THE CHALLENGES FACING HIGHER EDUCATION IN SOUTH AFRICA

DISCUSSION POINTS

Introduction

1. This paper may come as a surprise to many awaiting it, as it does not set out some blueprint for tertiary education. It proceeds by raising a number of issues and questions, many of which relate to epistemology and strategic choices we need to consider for our country. In this way we seek to shape a dialogue that will lead us to concrete outcomes. In doing this we have not neglected our charge to consider the many practical matters that confront educational reform at present. However, it was our view that we needed to ascertain whether we see the same problems and aspire to the same future.

2. This paper does not deal with the full scope of the issues in tertiary education. We have prepared certain assessments of more practical matters so that we are able to engage on these if need be. By adopting this approach we run the risk of being seen as starry-eyed romantics but we undertook the task with a sense of excitement.

3. We feel that we are in a time and place deserving of and in fact demanding such a sense of excitement. That excitement is born of the fact that as a people, we have the historic possibility, rare in human affairs, to give birth to a new society, in a manner that responds both to our national challenges and the imperatives that derive from the process of globalisation.

4. Inevitably, knowledge must stand at the centre of this process of change if we are to avoid undertaking disastrous actions resulting from a state of ignorance, limited knowledge or superstition that subjectively presents itself as fact, but is in reality a distorted understanding of objective reality. Our excitement is therefore also focused on the area of epistemology and the role and place of our educational system relative to the challenges of the production and propagation of knowledge. This is because knowledge must simultaneously represent our ability to understand the totality of our rapidly changing reality in all its material, spiritual and social forms, and our capacity to change that reality in directions we determine as desirable.
5. However, our ability to use knowledge to achieve this second objective depends on the extent to which we have freed ourselves from the dictatorship of the unknown. In this regard Friedrich Engels wrote: “Freedom therefore consists in the control over ourselves and over external nature, a control founded on knowledge of natural necessity.” For our part we seek to question the extent to which we are generating the knowledge of natural necessity, the regularities of the natural and social worlds that would empower us to be in control over ourselves in South Africa at this exciting time.

6. To generate that knowledge requires that we embark on a permanent voyage of discovery, proceeding from the fundamental thesis that the perimeters of knowledge are infinite. Commenting on the challenge of the expansion of knowledge, Albert Einstein said: “The important thing is not to stop questioning. Curiosity has its own reason for existing.” For Einstein knowledge constitutes “a flight from wonder”. Ignorance obliges humanity to wonder as to the meaning and essence of physical and social reality. In this paper we approach knowledge in a like manner and see the institutions that we charge with the task to create and transmit knowledge as seminal to our future. They are seminal to our future because, in part, they should never stop questioning, and thus have the possibility to free us from “wonder” and empower us by affording us the gift of “freedom (to change our reality) founded on the knowledge of necessity.”

7. Our starting point is that we are defining the meaning of our own humanity and its freedom, within an emerging society in South Africa. Of course this means that concrete institutions will have to endow us with the capacities we seek in an effective manner. However, the approach we take in this scene-setting Paper is not solely to be concerned with institutional reforms and practical tasks to improve our system of higher education. We shall get to these practical necessities, taking into account the responses of our interlocutors to this Paper.

8. Before we take the next step and present our second Paper, dealing with these practical necessities, we are keenly interested in finding out whether our interlocutors, the leaders of our institutions of higher education, share or disagree with the views contained in this Paper, which seeks to probe fundamental issues of epistemology in the contemporary world. We have taken this route because we are convinced that the reform of our system of higher education has to be based not only on ad-hoc and immediate considerations, but also on a proper understanding of issues of epistemology and education in contemporary human society.
9. This calls for an approach based on an understanding of the dialectical relationship between the particular and the general. Even as we understand how the particular may unavoidably set the daily agenda of our Vice-Chancellors and Higher Education authorities, we are nevertheless convinced that successfully to address this agenda, requires that it should bear a dynamic relationship with the fundamental issues that have to do with the role and place of knowledge in contemporary human society.

