

# “THE TRUTH STUMBLES ON CAMPUS”: A CONTRIBUTION FROM THEOLOGICAL ETHICS TO THE SEARCH FOR A PROFESSIONAL ETHIC IN RESEARCH<sup>1</sup>

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“Most universities have not done all they should to protect the integrity of their research” (Bok 2003:77).

## ABSTRACT

This paper argues for a professional ethic in research and the contribution of theological ethics thereto. The author points out that although theological ethics is poor at dealing with issues related to professional ethics and its application to research, theological ethics can nevertheless make a fundamental contribution towards a professional ethic for research. It is also emphasised that although there is very limited (South African) literature on this topic, some theological ethics studies can contribute towards the understanding of such ethics. The author works with a triple helix approach to (theological) ethics. This approach to ethics is built upon the concept of responsible acts (Douma), making decisions (Fisher) and a growth ethic (Burggraeve). The article concludes with pointers for a professional ethic in research from a theological ethics perspective.

**Key word:** Ethics, professional ethics, research

## 1. THE POPULARITY OF RESEARCH ETHICS

Although not a new topic, research ethics is high on the research agenda, partly due to the apparent lack of literature on the topic of research ethics and policies (not limited to a regulatory framework only) to steer a research culture and partly due to new challenges facing the research agenda. The “popularity” of ethics in research is caused by *intrinsic challenges* associated with integrity in the research process such as data capturing, retention of data, ownership of data and research records, the presentation and/or omission of facts (fabrication and falsification of facts), plagiarism; *causality* challenges (the joint use of human and animal tissue in medical research can prevent diseases) and *value adding* challenges such as improvement of *health* (what about the problems posed by a *medical economy* – research introducing new but unnecessary surgery or research leading to expensive treatment that can only be afforded by the rich) and *wealth* (research has become a booming business – labelled as “big business.” The result is that research is no longer conducted to seek new knowledge that can solve problems but is done rather for the monetary value thereof).

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Needless to say, these and other similar developments impact on research integrity and professional behaviour associated with the research process. Valenkamp (2006) notes these developments and adds his concern by pointing out that economisation threatens professional ethics in two ways: the relationship between the professional and his/her client, and the quality of professional standards.

In reaction to these and many other challenges, a number of universities, research organisations and research management associations have placed ethics on the agendas of their research meetings to sensitise and influence members on this important issue. The Medical Research Council (MRC) requires ethical clearance on research topics; the National Research Foundation (NRF) stipulates that the research must be conducted according to ethical guidelines, universities require whistle-blowing on plagiarism, etc. Linked to this is the positive image a university should have as a result of its research. Recently the University of Pretoria obtained a court interdict against an organisation claiming that the university was employing inhumane practices on animals used in research. Such allegations can prevent prospective students from enrolling at the university (Versluis 2008a, 2008b).

Claims regarding the importance of research ethics can easily be substantiated, and to this end, a few references can be provided: a literature search will support the claim that research is not new on the agenda, but it will also confirm that in the South African context it is not yet well reported on. Well-known scholarly works on research such as Mouton (2001), De Vos, Strydom, Fouché and Delport (2005) and Rossouw (editor) (2005) don't deal extensively with this matter. Research councils and funding agencies all refer to research ethics but it is questionable whether these references are sufficient for the challenges associated with research. Needless to say, the challenges created by contract research, technology transfer and intellectual property are hardly reported on at all (see Lategan 2008). The situation is even worse when the subject discipline of "ethics" is considered: many books on subject specific ethics deal with ethics but very few articulate the meaning of this in relation to research.

In response to the renewed interest in research ethics there is a world-wide revisiting of ethical codes. Examples are the Australian National Statement on ethical conduct in human research (2007), the Australian code for the responsible conduct of research (2007) and the "Gedragscode Wetenschapsbeoefening voor Vlaanderen (Working Document, March 2008). From these documents it can be observed that research ethics straddles categories such as management, governance, training, professional behaviour and responsibility, risk, production of knowledge and dissemination of results, intellectual property, and openness to critique.

It would therefore be safe to say that literature and practice on this topic construct the conclusion that the general practice of ethics in research is still in its infancy in South Africa and needs to be further developed and reflected upon.

## **2. PROBLEM STATEMENT, POINT OF DEPARTURE, AIM AND OBJECTIVE OF PAPER**

In research the problem statement can be presented as a gap in existing knowledge on a particular topic. Macnee (2004:212) articulates the research problem “as a knowledge gap that warrants filling and can be addressed through systematic study”. Research problems are derived from either theoretical or practical problems.

The identified problem statement for this study is that although the subject of theological ethics is well developed in the theological curriculum it is evident that *theological ethics is almost silent on expressing itself on research issues and the professional practice thereof* (see paragraph 1). This study intends looking at the contribution that theological ethics *can make* towards a professional ethic in research. These observations follow earlier claims by the author (Lategan 2007) namely that

- theological ethics is silent on ethical guidelines for its (theological ethics') own research;
- theological ethics omits research as field of ethical application in favour of applied ethical topics such as medical ethics, aesthetical ethics, marriage ethics, military ethics, etc.; and
- theological ethics is ideally situated to contribute towards the broader discussion on ethics in research on issues such as integrity, harm, respect for human and animal life, truth telling, and so forth.

