

RESEARCH IN AN ESTABLISHED SOUTH AFRICAN UNIVERSITY

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The University of Natal was founded in 1910. It is thus 82 years old. Its origins are embedded in the old colonial South Africa, whose aims and objectives at the time of its founding were to perpetuate similar high educational standards found in the mother country. The university had been founded to meet the needs of the white population of the province in the new Union of South Africa.

During the course of its first forty years only slight attention was given to the training of postgraduate students. The emphasis was given to the training of undergraduates leading to bachelor and honours degrees. The majority of the graduates went abroad for any postgraduate training they wished to pursue. At that stage the research undertaken by the staff of the institution tended to be individual research. Prior to the last world war, research centered primarily on a greater understanding of the natural resources of the region and their utilization, e.g. minerals, flora, fauna, indigenous diseases, paleontology, anthropology and mining engineering, to name but a few activities. In those research areas where there were strong economic links, the research was undertaken by the industry concerned, e.g. Chamber of Mines - mining engineering, human physiology: State - agriculture, veterinary research. The staff of the established universities in those early years tended to undertake research on very much an individual basis, which seldom spilled over into postgraduate training. There were many outstanding researchers in this category, who were held in high regard in the international academic community, e.g. Broom and Dart in the field of Physical Anthropology; Schonland and Malan in Geophysics; Bews in Natal, internationally recognised for his work on the grasses of the world; the three Gear brothers for Medical research; and Solly Zuckerman, who later became Scientific Advisor to the British Prime Minister, to name but a few.

It was only after the second world war that the established South African universities developed a stronger research ethos which was associated with postgraduate training. This in part was as a result of the growing political isolation of this country through the implementation and legislation of apartheid laws entrenching this ideology into everyday life within South Africa. This resulted in diminishing numbers of white students going abroad for postgraduate studies and, at the same time, an increase in black students going abroad as they were denied access to the established universities in this country. In many ways this has had a very negative impact on the established universities whose students were at that stage predominantly white. The reason for this was that it led to inbreeding and restricted vision, as a result of the loss of contact with the outside academic community both within Africa as well as in other continents. The black postgraduate students completing their postgraduate degrees at that time were reluctant to return to South

African established universities as the opportunity for employment was minimal, due to the legislation imposed at that time restricting the so-call 'Open universities' as to who may teach and who may be taught - restricting both categories predominantly to whites. With the agreement by government in 1985 to permit the universities to choose who entered the university, either as staff or student, the situation changed considerably, even though at that time black postgraduates with considerable research experience were reluctant for obvious reasons to return. This situation has only been reversed in the past eighteen months.

One may well ask why research activities have featured so prominently in the established universities over the past thirty years. I believe there are a number of reasons. Government, through the Research Statutory Bodies, in the early eighties came to recognise a close correlation between expenditure on research and development and the potential for development within the country. This resulted in more finance becoming available for research in this period. There was a general view, recognised by the State, that South Africa as a nation could only succeed in achieving its goals in matters of health, economic strength and national security if it effectively deployed the available science and technology. There was the view expressed by State that it was only by sustained independent and creative investigation that the necessary knowledge and insight can be acquired for physical survival in a technological world. Further, the continued imposition of economic, scientific, technological and cultural boycotts and sanctions, formed the basis for further incentives for the initiation of essential research. The so-called open established universities, for ideological reasons, refused for the most part to become involved in strategic research, however financially tempting it was at the time.

I will now deal with research in the so-called established universities during the past decade. The responsibility and role of universities in respect of basic research are generally acknowledged worldwide. For example, within the United States of America more than 60% of all basic research is undertaken by universities. The position is much the same for this country. In contrast, there is a very small expenditure on research and development at established South African universities in that the business sector devotes more than 95% of the expenditure on R & D to its own research projects undertaken in-house, and only 2.7% to university research.

The University of Natal believes that the important role of universities in respect of research is emphasised by the fact that teaching, particularly in the advanced undergraduate years, and research are inseparably and symbiotically bound to one another. In this process universities train high-level person-power which is the lifeblood of all sectors of the nation.

