mean that the individuals will necessarily participate in cultivating a research culture. Significant elements of these policy initiatives include: incentive research outputs including supervision incentives, strengthening research award systems, enabling national and international travel, aggressively recruiting postdoctoral fellows to further stimulate a scholarship discourse alongside encouraging attracting visiting professors, scholars and lecturers to the institution. It requires the participation of whole being - mind, body and soul - in reflecting on past and present behaviour, moving away from static and uncultivated behaviour into creating for oneself and others a new way of being.

5.3 Individual Attributes: Domain 2

Academics' experience is relevant to Domain 2. These results highlight the interrelation between academics' individual attributes and their experience of institutional attributes in the context of research culture development.

5.3.1 Developing confidence to do research

During a creative writing workshop participants were asked to share their experiences of attending the workshop and discuss the extent to which it enabled them to embark on academic writing.

Participants shared how the research initiatives led to the initial steps of creating a research climate. Kokt (2009, 30-39) refers to educational institutions offering an organisational culture where the members of the organisation have a shared commitment towards the unification of the mission, beliefs and the values of the central focus of the institution. A further description is provided where the organisational culture commits the character of the institution to achieve and become bigger.

The participants shared how the initiatives enabled them to believe in their personal research abilities**.** One participant stated:

To understand how to clearly articulate my thoughts and ideas in writing as well as applying it in writing my research thesis…

Another participant added:

To be able to turn in creatively written articles for journals and to be a better writer…

Further feedback and sharing highlighted:

I am in the process of writing a series of articles based on my master's research. I would like to make good progress with my second envisioned article.

The overall confidence was notably enhanced for all participants. From their experience specifically in the Woman in Research workshop, academics co-published on their experience of research development at VUT and discussed how their experience assisted in building their confidence through the support and encouragement provided by their colleagues and by the institution, which resulted in the following articles published: Garnett & Mohammed (2012) and Selepe, Grobler, Dicks & Oldewage-Theron (2012). Participants began to have an understanding of research and began to develop a wider scope of possibilities for research through collectively reflecting on their experience as part of building their confidence in research in their respective fields of inquiry as well as pursuing their research ambitions.

5.3.2 Building confidence through support

Inter-personal relations formed within the group played a critical role in encouraging learning and sharing. Shared experiences towards group cohesion are in support of creating a culture as a "shared system and commitment". A strong organisational culture of support and sharing influences the acceptance of the values and the integration of research activities (Kokt, 2009, 30-39; Pratt et al., 1999).

According to a participant:

As a novice in writing articles, I would like to get to know the ropes through experienced researchers. I foresee that I will do more qualitative/reflexive research in the future and a creative writing workshop seems to be an appropriate training tool to help me put the right building blocks in place.

From another workshop a participant stated:

By coming to these workshops, my colleagues support me and encourage me to keep moving and keep working towards publishing my work. Without these workshops and their support, I would not have the courage to keep going.

5.3.3 The importance of collaborating

A positive group climate leading to the exchange of ideas, research sharing and performance are central concepts in establishing a research culture (Muller, n.d., 92). Team work, Folch and Ion (2009) argue, is needed for higher education institutions to enhance researchers' positive experience of collaboration.

Collaboration was experienced positively during the Research Methodology workshops in which experienced and novice researchers participated. Despite this, researchers felt that the organisational hierarchies were not present in the learning experience and that this allowed for group cohesion as enhanced by honest and open sharing (Tynan & Garbett, 2007, 411-424; Ng & Pemberton, 2012, 9).

Participants further expressed their shared views that little collaboration and spaces are available to encourage research between colleagues and departments within the institution. Participation at departmental level is a characteristic of support and sharing of critical information. While an integrated approach is evident centrally, this seems to be isolated, which leads to fragmented engagement.

The view is summarized in the following statement:

Linked to this is the view that there is little space and encouragement for collaborative research.

Another participant stated:

In our departments we actually do not know what others are doing in the institution. What research are they doing? We operate in silos. We do our work, teach and then go home. We hardly make time to discuss…

Participants suggest that more time for research can be created through research engagement with other universities to increase the research profile of the institution. This could be mutually beneficial with VUT offering strong industrial-partner collaborations and research universities offering their expertise in research collaboration and staff development.

In research environments where academics are still hesitant about their research abilities, collaborative and team research projects go a long way to build confidence and experience. Gibbons (cited in Hazelkorn, 2003:10-11) supports the notion of interdisciplinary and collaborative work towards the achievement of scholarship. These sentiments are echoed in the literature (Hazelkorn, 2003,1-18; Ostrom, Bitner, Brown, Burkhard, Goul, Smith-Daniels, Demirkan & Rabinovich, 2010, 4-6).

5.3.4 The need for research leadership

Participants shared their opinions on the willingness and abilities of senior personnel to engage in the world of research. One participant expressed the following:

The absence of HODs with PhDs who are able to encourage research was noted. In cases where such senior academics are themselves not researchers, it is difficult to get their support.