*In this article a professional ethic in research, based on theological ethics, will be drafted.*

The intention is to draft a professional ethic that can go beyond professional ethical codes with their limited influence. This statement is based on the observation that although professional codes are important to direct professional behaviour, the mere existence of such codes is no guarantee that workers will execute professional behaviour. “The reality is that they (ethical codes – LL) are not always effective in encouraging ethical behaviour in organizations” (Robbins, Bergman, Stagg and Coulter 2003:158). Well-known examples are the Enron scandal ((2001) and the recent unwarranted speculation at the French bank, Société Générale (2008), which led to a loss of €4.9 billion.

Of Enron it was said that it had good corporate values although it couldn't safeguard the company against corruption (see Lencioni 2002). Van Wyk (2008) reacts to the scandal at the Société Générale by saying that rules and codes don't make people honest. Integrity is something that comes from a person him/herself and is based on a particular value system. Shaw and Barry (2004:9) add their voices, commenting that "As a professional you must take seriously the injunctions of your profession, but you still have the responsibility to critically assess those rules for yourself."

The *aim* of this article is therefore to present a model for professional ethics based on theological ethics to guide research.

The *objective* of this article is (a) to present a model based on theological ethics, (b) to illustrate the application of the model to five fields of study, namely research into medicine, engineering, journalism, business and education and (c) to set guidelines for professional ethics in research based on theological ethics.

### 3. RESEARCH METHOD AND METHODOLOGY

This study will primarily be a *qualitative literature* study. The authenticity of this study is guided by Macnee's (2004:219) observation:

"The literature review is guided by the variables that have been identified in the research purpose and aims to give the reader an overview of what is known about those variables, how those variables have been studied in the past and with whom they have been studied."

Burns and Grove (2007:161) elaborate on this by saying that a literature review is a summary of current knowledge about a problem and includes what is known and not known about the problem.

Although this study is based on what is typically known as a literature review, the intention is to expand this view to what Mouton (2001:86-87, 91) refers to as "a body of accumulated scholarship." This implies that the researcher doesn't only accumulate several texts on a topic but also assesses how the topic has already been dealt with in terms of methodology, theory and research results. A "scholarship review" is therefore preferred to the narrow understanding implied by the "literature review".

Coupled with this view is Little's (2007) comment on the meaning of ethics and scholarship. He follows Putnam's distinction between *personal values* and *epistemological values* in saying that as it is one's right to opt for a personal value so one also has to follow the epistemological values of one's study (Little 2007:4).

In this article the epistemological values are based on Reformed theology. This study is therefore presented as a study in Reformed theology. *A priori* principles for Reformed theology will be followed (see Spykman 1988).

#### **4. CONCEPTUALISATION**

This article represents a study in philosophical ethics, theological ethics, research ethics and professional ethics. The conceptualisation of different ethical dimensions is influenced by Reformed theology and philosophy [in particular J.A. Heyns (1982, 1986, 1989), G. Spykman (1988), J.H. Smit (1985) and M. Valenkamp (2006)]. From this perspective, ethics is presented as dealing with principles defined by Scripture and the application of a principle (norm) to a given situation (context). For purposes of the discussion ethics is defined as the study of principles (identification of desired behaviour – for example, one shall not steal) and norms/values (application of principles to a given situation – for example, one should respect other people's intellectual property by avoiding plagiarism). Theological ethics is the identification of the principles as derived from Scripture (for example, the sixth commandment – you shall not kill (Exodus 20:13)) in a given situation (for example, only aborted embryos may be used in stem cell research). Research ethics is the application of ethical principles to research (for example, do not tamper with data through the fabrication and/or falsification of information). Professional ethics is the application of ethical principles (loyalty, commitment, integrity, etc.) to professional behaviour (for example, medical doctors must protect human life). Ethical codes in particular are evident of professional ethics.

As stated in the aim of this article, the primary focus will be on theological ethics. Strauss (1990) emphasises the epistemological truth that theological ethics can never ignore developments in the world and can only comment on these developments from a *Biblical perspective*. It is for this reason that issues such as the authority of Scripture, man as being created in the image of God, holiness of life, human suffering, disposition, conviction, consequences, providence and responsibility as understood in Biblical terms are important directives for a theological ethic.

#### **5. CHALLENGING ISSUES FOR A PROFESSIONAL ETHIC**

The three cases that follow may be presented as directives for a professional ethical culture. Although the selection of the cases was random, the particular cases were selected to identify principles and applications for professional ethics.

## 5.1 The parable of the Sadhu

The case study: *The parable of the Sadhu* is probably one of the most read cases in management and business. Bowen McCoy, a Wall Street investment banker, had one big dream: to climb the Himalayas. He travelled with a group to these mountains. On the last morning of the journey, just before they would reach the top of the mountain, the guide discovered a dying Sadhu – an Indian holy man. Conflict arose amongst the hiking group: if they continued their journey the Sadhu would be left unattended and would die. If they returned to seek help, then the hike would be called off. McCoy used this incident to tackle the problems of individual versus group commitment; personal ambition and corporate loyalty.

In every business, the leadership role is crucial. A profession influences a value system. Senior management has to be engaged in forming its view of right and wrong in a business. McCoy (1997:7) states that in a complex corporate situation, the individual requires and deserves the support of the group:

“When people cannot find such support in their organisations, they don't know how to act. If such support is forthcoming, a person has a stake in the success of the group and can add much to the process of establishing and maintaining a corporate culture”.