Background

10. For those who have not been participants in the process thus far, it may be important to provide a short background to this paper. The Higher Education Working Group\(^1\) has now met on four occasions. The existence of the Group is testimony to the importance Government attaches to higher education. This importance is more than justified. However, at the meeting on 31 March 2005, a suggestion was made that a discussion paper should be prepared that would deal with the challenges facing higher education and what responses to those challenges should be - or were being - developed. What was novel was that the responsibility for preparing the paper would lie with persons not directly involved, namely the Minister of Public Enterprises and the Minister of Science and Technology, and the President himself. Wisely, however, the Minister of Education would be on hand to ensure that there is a quality check.

11. The fact that this proposal was made is itself illustrative of one of the challenges that we face in education in South Africa. The enormity of the task of de-racialising education is all too often forgotten. Eradicating the very deeply rooted wounds of the racist past and the apartheid era in particular is a profound reform in its own right. The last Working Group meeting focussed on the experience of the recent merges of the universities and technikons. The practicalities of this task and the everyday challenges it poses quite correctly preoccupy the minds of educationists and those charged with the responsibility for the task. However, a sense is emerging from the discussions in the Working Group that we remain too close to the coalface of this exercise and may be losing sight of, or perhaps are not being attentive enough to the role that education plays in our society and its future prospects. We also come from a previous regime that had very instrumentalist views of these institutions. For these reasons the reflections of fresh minds, unencumbered by the burdens of responsibility, may be of some catalytic use as we reflect on the challenges facing higher education.

\(^1\) The President meets on a regular basis with the principals of the Higher Education institutions.
How do we view education and higher education in particular?

12. One of the immediate concerns of the educationists present when the proposal was decided, was that the content of the proposed paper would be instrumentalist propositions around the economy. This arose as a particular concern since the needs of the economy were used in the meeting to illustrate a number of perceived problems. This is a justified fear but hopefully the opening introduction will provide some comfort whilst raising other concerns. Accordingly it behoves the authors to set out how they view education. In doing this we seek to define a discussion agenda.

13. Education is so elemental to human society that it is often very hard to determine what its exact effects are. In particular it is very difficult to ascertain what education imbues into individuals and the collective. What social mores, cultural traits and world-views are imbued as we pass through educational systems? Curricula are designed to ensure that knowledge is conveyed in a systematic and planned way so as to impart an amalgam of knowledge and skills that are determined to be appropriate and necessary to the society and the time. Yet we base these curricula on certain sociological assumptions that characterise our social order at the time. What impact do these assumptions have on the mode and content of education and what is imbued in the beneficiaries of the system? Should these norms change and, if that is the case, how do we make them explicit?

14. In the South Africa of 2005 we have to reflect again on these matters as we are at a stage in our history that lends itself to profound and if need be revolutionary socio-economic change. To begin these reflections we need to assert that education is not some process that must respond to the imperatives of an autonomous society or economy. Education is integral to both society and to the economy. It will be shaped by, and will itself shape, the trajectory and working of both. Even more, education can be the purveyor and repository of a civilisation. It is also the case that education is inseparable from the origination and dissemination of knowledge and education therefore has an epistemological basis. It is important to make these points as it allows us to draw a distinction between the educative effects of socialisation – the family, clan, school, neighbourhood, media or work – and the institutionalised education system. The latter, the formal education system, may have a greater or lesser impact on what people learn and how they conduct their endeavours in society and in the economy. The lesser the impact the more dysfunctional - in the sense of being diffuse and passive in society - the institutions of education are, and the greater the impact the more functional of the formal education structures will have on the shaping of our society. This
functionality relates not only to the social or economic capacities conveyed to the individual and to society but possibly even more profoundly to the extent to which human knowledge is shaping and influencing society and the economy.

The Origins of the Education System

15. To understand this intricate dynamic between experience, society, knowledge and the education process, we need to spend some time considering the origins and institutional structure of the education system, as we know it.