The other important reason why universities, irrespective of whether they are traditional or not, give a high priority to research is that they have a unique task of training high-level person-power, and therefore they should be leaders within the country in the field of basic research which leads to training of personpower up to the doctorate level. This responsibility cannot be abdicated by universities. Further, universities should provide the intellectual environment which is an essential prerequisite for creativity and which caters for students with an enquiring mind.

However, universities have the responsibility for creating, preserving and transmitting to the wider community new knowledge derived from research.

Basic research, which forms the majority of university research and is at the frontiers of the discipline, hopefully is likely to lead to valuable new discoveries, which should be evaluated further by the institution as to its potential for application to the wider community. All too often the findings of research during postgraduate training remain in a thesis on a university library shelf, never to be published nor considered in relation to what value it may have to the community outside the university. Recognising the value of the work in training a postgraduate, one must still ask: are we utilizing the overall resources to the best use of the community by not considering the wider relevance of the research and the applicability of the findings? This process may require someone with different skills to either the researcher or the supervisor, as is done today in many universities in both Europe and North America. These specialists play a very key role in technology transfer.

Finally, but very importantly, it is through the research at the universities that we continue to maintain our links with the international academic community. We must recognise that it is only if we have something to offer intellectually that other institutions in the international community would wish to forge links with us. Unless we have skills and original contributions to make to a discipline, there is little reason to have any contact with institutions in this country except for paternalistic reasons, which I am sure we could well do without. Further, without establishing our value to the international community and to our neighbours in Africa, it is unlikely that we will receive the necessary overseas financial support of which we are so in need at present. It is essential to establish that we are not in need of handouts, but rather the necessary support to assist our own peoples, and those in the neighbouring territories. Further, our research achievements greatly assist in boosting the morale of our academic community as a whole.

Within the established universities it is recognised that a high level of research excellence in all disciplines is not affordable nor possible. There is a general acceptance that one places one's limited resources into a limited number of so-called *Centres of Excellence* which are of an interdisciplinary nature. Further, universities are now attempting to rationalise the use of costly research facilities and other resources by undertaking co-operative research within universities, as well as with other tertiary education institutions in the region, including technikons. Cost considerations, and the greater utilisation of skilled human resources are the motivating factors for this rationalisation. I believe I have indicated that my own established institution has up until recently attempted to meet the traditional definition of a university, which is a community of scholars who conserve, disseminate and advance knowledge, and who are united by a love of learning. However, this has had to be balanced against the realities of the closer, more immediate, context in which the university is situated. The institution also has a responsibility to the specific society which makes its existence possible. In that society the university is pre-eminently the institution directed toward change and innovation. The university, in its relation to other tertiary institutions, and its function in society, in broad terms is to act as

the major intellectual resource for supporting the activities of these other institutions. It should work with them in joint projects, take a large part of the responsibility for educating and training their staffs, both initially and through further education programmes, and provide them with new and updated knowledge arising from research in order to revitalise the teaching functions in these institutions.

The University of Natal is increasingly recognising that, despite its awareness of its obligation to serve the local community as well as at the same time maintaining international standards and contact, it is not being perceived by the local community as being of a great deal of relevance to them. This view would appear to prevail irrespective of their specific role in society, that is whether they come from industry, commerce, the economically disadvantaged community in the city and its environs, or the rural communities of Natal. This may be an unfair judgment. However, I believe there is a strong element of truth in this perception despite the university's commitment in its Mission Statement to address the economic, social and cultural needs of its local community with equal vigour as in its effort to meet its acceptance by the international academic community. In its Mission Statement it has committed itself to a strong emphasis in the area of development programmes where the intellectual demands must equal any other university programme which would require committed and well-qualified staff. This is in line with the commitment of the University of Natal to do well in whatever it undertakes.