For ethics to be part of a company's management philosophy, it is imperative that the company also be ethically fit for this challenge. This begins with the mutual value between employers and employees. Amongst other things, mutual value is reflected in the business organisation's realising that no organisation can operate without people and that meaningful work should be part of people's working lives. McCoy (1997:4) remarks that

“No one person was willing to assume ultimate responsibility ... Each was willing to do his bit just as long as it was not too inconvenient. When it got to be a bother, everyone just passed the buck to someone else and took off”.

From this parable several observations can be made that have implications for the topic under discussion.

*Firstly*, it is evident that the individual and the group cannot be regarded as two separate entities. In the performance of a profession one interacts with other professionals in one's group. Group expectations and behaviour will have an impact on one's professional performance. This in no way means that the group's view is the ethical one – ethics is not a case of democracy. The guiding question here should be what is the general view on a matter and what would universally be expected to be the guiding principle?

*Secondly*, although this case study is open-ended, the underlying assumption is that the group influences the individual but the preferences of an individual also challenge group behaviour.

Applied to the topic of this study, some directives for a professional ethical model can be identified:

- Whose ethic is the preferred one? In a diverse religious and cultural group there would be more than one view on issues such as truth telling (in the orthodox Jewish community this means not to harm your neighbour), the sanctity of life (in the Catholic community embryo stem cell research is not approved), etc.
- Responsibility is beyond debate and must be evident from all actions taken. Responsibility should be understood beyond the narrow understanding of responsibility as obedience/subscription to rules only. Jaschik (2007) leads one in this regard with his comments on “educating for responsibility.” His comments are based on the book *“Responsibility at work: How leading professionals act (or don’t act) responsibly”* (Jossey-Bass). He says that a call for responsibility can easily become rhetoric if no examples are set. Examples are best set through advocating the ethos of the university – either through activities in the lecture room and laboratories, or through service. Students should experience a kind of “tough love” that will provide them with direction. This of course is only possible if the lecturer/researcher him/herself lives by a set of values. A fine example that can be quoted here is the *“Ethics across the curriculum”* programme at St Louis University. The objective of the programme is to integrate professional lives “with the virtues of integrity and compassion” in the professions of academics (see Kavanaugh 2000:vii).
- Where individual and group interests coincide, the choice is very often for the common good and the lesser evil. The common good does not lead to the logic that the greatest happiness should be brought to as many people as possible. Rather, it signals that where there is a conflict of interest the question should be how close a decision could get to the preferred decision. Consider the following example: one cannot simply produce as many embryos as needed to entertain the needs of stem cell researchers. Reformed medical ethics associates the protection of life with embryos. [I am mindful of the debate – even in Reformed ethics – on the beginning of life (Lategan 2006); see also Rheeder 2002]. Silverman (2006:415) articulates researchers’ responsibility well in asking whether researchers are contributing to the common good of society if the people they are studying are not protected.

- *Corporate citizenship* – moral commitment to organisation - is a more overarching terminology than corporate governance. Companies must take charge of their overall responsibility towards the broader society. If not integrated into the organisational framework, ethical responsibility will remain an ideal (see Höver 2005). Add Van Wyk's (2008) view that ethical codes are no guarantee that people will act ethically and it becomes obvious that a company's corporate values should embrace personal values and *vice versa*. Sullivan (2005) identifies negative behaviour such as anxiety and anger as characteristic of the modern workplace. It appears that occupational calling no longer exists and that it has been replaced by technocracy. This should be replaced by responsible engagement and self-regulation.

## 5.2 Derrik Bok's commercialisation of research

Although Bok (2003) does not present a case study on the commercialisation of research, he starts his book off with the hypothetical case (presented as a “dream”) of what if Harvard University were to be turned into a business, and what effect this would have on the integrity of research at the university. He asks:

“Was everything in the university for sale if the price was right? If more and more 'products' of the university were sold at a profit, might the lure of the marketplace alter the behavior of professors and university officials in subtle ways that would change the character of Harvard for the worse? ... Observing these trends, I worry that commercialization may be changing the nature of academic institutions in ways we will come to regret” (Bok 2003:x).

Bok (2003:59) identifies important ethical challenges in the shift towards commercialisation of research. One such an example is the increase in the number of science papers based on industrial problems. Although cooperation with industry may be to the advantage of research, a conflict of interest arises when financial or personal decisions influence the conduct of research. Examples are reported of researchers who promote the medicine of companies in which they have shares, but without revealing negative results. Favourable results lead to the rise of prices. In addition, more and more new drugs and medical procedures are tested where human subjects are involved. There are, however, also examples of researchers who are engaged with companies but who make bad or hazardous results known. Commercial activities may be strewn with good intentions but can easily lead to conflict. Commercial incentives have succeeded in encouraging universities to do a much better job of serving the public interest. Nevertheless, universities have paid a price for industry support through excessive secrecy, periodic exposés of financial conflict and corporate efforts to manipulate or suppress research results (Bok 2003: 59-73).

It is not always the outcome of the research that challenges the integrity of that research; it may also be the research in which the researchers are engaged, or the continuation of a project just to get the funding. Another problem is the practice of universities investing in companies started by their own faculties. Conflicts in terms of management can arise, and universities have then to pick and choose between their own scientists (Bok 2003: 146-154). Bok remarks:

“Worst of all, universities with a financial stake in work of their professors may be influenced, or may be thought to be influenced, by commercial considerations rather than academic merit when they decide on promotions, salaries or other sensitive personnel questions” (Bok 2003:154).