16. South African formal education can be said to fall squarely within what could probably be described as an Anglo-Saxon tradition. It bears the firm stamp of British and other European influences. Modern ‘mass schooling’ is a very recent development in history. In many African countries it is remarkably recent. Its roots lie in the need for a proletariat, and the curricula were shaped around this to a high degree. Historically, primary and secondary educations were not the preparatory processes for universities.

17. Universities are a very much older institution and designed in their earlier forms as centres of knowledge and learning. They were centres of excellence and in whatever form they emerged in the mists of the past, there is little doubt that they emerged to give expression to a human imperative not to stop questioning. Whilst we shall examine more exigent and recent developments around these institutions in what follows, we should not forget the imperative that is inherent in such centres of scholarship, reflection and teaching.

18. Technical colleges could also be said to be older educational institutions if we see the medieval guilds and similar institutions elsewhere in the world as their antecedents. However, the expansion of the technical colleges, technical universities and ‘mass’ universities (red-brick in the UK) are more clearly products of industrialisation and its specific needs.

19. So when we talk about primary, secondary and tertiary education we must be careful not to mislead ourselves into some orderly progression based on age and the purported concomitant ability to comprehend. The origins of these forms of education lie in different responses to different human, social and economic problems. In the Anglo-Saxon tradition we have – in relatively recent times – come to see the path to a university as being a progression from primary through secondary to tertiary level. This was not the path that scholars or artisans followed in previous times.
20. This point is made because it allows us to be clear on two crucial matters. Firstly the tertiary education institutions have their antecedents in specific societal and socio-economic requirements and these differ between universities and technical colleges. The difference between universities and technical colleges is fundamental, and is not merely a question of technical colleges being 'second-class' universities for the technically minded. It is important to understand these antecedents and requirements so that we can more precisely understand the role that they can play now. To regard these as a progression from lesser knowledge to greater knowledge with some concession to specific skills requirements in the form of technical colleges or technical universities is a mistake. It leads to the notion that we must geographically apportion the slices of a three-tiered cake, the recipe for which is known and immutable. Such an approach loses sight of the conjunctural dynamic of the educative process.

21. The second issue is that if we want to fashion some progression in the three tiers and lend it coherence, then we have to think consciously how and why we are doing this. This is the real challenge we face. If we are clear on this matter then finance is no obstacle, as not to invest in our future makes no sense. Sadly we may well be wasting resources in the present situation since we have allocated considerable resources to education without necessarily getting the outcome required. However, we need to be clear on this desired outcome. To explore this more fully we need to probe a little deeper into the origins of these institutions. This will provide a fruitful platform for the challenges of the day in South Africa.

22. As we have said, universities predate 'mass schooling' by many centuries and the forms of scholarship, study and output we associate with these early universities are even more ancient. The university was the outcome of the need to pursue, codify and create new knowledge. The institutions were assets and their products were often sought after and procured by the political powers of the day. Interestingly, these universities are only associated with the nation state at a relatively late stage (China is a possible interesting exception). The pursuit of knowledge led to collaborative effort across political boundaries, language and culture. There have been few more migratory species than the scholar (and of course the artist). These were, in the main, interrogative institutions grappling with ontological, epistemological and religious concerns; probing the issues of God and nature and often testing the political tolerance of their benefactors. They were also repositories of accumulated knowledge so as to allow for scholarship. They were not necessarily the fonts of scientific discovery but they
impacted massively on paradigms that tend to govern social and scientific discourse.

23. Much of the scientific and technological innovation came from the technical terrain. The guilds, architects, apothecaries, medical doctors, ship builders, bridge builders and metallurgists were the main fonts of technological change. This technical dimension of society is fundamental. These are skills that have to be acquired and perfected. Measurement has to be exact and the margins for error contracted over time. Experience has to be recorded and codified and handed down in precise terms. This distinction is important as the notion that theory comes out of the academic universities and is then converted into applied technology in the technical colleges and universities, is misplaced. A vast amount of innovation, technology and pure science comes out of the technical domain of economic activity. All expanding economies needed these technical institutional capacities and the human skills associated with them. All expanding economies have combined training of their people with the straight plunder of skills from other societies and economies. Slavery and human war booty all too often provided many such skills for particular economies.