It is my personal belief that if the university is to make any significant impact within the society in which it finds itself, it has to make itself a great deal more relevant to the society it serves than it does at the present. This does not necessarily mean it has to abdicate its present objectives - in fact, if it did it would be doing the university a disservice, as well as the people we serve. It is essential that we continue to produce highly skilled graduates and that our research contributes to the international community of scholars. It is through this process we maintain as well as develop new international academic links. It is, however, important that in addition we ensure that we make a valuable and a helpful contribution to the local community. It is through this latter activity that the university will become respected and acknowledged as a valuable asset and to which the whole community will be proud to be linked. In this manner the university will contribute to a better way of life for all the members of the community in its environs. It is in this latter and more important area that we as an institution have failed. The question that arises is how do we correct this situation, and contribute to the so-called New South Africa, or what I would prefer to call the future country, a 'Better South Africa.'

In the University of Natal's Mission Statement in 1989 we made it clear where, as an institution, we wish to be going. However, since then one senses the will to implement the sentiments of the Mission Statement as not being at the level one had hoped for initially. This has in part been due to the deterioration in the financial resources of the university. In an attempt to improve the situation in the case of the research of the established universities, the following strategy will have to be implemented with five key components:

- *Relevance:* There is the general belief within the established institutions that it

is only through 'Blue Sky' research that relevant research can be undertaken. This implies that applied research has its origins in basic research solely. There is the need to appreciate the alternative, namely the undertaking of problem-orientated research.

- *Quality:* All research activities must be monitored to ensure that quality research is being undertaken. There tends to be a lack of end-user evaluation. In the case of research sponsored by the Statutory Bodies, it is evaluated by the quality and, to some extent, by the quantity of publications. In this way the quality is evaluated by peer review, and end-user evaluation is not employed at all. If the research is to be of relevance the end-user evaluation is paramount.
- *Education Development Programmes:* In order to maintain the essential academic standards so necessary to ensure that the research is on a par with comparable studies undertaken by the international community, it is vital that potential postgraduate students coming from the educationally disadvantaged communities are given the necessary educational development that will enable them to become research practitioners on a par with those students coming from a good educational background with excellent skills in mathematics, language usage, lateral thinking and those specific to their discipline requirement for an excellent researcher. Most of these skills can be readily acquired given the necessary educational development.
- *Inter-Disciplinary and Inter-Institutional Interaction:* In serving the best interests of the greater community, inter-disciplinary interaction should be encouraged. For example, in the new university Rural Community Development Programme currently being established, the need for joint research to be undertaken between the Faculties of Agriculture, Medicine, Engineering, Architecture and Social Science is of paramount importance - otherwise good sense will not prevail, particularly if one is attempting to deal with the interactive problems of health, nutrition, housing and social problems, since each one is inseparable from the other. At a time when skilled human resources as well as financial resources have become so limited, it is imperative that there is greater co-operative research between different independent institutions. This positive interaction should have taken place without these pressures. There are thus positive results occurring from these rather stressful financial times facing tertiary educational institutions.
- *International Joint Programmes:* Research projects with direct relevance to the local communities could benefit greatly from the experience gained from research programmes in other countries dealing with similar or related problems. At a time when the cultural and academic boycott has receded into memories of our isolation, we should be networking with other relevant research groups throughout the world in order to draw on available resources for our own research programmes and developing joint programmes enriched by the diversity of such different backgrounds. It is so essential for our institutions to break from their intellectual isolation of the past four and a half decades. We all recognise how much the poorer we have been from the limited and restricted contact we have had with the outside world during that period.

I would call upon our colleagues here today from different parts of the world to assist us in the transformation of our institutions so that our researchers may

contribute to assisting us all achieve our dream of working to build that Better South Africa in the most efficient and effective way. We must see, as part of our vision for the future, that our institutions and their research activities make a very relevant contribution to not only our own society but that of the African continent, particularly in view of the skills and resources that reside in this part of the continent.

I am very optimistic that the university in the very near future will be more relevant, particularly when I see the commitment and vision of the majority of our younger staff to bringing about a Better South Africa.