“It is unhealthy for universities to have their integrity questioned repeatedly by reports of excessive secrecy, conflicts of interest, and corporate efforts to manipulate and suppress research” (Bok 2003:156).

The warning from Bok's analysis of the commercialisation of research is clear: research for the sake of financial gain only questions research integrity and in turn professional behaviour. Research should be driven by curiosity and problem solving. Research is all that can contribute towards the creation of new knowledge (such as the human genome project) and the renewal of old or outdated knowledge. If this philosophy for research is replaced by a financial orientation only then the essence of research is lost. I do not wish to imply in any way that financial gain is evil. The point is simply that the over-emphasis on commercial work (classified as an ideology) challenges ethical behaviour.

Bok provides one with sufficient material to build a professional ethical model for research. Four directives can be indicated:

- Research for self interest and personal gain only is unethical. The benefit of research should be extended to one's profession (the group dynamic) and to society at large as the end-users.
- Professional behaviour should be driven by the aims and objective of the assignment (for example, a cleaner environment) and not by possibilities following on the possible results of the assignment (patenting of technologies).
- Professional behaviour should refrain from conflicting activities.
- Professional ethics should guard against the multiplication of ideologies.

### 5.3 The Johnson and Johnson case

Tylenol is a well-known over-the-counter pain medication in the US. Two incidents were reported of pharmaceutical terrorism carried out by means of misusing this medicine. Several people died as a result of the sabotage of the medicine.

The reaction to these terror attacks was noteworthy. The first time tampering with these capsules was discovered, the technology was not only changed from a capsule to a tablet (less possible to be tampered with) but all packages that could possibly have been sabotaged were withdrawn from the markets irrespective of the financial implications to the company. Clearly evident was the fact that people were considered before profit. Technologies were changed to improve human safety and no cost was too great to protect the lives of people. This is in line with Johnson and Johnson's mission statement: *Loyalty to people*.

In spite of all of these safety measures, sabotage was again reported, and again there were casualties. Once again Johnson and Johnson lived up to its own company values: loyalty to people and people first. Despite the fact that "good" money was associated with this product, it never took precedence over the company's preferred ethical behaviour (Badaracco 1998:373-394). This sound principle is also found in the Second King Report on Corporate Governance (2002). It stipulates that "... there must be greater emphasis on the sustainable or non-financial aspect of performance."

The implication for professional ethics is clear. Own proven and valued ethical behaviour cannot be compromised. Market share cannot overrule standing up for a preferred behaviour.

This leads to the discussion on ethical codes. Although such codes cannot safeguard a company or its professionals from corrupt behaviour (such as the Enron saga) the ethical code signals what the company aspires to be. When the mirror is turned to universities, the question is how do they deal with ethical codes for professional research behaviour. From self-assessment reports submitted to the HEQC it is evident that although ethical codes form part of research management policies and procedures, there is a tendency to limit ethical practice to administrative medical and animal-related research committees. Immediately, however, the question of business ethics (not only to be associated with accountability in terms of external grants) comes to mind, as well as environmental ethics (for agriculture, architecture, engineering, etc.), human ethics (for all types of questionnaires, interviews, data collection, etc.) and education ethics (think of all the ethical challenges associated with postgraduate supervision such as joint authorship, ownership of patenting, availability and preparedness of the supervisor, commitment of the student, ownership of the project by the student, administrative support by the university, and so on).

In addition, one may also ask how ethical codes are rolled out to the levels of awareness and implementation.

## **6. HOW CAN THEOLOGICAL ETHICS ASSIST?**

### **6.1 The contribution of theological education**

In Smit's (2002) review of the practice of systematic theology (which includes theological ethics) he touches on theological training at universities. He says that theological education can focus on issues such as personal development (including matters such as integrity), skills development (to direct a congregation) and academic knowledge – not isolated from other fields of study. He also mentions that although small in numbers when it comes to students and staff, theology departments can remind scholarly communities of questions on truth and values which should never be ignored at any respected university. Venter (2007:206) joins this debate when he asks what is unique to theological training. He observes that in theological training the emphasis is very often on moral pronouncements, and he suggests that God should become more evident in the debate – as if God Himself speaks.

Louw (2004) deals with a related issue: theology as science. The problem is how can theology work with the principles of science (for example rationality and evidence) but still retain a confessional character? He seeks the answer in a hermeneutic model. For theology to be a science it should focus on understanding God (or better still the Biblical revelation about God – L.L.) and the relationship between God and man. "Theology, thus, is not solely about God as an object, but about faith in God and the relationship between God and humans" (Louw 2004:863).

Some examples can provide more evidence to support the value of theological education (in general) and theological ethics (in particular).

Truth telling is fundamental in any research environment. Truth reflects on how evidence is reported, the integrity of data, informed consent, and so forth. Debates on truth telling can promote professional behaviour and support integrity in the research process. Consider the following: for the Greeks truth meant not to obscure any of the facts. In the Old and New Testaments it is less about the correct words spoken and more about the fellow-person. This in no way implies that one speaks/tells things blindly in support of other people. It means rather that one loves the truth and will live according to the truth. *Truth telling is therefore a lifestyle* (Van Wyk 1996:92). This orientation is supported by textual references such as Isaiah 59:14 (truth has stumbled in everyday life), Ezekiel 18:9 (to do the truth), 2 Corinthians 11:10 (the truth of Christ is in you).