24. The industrial revolution had profound effects on the need for skills and led in large measure to more formal and mass structures of education. The formation of nation states, accelerated by the onset of the industrial revolution, leads to more centralised control over education. The industrial revolution accelerates the rates of change of both knowledge and the technological fruits of that knowledge. Nation states, realising the importance of these changes, begin to support and fund universities and a range of specialist technical institutions to enhance this process. The 'Oxbridge' type structure evolves as well-funded centres of excellence are developed. These play a crucial role in developing both the social and natural scientific capacities of modern industrial societies. Administrators and leaders of complex societies and empires have to be taught and developed.

25. Industrial society begins to demand literate and numerate workers and only mass primary education can provide that. As the complexity of the society advances, so a secondary level of education is needed. Interesting changes occur in the technical colleges and the universities. The demand for persons with more social science knowledge and new professions such as accounting, auditing and communications increases, as does the need for engineers, lawyers and doctors. New universities have to be built but these have to meet more urgent training needs, even to the extent at times of offering concrete skills transfer. It has been referred to as the 'massification' of professionals. Academics, of the old order, are not quite sure how such
institutions rank in the hierarchy of excellence and there is a hint of
disdain in terms such as 'red-brick' and 'technological universities' that emerge. The disdain is of course misplaced, as the response is inevitable in the face of new societal and economic needs. There is a sense in which these universities are indeed a third layer of more advanced knowledge and knowledge-based skills being added to primary and secondary education.

26. A formal education structure emerges with an apparent form of primary schooling followed by secondary schooling and then tertiary education, which can follow a more technical path (this even starting in the schooling phase) or a more academic path. As this more centralised state-led system unfolds in Britain, the leading industrial nation, it is implanted piecemeal into the colonies and dominions.

27. The expansion of education to the mass of persons is a complex process that cannot only be understood in some instrumentalist manner that arises out of the need for a proletariat. The rise of liberalism with its stress on the individual also had a powerful impact on the form of education. The benefits to the individual of education were and are manifest in personal as well as economic dimensions. Knowledge does convey freedom to choose and, more importantly, the capacity to decide. Accordingly, many social movements and political tendencies saw in education a liberating force and pushed to make it a right for all. This was a very important development as in many respects it overturned previous approaches, which used education to maintain elites and reinforce social divisions. There can be no question that the acquisition of knowledge is a liberating force and is rightly something that has to be made accessible to all. However, this does not alter the problematic of what the structure and content of the education system is. It does, however, reinforce the point that in creating a coherent education system we are dealing with the core of our social and human capacities. The content of our primary and secondary education will also shape the type of society that we are.

The Changing Pressures on the Education System

28. Reverting to the educational system, the apparent meaning of the three tiers of education has to be looked at again, beginning at the tertiary level. The pressures of industrialisation required more universities and greater technical training. However, the same processes have also led to inherent tension within all systems of tertiary education. As we shall explore later, these tensions are greatly exacerbated by the increased access to knowledge and its development brought about by the revolution in information and communication technology. The competitive forces within the global
economy also exacerbate the tensions within any one national system. Let us examine two key aspects of this process and the tensions that it is creating. The first relates to the origin of knowledge in the present situation and the second to the advance of technology.

29. The age of globalisation has not made knowledge more valuable or precious. This intrinsic worth is not new as it is the lifeblood of humanity. What have, however, altered are the dispersal of knowledge sources and the accessibility of that knowledge. This in turn has allowed for massive collaborative efforts, again across frontiers and nations, which without question are causing an explosion of knowledge and of knowledge-based activities. Speed of access and manipulation of information has major qualitative impacts and institutional and organisational matters arise of how we should be structured to be part of this exciting maelstrom.