Another participant noted:

A further problem is that these HODs are often themselves close to retirement and are not willing to adjust to the new imperative of research.

The critical importance of leadership with both research and management skills are an essential feature for higher education (Muller, n.d., 95).

Leading change towards achieving a research culture is critical in developing coherence in systematically moving an organisation towards creating a research culture. Institutional leaders, deans, heads of departments and senior academics need to be talking, engaging, supporting and encouraging research wherever they are (Dilshad, Hameed & Malik, 2012:102-106). Without their drive and passion, static cultures can subsume any new stimulus to grow a research culture. The leaders of the organisation are central in shaping the climate and culture of the organisation (Madu, 2011: 1-9).

5.3.5 Understanding the role of supervisor and student

Supervision is central to academic life and requires intense work with the candidate and colleagues as part of the supervisory team. Supervision can entail an interpersonal, academic relationship involving learning and gaining the experience under the auspices of an esteemed academic (Amundsen & McAlpine, 2009: 331-342).Van der Westhuizen (2009:85-97) states that the roles of the supervisors and students may become unclear and diffused.

The participants are of the opinion that there is little common understanding about the roles of supervisors and supervisees. One of the participants stated succinctly:

Rights and expectations must be clarified...workshops are needed. Even as a postgraduate student, I find myself in unproductive supervisor/supervisee relationships

Another participant indicated:

The supervisory problem is not just with the students who are underprepared for postgraduate study, but also with supervisors who are still new to research…We need experienced supervisors...

A similar sentiment of scarcity of qualified supervisors is further echoed by another participant:

There were few qualified academics at VUT able to supervise studies…We experience the same problem as students…we have to find supervisors at other campuses...

Having too few qualified supervisors is evident in instructional/research staff profiles as indicated in Figure 1. This further highlights that despite having a doctoral qualification, supervisory practice can be a new endeavour. In the context of a low research culture understanding the supervisory relationship also has to be developed.

Van der Westhuizen (2009:85-97) supports the notion of mentoring new supervisors by experienced supervisors to develop a research culture. Joint supervision can further enhance learning. The quality of supervision is an interactional complex relationship expressed in the success of the supervisor meeting the needs of the student and the students' expectations to meet their own responsibilities in postgraduate study (Kam, 1997, 81-103).

Participants recognise that a number of postgraduate supervision workshops took place but indicate that more are needed. A participant stated:

> *Very little advice and guidance is given to students as to how to derive maximum benefit from supervision, how to recognize an unworkable relationship, when to get out, when to persevere...*

Although participants are themselves academics, the supervisor/supervisee relationship returns them to the role of student potentially confusing the roles, rights and responsibilities. Success or failure in postgraduate study can be tied up with empowerment and disempowerment as an employee, as stated here:

> *I need to complete my Master's qualification so that I can become a permanent academic…*

Pratt et al. (1999) indicate that in the process of developing a research culture, it is critical for the institution to indicate clearly what is required for promotion and for academics to retain their jobs. This is a critical method for movement towards a research culture.

5.3.6 The importance of valuing and appreciating staff

Human engagement and support are critical to sustain meaningful contributions of the success in higher education (Jucker, 2011, 39-60). Jucker (2011,44) writes: "we need to live and be that change in every setting".

Participants felt that the institution's recognition and appreciation of staff was not always apparent. While there was appreciation for the monetary rewards put in place for special achievements (Dilshad, Hameed & Malik, 2012, 102-106), this did not reach out to large numbers who were committed to the institution. More frequent and widespread recognition of staff contributions is required and these did not have to be monetary. Studmann and Nnunu Tsheko (2007,76) support monetary incentives to motivate research development. Warmth, and support too, are critical enabling factors (Muller, n.d) which need to be diffused within the organisational culture to further support research culture development.

Participants noted executives' drive to promote research, address staff concerns and offer encouragement and incentives for research. These were greatly appreciated as indicated by a participant:

> *I really appreciate what the Research Office has done for me. I have been exposed to so much in research... I am able to travel all over the world. I am learning and growing here at VUT…*

Another participant indicated:

> *I am amazed at how some staff don't even know what is happening with Research at VUT. They have all these opportunities to grow but some people just don't take it…Why? When I tell my colleagues at other institutions what is happening at VUT…They are amazed. They cannot believe the kind of support we get…*

One of the efforts to promote research is to provide the opportunity for sabbatical leave. Sabbatical leave can expedite qualification completion. Although expressed as such, the necessary support is not always evident. As a participant stated:

> *While there is verbal commitment to sabbatical leave, there is little practical commitment...The heads of departments are rarely willing to grant sabbatical leave.*

There was also uncertainty as to who was responsible for finding a replacement should a staff member go on leave. As one participant stated:

We do not feel that we are able or entitled to take sabbaticals especially if they could not find an appropriate replacement.

The concerns about sabbatical leave were also closely linked with the inability to secure time off to complete a near-complete qualification.