Another example can be found in Heyns' trilogy on theological ethics. Heyns (1986:301) remarks that a comprehensive social-ethical policy for the university is essential, firstly due to the increasing relevance that should be enjoyed by the ethical dimension of science in a modern society, and secondly because the university can never stand apart from its community. Theological ethics can make a substantial contribution towards an ethical code for a university which includes, amongst other things, matters such as respect for and protection of human life, the integrity of data, the protection of intellectual property and the impact of research on a community. *Fundamental to this is the understanding that ethics should be part of all higher education activities.*

The notorious "offensive video" associated with incidents of alleged racism at Free State University evoked all kinds of discussions and allegations. One issue which never featured was the matter of how students are educated for their professional careers. Extended to the research community, the question can be asked as to whether only capable researchers are trained, and whether researchers in training (both novice researchers and postgraduate students) are never exposed to the requirements of professional ethical behaviour. The well-known example of using cloning techniques to create a Frankenstein monster is most applicable here. How can this be prevented? Based on this line of thought, many issues may be raised, such as how do we prepare researchers for leadership roles in research, and how are students sensitised to have integrity in their research? Covey (1989) states that there is a direct link between trustworthiness and integrity. A popular introduction to postgraduate supervision is the so-called Memorandum of Understanding. This memorandum regulates the relationship between supervisor and student; yet a professional ethic is often neglected in this document.

It should be clear that theological ethics can make a significant contribution towards the development of a professional ethic in research. Yet, as stated earlier, theological literature is poor at looking at professional ethics and research ethics (not only in tandem!). Nevertheless a number of interesting scientific and ethical studies, seen from a theological perspective, have been published over the last few years that could assist one in drafting a framework for professional ethics that could be applied to research. In general two things are evident from these studies. *Firstly*, that science and religion are not opposing activities. New scientific methods and ways of knowledge production provide new understandings of reality. This emphasises that scientists must move away from fundamentalist approaches to science and religion. Religion can never validate scientific facts in a rational manner (if rationality is the point of departure!). If religion is about hearing and understanding then religion is an avenue to science. *Secondly* scientists should also become more aware of ethical challenges, ethics as a way to include (as opposed to exclude) other scholars in moral behaviour and that ethics are a dynamic reflection on reality and not a rigid framework to evaluate people and their acts.

Confessing God influences one's understanding of life and reality and also influences consequent behaviour, but cannot provide empirical evidence for scientific facts. Religion is a matter of belief and trust and the confession thereof. In this view, God is not written out of science: the emphasis is on the revelation of God (*kerugma*) and man's response to this, rather than on declaring God as an object of science.

To elaborate on the two observations above, two references on each of the observations follow.

## 6.2 Science and religion

Du Plessis (2003) evinces a similar sentiment, that science and religion shouldn't be placed in direct opposition to each other. He works with the distinction between the creation as act of God and the creation as the result of this act. The latter is the focus of science (Du Plessis 2003:40). Science and religion shouldn't be leading separate lives. Religion is the integration of intellect and trust. No all things in the Bible can be understood literally. If so, then a fundamentalist understanding is at stake. Instead the question is on interpretation and search for application. Openness of mind is therefore important (Du Plessis 2003:42). In this regard Du Plessis calls for a "third dimension" which leaves room for mystery. This avoids a fundamentalistic approach and the perception that truth lies in that which can be proven historically (Du Plessis 2003:130).

Another useful link is Van Niekerk<sup>2</sup> (2005), who recently addressed the issue of science against the framework of religion. He emphasises the death of dogma when it comes to understanding God in science. In his well-presented research he refers to the post-modern technology-driven society in which science and religion should be understood. In his book he says that it is an old question to address the link between faith and science. He refers to the church father Tertullianus (145-220 a.C.) who posed the question "What is the link between Jerusalem and Athens?" Jerusalem embodies faith and Athens the Academy. Broadly speaking there are currently two traditions: scientists in favour of closing the gap between science and religion and scientists who suspend any possible link between science and religion. Van Niekerk sees the solution to these problems in understanding the difference between religious knowledge and scientific knowledge. He says that both are legitimate sources of knowledge. A major difference between the two could be in relation to evidence. Religious knowledge deals with trust and scientific knowledge with factual evidence. The one has objective truths (it influences one's personhood) whilst the other has subjective truth (it may impact on one's life but not on who one is). The difference therefore lies in the fact that these two sources of knowledge are asking fundamentally different questions.

<sup>2</sup> I am aware of the public discussion between Spangenberg and Van Niekerk (see Van Niekerk 2007) but will not allude to this debate since the focus of the debate falls outside the direct focus of this article.

The conclusions of one set of knowledge are not meant to contradict the conclusions of the other. These knowledge systems also deal differently with reality. Religious knowledge observes God's role in the universe and confesses accordingly. Scientific knowledge deals with theories which are verifiable and subjected to evidence, proof and experimental design.

Religion can confess God; science cannot prove Him. Religion can confess that God is the Creator of the universe, science can explore the universe. It is therefore wrong to assume that religion and science deal with the some objective reality. Where roles are changed one ends with an ideology.