30. Is it the case that we in South Africa are, and must inevitably be, located on the remote spoke of a global knowledge system whose hub is in the Oxbridge or Ivy Leagues of the developed countries? Are we the worker bees, brilliant at times, of the global knowledge hive? Is our task that of comprehending and then teaching and training with an elite few involved in cutting-edge research? These are very important questions of self-definition and self-actualisation as South Africans and more particularly as the intellectual leaders of the nation.

31. A profound epistemological question is at issue. Are knowledge and its origination shaped and led by the centres with the greatest capacity to manipulate existing knowledge in order to create new? Are we merely continuing the path of the medieval university but now on a global scale? There is no doubt that powerful centripetal forces exist in the origination of knowledge and that powerful centres of learning and scholarship will develop. There will be hubs around which collaborative spokes will form. But do these then shape the social and economic derivatives of that knowledge in an inevitable manner? Does globalisation begin to cut all of humanity from the same cloth? There can be little doubt that these imperatives are exceedingly powerful and will dominate and permeate many aspects of our society.

32. Our contention and the starting point for the discussion that we wish to have is that the epistemological question we have posed has to be answered differently, both as a matter of epistemology and as an act of will. The fact that we can even assert an act of will lays the basis for the answer to the epistemological question. The origination of knowledge is dialectical, its location contracts as it distils experience and it expands as it gives rise to the material that has to be distilled. Knowledge continually gets applied in practice, and in the process
creates new knowledge. The woven carpet only assumes its totality and intricacy because new knots are added step by step. There is a world system of knowledge linked in thousands of direct and more ephemeral ways. Computers allow us to tap into this tapestry faster and more extensively than ever before, the speed with which new parts of the tapestry are woven is almost beyond everyday and operational comprehension. The centripetal forces aggregate, refine and codify. The centrifugal forces continually generate new inputs into the system. What is important in this is that knowledge is originated in many sites and ways and it has to be like this. The centripetal forces are shaped by human events and circumstance; they are shaped by nation state choices. The centrifugal forces are humanity and its existence.

33. Where do we locate ourselves in this process? If we see ourselves as less resourced, intellectually and financially, than the large university systems of the developed world, then we will seek to be successful appendages of that system. This will profoundly shape our institutional response and have the effect of perpetuating the existing dispensation. If we see South Africa as an exceptionally dynamic site of knowledge origination then we have to define very different institutional responses. Our place in the world system will be very much more pro-active. But to have the confidence that we are indeed an exceptionally dynamic site of knowledge origination we have to understand and agree on this proposition. We shall return to the matter below.

The Advance of Technology

34. As we briefly averred earlier in this paper, the relationship between technology and science and between the university and the technical universities or technical colleges is a complex one. However, there is absolutely no doubt whatsoever that in the present situation the dynamism of technology is unique in human experience. This places very new pressures on the institutions charged with advancing and disseminating technology. The time taken between translating a scientific discovery into a technology and this into a product is now dramatically reduced. There are many reasons for this, related to accessibility of knowledge and information, international collaboration and the activity of major global enterprises that have resources larger than universities and even many states.

35. What has happened is that the interface between scientific enquiry and blue-sky research and technological innovation has become extensive as a result of the ability to access and manipulate knowledge. This interface has mutually reinforcing effects on both terrains. Those national and increasingly international systems that consciously try to facilitate and improve this interface succeed, and their differentiation
from others becomes a geometric rather than arithmetic progression. However, the interface is not solely within the realm of the tertiary education sector. The key to enhancing the interface is to bring in the economic and social enterprises. As they produce products or services and refine them they are a major source of innovation. How this interface is achieved is a complex process and has to be consciously created, as it will not evolve of its own because of the power of competitive forces in the market place. Ironically this competitive pressure in the economic enterprises gives rise to centripetal effects in knowledge origination unless the State intervenes to diffuse knowledge and its origination.

36. So again we have to ask ourselves the question as to whether we are or can become a site for the advance of technology or are we merely copiers and trainers. If we are a mere spoke on the knowledge wheel then we have no choice, outside limited exceptional areas, but to be copiers. We can only advance technology if we are originating knowledge. So our self-definition and the options this will point to are central to the nature and quality of our education system and the impact it has on our society and economy.