Career development and promotion prospective are integral parts of research and academic awards at higher education institutions. Participants identified it as vital to being an academic. Participants also indicated that little if any guidance is received on how to develop a career path, what options were available and where to go for guidance on this. Muller (year:96) confirms a direct relationship between a strong climate for career development and research excellence.

5.3.7 The need to experience research daily

Participants stated that they wish to see and feel the application value of research in their everyday academic living. As a participant expressed:

We talk about research here in these workshops but we do not talk about research in the department…It's a different world in the department…Most of the time it's about teaching, student problems and administration.

The need for integrating academic teaching and research experience is supported by Kokt (2009, 30-39), who argues that research is integral to academics' daily routine.

5.3.8 Balancing teaching and research

Time is critical for effective engagement in research (Studmann & Nnunu Tsheko, 2007:76); this is often reflected in institutions' and individuals' grappling with the balance between teaching and research, often experienced as the subordination of research to teaching (Visser-Wijnveen, Van Driel, Van der Rijst, Verloop & Visser, 2010, 195, 198). All participants stressed the importance of identifying research time. A participant stated:

We do not have time to do research. Research time is not even talked about, let alone created...but yet we are expected to complete our qualification and to do research…How can we?

Without adequate time, research activities can be limited, even though research time is identified. A further challenge is to keep to the schedule, given the scope of responsibilities and roles experienced by participants.

Conflicting views about teaching time were identified. While some participants were clear that time-tables and teaching times were organized so that research time was suitably accommodated, others felt they were spending far too much time teaching with no time for research. Indeed there was a view that teaching time was sometimes so demanding that it gave the impression that research was not required. This may be an indication that institutional attributes are not necessarily homogeneous. In faculties in which research is driven by the leadership, more research time may be created. Kokt (2009,35-36) supports the notion of the alignment of research at a departmental level. A critical factor is that the blend of teaching and research time varies across departments. This inequality needs to be resolved. Relevant to the issue of time was the view that staff should not be expected to be available to students at all times. Students tended to ignore staff availability times posted on office doors. The following comments demonstrate how they felt:

We do not have the right to turn away students who arrived for help at inconvenient times. They needed to feel that they could enforce 'not available to students' time.

Another participant stated:

Students have too much power. They seem to have more power than us…

The findings of Studmann and Nnunu Tsheko (2007,76) state that to be given time to do research would be an incentive.

5.3.9 Awakening of self-responsibility: Women's voices

Women academics in the Woman in Research CoP expressed their views on growing professionally and personally in academia. Decker, Hemmerling and Lankoade (2011) support the role of women in research participation (2109-2114) and the empowerment of women in achieving women's rights, health and development (Aziz, Shams & Khan, 2011:303-323). Participants were able to confront themselves in deeply reflective ways which allowed them to identify ways they could take responsibility for their research attributes. As stated:

> *By being part of Women in Research…we share our experiences as women academics…We support one another to develop and become empowered women…*

Another participant stated:

> *I did not know some of the women in the institution, until I joined Women in Research…Now we are friends…I can call them between workshops and discuss what worries me…Now I feel so much more supported in doing research…*

A positive platform of encouragement to grow professionally and personally was created. This experience is discussed in the literature generated through this RCoP as elaborated on by Garnett and Mohamed (2012: 81-90) and Selepe, Grobler, Dicks and Oldewage-Theron (2012:73-82). The women academics discovered they were not alone in the challenges of publishing which encouraged them to continue. Such networks are often particularly important as women academics tend to be loaded with administrative work (Tessens, White & Web, 2011), and require supportive space to enable progress in their careers.

6. Conclusion

The study showed that departmental leadership and understanding in the development of a research culture is required to further enable the development of individual attributes and institutional attributes. The findings show that positive and an enthusiastic attitude in staff towards research has emerged within the context of institutional research development. These developments have enabled individuals' confidence and interest to undertake research through the support and collaborative partnerships they have been able to build through these initiatives. This shows that through the development of individuals' attributes, as discussed in Domain 2, these are enabled through the development of the institution's attributes being developed within Domain 3. However, the development of institutional and individual attributes requires support from all levels of university leadership. While senior leadership support is highlighted in the literature, this study emphasises the importance of departmental leadership in the context of becoming a university. Without departmental leadership through the development of institutional attributes in academics' immediate contexts and beliefs that support research development and cultural and structural changes in research, the development of a research culture may be constrained and frustrated, potentially disabling it. Further research would need to consider the interrelations between the 3 Domains with particular reference to the ways in which the Trifocal Institutional Missions create space for varied interpretations and understandings in the institution and its leadership, particularly at head of departmental level, grappling with identity formation in the context of creating a New University. Without strengthening shared understandings of research culture development, individuals and collectives, in attempting to create a research culture, may become engulfed by stasis and complacency. As Sewell (1992, cited in Dison, 2007) aptly points out:

Human agents as "knowledgeable" and "enabled" implies that those agents are capable of putting their structurally formed capacities to work in creative ways. And if enough people…act in innovative ways, their action may transform the very structures that gave them the capacity to act.

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