### 6.3 A broader ethical understanding

Koopman and Vosloo (2002) look into the meaning of ethics. Although the context of their book is the local congregation and its reaction to social ethics, important remarks are made for the debate in this article. Four things should be observed. Firstly, they value the role of the person who has to act morally. They emphasise the fact that ethics is not about laws, norms or a set of rules for behaviour. In the deontology the emphasis is away from "good" acts to "good" people. Ethical behaviour can never be *limited* to what people are doing although it should always *highlight* what people are doing. Here (on the basis of Bonhoeffer) ethics shouldn't only ask what the right thing is to do but rather, how does one live the right thing? (Koopman and Vosloo 2002:60-63). They refer to the sermon on the mountain in which Christ teaches us that it isn't about telling the truth but rather about loving the truth and living it (Koopman and Vosloo 2002:69). Secondly they emphasise that a virtue ethic crosses the strict divide between the rigid subject-object scheme. Man and his behaviour and effects thereof on other people, animals and nature cannot be separated. They say (my translation): "ethics isn't about abstract moral characteristics but about people who have to embody these values" (Koopman and Vosloo 2002:73). Ethics has to move away from a *Babel* ethic (one doesn't understand) to an ethic of *Easter* (one understands) (Koopman and Vosloo 2002:153-154). Thirdly, responsibility is a critical ethical value. Koopmans and Vosloo suggest an ethic of responsibility. One of the virtues of responsibility is that it enquires into the consequences of decisions and acts. They also argue that responsibility means to act. Here they follow Barth (*A Christian Life*) and Bonhoeffer (*Ethics*) in their understanding of responsibility. Noteworthy is the emphasis on *act* and *answer* as characteristics of responsibility (Koopman and Vosloo 2002:76-84).

Fourthly, ethics should embody *hope*. Ethics is vested in Christ as Redeemer. Christian faith is based on the salvation brought about by Christ. This means that no person should be lost for the Kingdom. An ethical life therefore portrays hope as a result of the relationship with Christ (Koopman and Vosloo 2002:154).

Another related contribution is provided by Vosloo, who works with innovative concepts for ethics. One such concept is *ethics as optic*. The meaning of ethics as optic is that people should be sensitive when it comes to identifying and reacting to ethical issues. Optic means one is focused in seeing/identifying good and bad images. Seeing a figure as ethical doesn't imply the physiological sensitivity of the human eye but the metaphorical sensitivity to see not only the bad images but also the desired good images. Ethics is therefore a matter of the "right eye" (Matthew 6:22). The eye should be extended to the ear as well.

Ethics is not only a matter of *seeing* but also of *hearing*. In this context he links up to the concept of obedience. He says that people should "see" with their ears as well. Vosloo also reminds us that one should not limit one's "seeing" to acts only but that one should also be able to note the person behind the acts (Vosloo 2004). Another useful concept is to be found in his book *Engele as gaste? (Angels as guests)* (2006). He works with the concept of *hospitality* towards strangers. Hospitality here is not limited to providing shelter, food and drinks only but embodies the way in which we meet and interact with strange ("other") people. This concept has meaning for one's personal ethic, calling and attitude towards other people in all social environments. An important directive from this study is ongoing discussions with people. The need for such dialogue is, amongst other things, because people have different views and lifestyles and continuous dialogue can assist in dealing with these issues. Dialogue should eventually change people's attitude ("heart"). The implication for a professional ethic is evident. Professional behaviour can never be limited to people of the same culture, religious background, language, world and life view, etc. People will differ on the meaning thereof. In a formal interview situation, the researcher should treat squatters with the same dignity as they would the CEO of a listed company. Informed consent from poor people is as essential as that from the wealthy.

#### **6.4 Observations**

Although theological ethics is good at dealing with issues such as medical ethics, animal ethics, environmental ethics and education ethics, it is rather poor when it comes to extending its knowledge to burning issues such as professional and research matters (which is the focus of this study). In general it is safe to state that research-related issues are addressed but never explicitly debated in a research environment.

I blame theological ethics for this short-sightedness since I am of the opinion that theological ethics – as a discipline in own right – is ideally situated to deal with professional ethics in research for at least the following reasons:

- The philosophy of science makes it clear that no science is value-free. Theological ethics can build on this debate.
- Interdisciplinary research is characteristic of Gibbons' Mode Two Knowledge. In dealing with the complexity of “whose ethics?” theological ethics has to interact with faith systems (missiology and apologetics), hermeneutics (OT, NT, linguistics and systematic theology), etc. For theological ethics to understand journalism it has to interact with communication science, biotechnology with biology and engineering, and so on.
- Science is dominated by paradigm and ideological shifts. Twenty years ago abortion on demand was a no-go for Reformed ethics and challenges associated with biotechnology were non-existent. Today there are new views on the beginning of life, embryo research, cloning, animals in research, the protection of human life and sustainability in architecture and engineering, etc. Theological ethics has not yet (sufficiently) responded to these (for example what is the Dutch Reformed Church's official view on biotechnology?).

## 7. PROPOSAL

Based on these notions of ethics I would like to suggest a *triple helix approach to ethics*. Although ethics is defined as the study of principles and the application of norms/values, a more articulated description of ethics is warranted to implement ethics in one's daily life. It is in this context that I propose three concepts to deal with ethics. The concepts are *responsible acts* based on *making choices* to get to *growth* in the desired situation. These concepts have their origin in a broader ethics discourse.

### *Responsible acts*

Douma (1983, 1999) considers the notion of *ethics as responsible acts* (“*verantwoordelijke handelingen*”) of man towards God and his fellow persons. Responsible acts are informed by ethical principles and can be described as the implementation/application of these acts. Responsible acts signal that no act can be value-free. A Christian-informed value system will influence one's acts. Responsibility is fundamental to ethical behaviour. Responsible acts are understood in the context of good and bad and include a range of acts. Only human acts can be regarded as being of an ethical nature. Not all acts are ethical since people very often act on the basis of emotional or motivated reasons.