Knowledge, technology and skills

37. The impact of what we have just looked at in the origination of knowledge and the advance of technology is revolutionary for the concept of skill and the development of those skills. The notion that the economy is changing fast and we need to adjust to the new skill requirements is a profound misunderstanding of what is taking place in the global economy.

38. The dynamism within the trajectories of knowledge and technology is such that specific skills for specific needs are changing so fast that they increasingly have to be generated on the job. This in turn means that what all dimensions – knowledge origination, technology advance and economic activity – need are persons with very high levels of generic knowledge. Stated another way, what is now considered necessary generic knowledge in any discipline or multidisciplinary endeavour is highly specialised. People have to be exposed to the education process for longer to acquire such levels of specialised knowledge. This is true for all entry levels in the labour market. Most rapidly expanding advanced manufacturing and service industries cannot use entry-level workers who do not have a well-designed secondary level education.

39. The education system is less able than in the past to teach specific skills. Its task is to produce students who will be trainable in the
workplace, an environment increasingly subject to constant change. The real challenge for the education system is to determine the skill sets and disciplines that are being drawn on most heavily by the society and economy at any point in time. They then have to ensure that they impart the highest possible level of knowledge and basic skills possible in that skills-set or discipline. This requires a very close understanding of the surrounding society and the economy. In fact the university, particularly its faculty, has to be deeply embedded within that society and economy.

40. The concept of further education and training now becomes absolutely critical. All humans as they function in day-to-day society or in the economy have to be trained and retrained many times. They need assistance in doing this. The education system has to evolve means to do this. More particularly, tertiary faculties have to be able to adjust and lead in this dynamic process. They can only do this by once again being deeply embedded in the society and economy.

41. So yet again the question arises as to whether our task is to keep pace with and transmit the changing skills-sets of the advanced economies? Or is it possible that as a result of our location in the origination of knowledge, advance of technology and the dynamism of the society and the economy we can get endogenous innovation in all areas?

Economy and Society

42. In the preceding section we have been stressing economy and society. The reasons for this are obvious but worth stressing as this will help to counter certain misperceptions about ‘hard’ and ‘soft’ skills. Modern societies have dramatically increased the levels of social interaction even to the point of anomie for many individuals. This has had the same effect on societal skills as that we usually think of when we refer to the economy. There is an explosion of new abilities and skills required of each of us and within the structure of the society. Some of these skills are everyday adjustments – using a computer and surfing the Internet. Some are more profound – my neighbours may be Zulu and I know nothing about their language or culture because I was born in the Congo. My white skin allowed me automatic privilege in the past, now it counts against me in a job interview – how do I understand this, why did it happen?

43. How does our educational system grapple with these dynamics? What history, geography, sociology and psychology must I learn and know to comprehend this fluidity of existence? If I cannot speak certain languages what limitation is this in knowing people and their intimate
world? In South Africa how do we comprehend our location and probable role in our continent of Africa?

44. If we were to focus only on the change in the apparently more economic skills we would make a two-fold mistake. The first is that there is as much dynamism in the requirements of social interaction as there is in the economic and technical domain. Secondly, social interaction is increasingly important in all human activity, be it economic or scientific. We make these points as it is indeed important not to fall into a technocratic approach that sees our problems as being the insufficient production of persons with specific skills required by the economy. The requirements of the economy and society are for a more responsive education system in the sense that it is able to adapt but also to lead by shaping the transmission of knowledge and producing the human leaders who can facilitate adaptation.

What are the challenges facing tertiary education in South Africa?

45. The thrust of our argument is that in South Africa we have a problem of self-definition when it comes to tertiary education. To illustrate this let us draw on how others have defined themselves. We have chosen a well-known university for no other reason that it is well known. They provide the following definition of themselves on their web page:

"Princeton simultaneously strives to be one of the leading research universities and the most outstanding undergraduate college in the world. As a research university it seeks to achieve the highest levels of distinction in the discovery and transmission of knowledge and understanding, and in the education of the graduate students. At the same time, Princeton is distinctive among research universities in its commitment to undergraduate teaching.

The university provides its students with academic, extracurricular and other resources – in a residential community committed to diversity in its student body, faculty and staff – that help them achieve at the highest scholarly levels and prepare them for positions of leadership and lives of service in many fields of human endeavour.

Through the scholarship and teaching of its faculty and the many contributions to society of its alumni, Princeton seeks to fulfill its informal motto: ‘Princeton in the Nation’s Service and in the Service of All Nations’."
46. A close look at this self-definition is interesting as it in fact raises many of the matters that we have argued are salient for our own definition. It also leaves out certain matters that we have addressed. What is our conception of ‘the Nation’s Service’?

47. Let us now embark on our own interrogation of our identity. We shall do this by asking certain questions and making assertions in response. We do this as a basis for discussion – it may be that the questions and the assertions are wrong in whole or in part. To the extent that they are correct we will need to develop effective responses where we identify shortcomings.

48. Is South Africa’s university system at the forefront of originating knowledge in the world today? We would assert that it is not, and with certain areas of exception it is a follower and not a leader. This arises out of a lack of confidence in the vitality of our society and economy, which serve as major generators of knowledge. We also do not fully appreciate the abundance of our natural endowment. Accordingly, we do not see ourselves at the forefront of knowledge and research. If knowledge emanates from the vitality of a society and its rate of change, then South Africa should be defining itself as a major centre for research. We should see ourselves as a centripetal force in epistemology. This requires confidence and vision that can be transformed into a common purpose. We are lacking in this sense of excitement and a quest for the highest distinction in the discovery of knowledge. We need to interrogate this question and the assertions made, and if in any measure the answers to the question are negative and the assertions substantive, then we need to change the situation.

49. South Africa is immersed in a period of great change. Are we engaged in a ‘flight from wonder’ with regard to the nature of this change? Are the universities leading this ‘flight’? Are we establishing a freedom based on knowledge of what is changing? Do we have a hungry appetite to delve into the nature of South African society and economy both to feed our own social needs and to add to global knowledge – ‘in the Nation’s Service and in the Service of Nations’? We do not see this sense of purpose and passion in sufficient measure. If it exists in some or all of our tertiary institutions, which we doubt, then it is not evident to the broader society. The respect for our universities and their distinction in the world of knowledge is timid if it exists. Are these judgements too harsh or the result of ignorance? If they are in any measure correct then how do we change the situation?

50. Is society defining the scientific and social scientific matters that are important to South Africa and are of relevance to global concerns?
Maybe we should ask whether the intelligentsia or even government are failing in this task. Are there areas of science that we should be focusing on – material science, climatology, bio-genetics or cosmology as possibilities? What of social sciences – history, sociology, philology and their relation to our African location? There is so much we need to know in South Africa and so much potential to uncover new knowledge in the physical and human dimensions of our land. **We need to know whether there are processes to make such determinations. Maybe we need to satisfy ourselves that the collective wisdom to make such determinations can even be invoked. Do we feel our intellectual energy is being well used and wisely applied?**

51. Could we in good conscience make the claim that Princeton does when they say: “Princeton simultaneously strives to be one of the leading research universities and the most outstanding undergraduate college in the World? As a research university it seeks to achieve the highest levels of distinction in the discovery and transmission of knowledge and understanding, and in the education of the graduate students. At the same time, Princeton is distinctive among research universities in its commitment to undergraduate teaching”. Here we wish to focus on the specific and fundamental question of whether we have the faculty that could combine this search for the new with excellence in transmitting the old and introducing the new to our students. No doubt there is excellent faculty in many areas of South Africa but we have to be blunt in asking whether the broader society and this Higher Education Working Group can be confident of this capacity. Let us ask whether, along with Princeton, we can claim a “community committed to diversity in its student body, faculty and staff – that help them achieve at the highest scholarly levels and prepare them for positions of leadership and lives of service in many fields of human endeavour”. To ensure our graduates are leaders in society, our faculties and indeed our institutions need to be leaders in our society. **We need to assess the extent to which we are inspiring our faculties and providing them with the opportunity to combine research with excellence in teaching.** We would assert that there is too little research and too little engagement with society and with the economy to allow for this. The result is that when students fail, they are seen as the problem rather than the problem lying with the faculty that has the responsibility to teach the students.