Emotional or motivated reasons are not necessarily ethical. Acts often reflect nobility of character (virtue). Eventually all acts are purposeful. It is against this understanding of human acts that Douma (1999:23) defines ethics as the study of moral acts (“de beinning op morele handelinge ...”).

*Making choices*

Fisher (2000, 2001) specialises in business ethics. For him ethics is about *making choices*. He calls on Peter Drucker who distinguishes between “*doing the right thing*” and “*doing things right*”. He favours a teaching approach where more emphasis is laid on “issues versus right and wrong”. For Fisher the role of business leadership is crucial. A profession influences a value system. Senior management has to be engaged in forming their view of right and wrong in a business. From Fisher’s perspective it is obvious that a business ethics framework is formed by religious, family and educational values. These values will direct one in making choices. In making choices, a person’s individual conviction will be the leading instrument. The value of his perspective is that ethics are not only about judging a situation but also about making a choice based on one’s ethical orientation. It should be obvious that decisions themselves can never be removed from responsible behaviour. Badaracco (2000:5-14) presents a framework for making choices on the basis of “spheres of responsibility”.

He identifies four spheres:

<b>Sphere of responsibility</b>	<b>Contents of responsibility</b>
1. Personal ethical values	1. Personal values consist of the duties, commitments and ideals that shape and guide individuals’ lives.
2. Responsibilities as economic agents	2. As economic agents, managers have the fiduciary duty to serve the interests of their company’s stakeholders.
3. Responsibilities as organisation leaders	3. As organisation leaders, managers’ decisions and actions have significant consequences for the lives, livelihoods and well-being of their employees.
4. Responsibilities in cooperative capitalism	4. Managers’ ethical responsibilities do not stop at the boundaries of their companies. This is true not only in dealing with other firms, but also in dealing with international / globalised companies.

### *Growth ethics*

Burggraave discusses the growth ethic. Fundamental to this ethic is the approach that although the ethical choices one makes might not be the perfect choices, they are still aimed at meeting the ideal for the situation. The choices made will guide one always to aspire to the ideal situation. Within his growth ethic there are several ethical guidelines that can assist in making an ethical choice. Firstly, Burggraave calls for a Christian engagement. Secondly he argues in favour of mercy in ethics. Thirdly he frames it within an ethic of growth. God is the cause for ethics. One cannot place his/her faith in God without reaching out to other people (Burggraave 2000:198). When Burggraave (2000:81) calls for a Christian engagement it is based on the love for God who demands that we love our neighbours like ourselves (Burggraave 2000:81). The first sign of God's love is that He gives life (Burggraave 2000:48). *Life is therefore fundamental in ethics.* Life can therefore be associated with God's love. Responding to God's love implies a total change of mind and behaviour (Burggraave 2000:52).

In an imperfect world one should accept that the desired ethical behaviour is not always possible. Although one strives towards the "absolute good" (*vere bonum*) one very often has no choice other than that of the "lesser good" (*minus bonum*). This is an improvement on the lesser evil (*minus malum*) (Burggraave 2000:257). Situations occur where one takes on a less desired ethical behaviour (ignore the advice of a supervisor regarding an experiment if there is evidence to suggest that there is a better methodology to follow) but one still wishes to behave ethically (inform the supervisor that his/her advice was not followed and the reason for this). This is the basis of a growth ethic – one grows towards the ideal situation. Growth ethics represent the "lesser good" (Burggraave 2000:259).

### *Integration of ethical approaches*

*Acts* and *choices* already signal that the subject of ethics is no desktop exercise and no theoretical activity only. Ethics come into effect when making choices but become meaningful once the identified principle and its norm/value are applied to the challenges at hand. Against the framework of the definition of ethics one can say that principles and their values/norms are identified and analysed based on informed choices and responsible acts with a view to addressing a conflict of interests in a meaningful way. Throughout the process a person should grow to seek the ideal decision and to know that a compromised decision might be best for a particular situation but not always for the desired situation. Lips (2006) reminds one that ethics can never be removed from the search for the meaning of life.

It is in this context that Remans' (2005) ethic of care (“*zorgvuldigheidsetiek*”) can be presented. He lists three categories to explain his understanding of ethics: welfare and luck of the self and others, control of risks, and that the advantages should far outweigh the disadvantages. Remans' view links to the creation of a meaningful life for the self and others. Ethics is never about excluding other people but about creating an environment of neighbourly welfare.

These suggested approaches to ethics can be useful in dealing with professional ethics in research. Consider the following example. The development of new forms of energy is high in demand. In South Africa new forms of energy are necessitated not only to be more environmentally friendly but also to secure sufficient resources of energy to keep the economy going and to meet household demands for energy (*making choices*). For researchers the scientific challenge is to develop new forms of energy. But their scientific endeavours will be influenced by ethical challenges such as the environment and cost considerations (*responsible acts*). Ethical questions would be whether the environment can be ignored in developing these new forms of energy; whether the environment should be protected at all costs; and whether the sustainability of the economy is not more important. After all, the economy in South Africa is slowing down at such a rate that one might debate that all stops should be pulled to save the economy from negative growth (*growth ethic* to desired situation).

With these principles in mind, a professional ethic in research based on theological ethics can now be presented.