52. We have to confront the question as to whether the structure of the tertiary education institutions is appropriate to the tasks to which we are alluding in the foregoing. The combination that is emerging from our argument is excellence in leading-edge research, active and engaged faculty and high-quality transmission of relevant knowledge to
both undergraduate and postgraduate students. The socially engaged faculty and the transmission of knowledge should be common characteristics in tertiary institutions. However, the precise way we organise the national research effort needs more careful thought. We have already identified a possible problem in the muted identification of what are indeed areas of importance and comparative advantage for the country. If we correct this, will we need to build centres of excellence? Do those centres of excellence have to be located at one institution or through the use of ICT can they be virtual centres of excellence? It is our contention that the previous report that led to the current mergers may not have approached the problem in the manner we have sought to do here and therefore we need to assess the position. One stark statistic that emerges is the serious imbalance between university numbers and those in technical universities and Further Education and Training Colleges (FETs). We may want larger absolute figures in each case but most certainly the balance is wrong. Let us bring a fresh perspective to the overall structure and balance of the tertiary institutions. We are not talking about a new round of mergers but we may be talking about a different organisation of the national work programme and the priorities that cause such a stark imbalance between universities and technical institutions.

53. We have placed a great deal of emphasis in the earlier argument on the importance of the whole sphere of technology and its development. We have stressed that the technology dimension is not some poor cousin of the academic university. It is integral to the effective and even more important dynamic functioning of society and of the economy. For this technological capacity to be vital and adaptable, important interfaces have to be consciously constructed within the total society and economy. There are key interfaces to be forged. One is between advanced or ‘blue-sky’ research and those involved in technological advance – be they in technology institutions, business enterprises or societal activity. Another is between the business enterprises and the technology institutions. Yet another is between these former interfaces and the Colleges of Further Education and Training (FETs). A key purpose of these interfaces is not only to ensure that we advance technology and become innovators and not followers, but equally importantly that we ensure that we keep our educators abreast of the changes in our economy and the global economy. We would contend that at present this whole area is noticeably weak in South Africa. The fact that there are exciting technology developments in South Africa only tells us that we are performing way below our potential. This includes the potential to mobilise resources for this type of technological effort.
54. The quality of leadership in the South African society and economy is going to be decisive if we are to build a society united in its diversity and an economy that can sail the tumultuous global seas to prosperity for all. What we have asserted and probed above will be the basis for this capacity of leadership. However, the quality of the leadership we develop is dependent on the quality of the institutions we develop and more particularly on the educators within all levels of the education system. So our question is whether we are placing enough emphasis on and effort in developing these educators? From the matter we have just addressed in regard to technology it is evident that the structure to improve our educators may be missing. The issue is whether we have a systematic and high priority plan to develop our educators? Are our institutions able to inspire and to transmit relevant knowledge? Are the interfaces we speak of with regard to technology being developed? Our contention is that this is the area where we are falling behind fast and this is the reason for the perception and reality that our tertiary education is not meeting the need of the society and the economy. How do we address this in the short term as we address the longer-term structural problems?

55. In the absence of overcoming the above problem the expenditure on further education is merely a social aspirin and not the means of keeping all of our people learning and developing all of the time and in all of their active years. Our contention is that further education will not flourish and benefit the society until we put in place the structural features we have argued for above. However, we cannot wait and we need a short-term emergency plan.

56. Finally it is evident that the links between the primary and secondary levels of education and the content of curricula at these levels and changes in tertiary education would have to be carefully assessed and modified if need be. The concerns around mathematical and scientific skills and the weakening of language diversity are well founded. However, no amount of curricula change will be of any benefit if the educators are not equipped to transmit the required knowledge.

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