## **8. A MODEL FOR PROFESSIONAL ETHICS IN RESEARCH BASED ON THEOLOGICAL ETHICS**

The discourse up to now advocates professional ethics in research and discusses the contribution of theological ethics in this regard. The examples have made it clear that ethics is not a theoretical exercise only but should be implemented in all activities. The preferred approach to ethics is that of the suggested triple helix approach. Based on this, the next model for professional ethics can be presented.

*The nucleus of professional ethics should be moral or value-driven responsibility.* Here I would be inclined to follow Heyns' *theology of obedience* as developed in “Lewende Christendom” (Living Christianity) (1972) although the perception of obedience might not fit comfortably into a post-modern society. Heyns emphasises the fact that one must respond to God in any given situation. Essential therefore is how one “hears” God and how one reacts to hearing God. In reacting to God's call the kingdom of God is proclaimed. The value of Heyns' approach is that through one's responsible acts, which are part of our obedience, there is a definite approach to the proclamation of the kingdom of God.

If this line is taken then one's responsibility is to seek God's glory in science as well. This leads to another perspective, namely that of God's *omni presence* in science – which is a *confession* that God is the Creator of molecules, DNA structures, gravity, numbers, concept, etc. Confession in ethics shouldn't be seen as a rigid *summary* of one's ethical beliefs but rather as an active *practice* of one's Biblically-informed ethic. Confession in ethics should be seen in juxtaposition to one's *calling*. Here too is the emphasis of living one's religious beliefs in everyday life. Venter (2007:215) emphasises the effect of God's "character" on one's life. He argues from a Trinitarian perspective. The question then is not *Who am I?* but rather *How does God's being influence my understanding of calling?* Calling from a Trinitarian perspective is never about one's own preferences but always about the kingdom. A similar view is expressed by Schuurman (2004), who says that the Christian *Call* to follow Christ should spill over to all other *callings* in life. He distinguishes between lawful and unlawful callings. God calls lawfully and it serves the common good.

Characteristic of one's calling is the central religious command. All love should be selfless. *Shalom* should be experienced in all one's callings. *Shalom* refers in the context to enjoyment. Schuurman says: "In all their callings – home or extended family, friendships, paid work, cultural activity, political life – Christians must strive to establish justice, contribute to the common good and promote enjoyment of life in creation under God's reign" (Schuurman 2004:347). Vocation should keep on reforming personal and institutional life. Höver (2005) deals with the Barmen Declaration which establishes guidelines for ethical behaviour. He refers to two fundamental perspectives in this declaration. Firstly, Christ is God's assurance for the forgiveness of sins (*Zuspruch*) and secondly He is also God's claim over our entire life (*Anspruch*). Given this, it means that Christian ethics relate to all areas of life. No neutrality can exist. Man is equally responsible for his own and his neighbour's wellbeing. Ethics therefore demands compassion. Compassion is embodied in love. No absolute and final answers can be given, and there must be an ongoing search for correct moral behaviour. One can regard obedience to the Kingdom of God as motivation for one's moral responsibility. Living moral responsibility should be a confession which is part of one's calling. Responsibility therefore has three ethical dimensions: obedience, calling and confession. Goosen and Louw (2000:272-273) give concrete meaning to a responsibility ethic. They list characteristics such as the nature, quality and commitment of human acts, and recognise attitudes and sacrificing love as core to a responsibility ethic. Man is linked to commitment and calling. Human life cannot be separated from human dignity.

The centre of the proposed model consists of the ethos of the individual or profession. *Ethos can also be translated as ultimate commitment*. A Reformed (professional) ethic's commitment is situated within Scripture.

This commitment comes in an age during which the authority of the Scripture is questioned and therefore not regarded as a straightforward issue. Although both the morals and the context of ethical decisions have shifted, this doesn't mean that the Bible cannot be the foundation for a social ethical discourse or framework. Even if the authority of the Bible is called into question, it doesn't mean that for Christians the authority of the Bible no longer exists (De Villiers 2004). Neither will this study pretend to give a final answer. The point of departure is rather to understand the meaning of God's revelation for science than to prove the existence of God.

Theology is *understanding* and *interpreting* the revelation rather than *proving* the revelation. Here hermeneutics plays a specific role (see Smit 2006). A good example is given by Du Toit (2000; 2005), who has made an enormous contribution to stimulating the debate on religion and science in the South African theological community by indicating that in a post-modern world strict rationalistic categories for interpreting God in science no longer suffice. Pure objectivity doesn't exist either – man is too much influenced by presuppositions which influence his reading of Scripture and his understanding of the context of application.

*Responsibility must be evident in all actions (choices/decisions)*. Actions are influenced by ethical orientations such as *attitude* (decisions based on individual motives or morals: *Why am I doing this?*), *consequences* (What will be the outcomes and impact of one's decisions?) and *virtue ethics* (uses practical wisdom and character for emotional and intellectual problem solving: *How best can I deal with this situation?*) (Towsley-Cook and Young 2007:9,10). Following on action is impact. The long-term effect or impact cannot always be predicted in advance. Although the possible implications of the development of nuclear power were well-known to its inventors, nobody could imagine the disaster it would bring to the victims of the explosion at the Chernobyl nuclear plant. The same can be said about developments in bioengineering. Human defects can be minimised, but what about the evils of cloning? Actions should always be weighed. De Gruchy (1996) says that responsibility is not to over-exploit the environment, animal world or created order because man is placed in command of the earth (the so-called cultural mandate in Genesis 1:28). He understands responsibility in the context of service and thankfulness. He writes:

“The gospel transforms our understanding of being human by insisting that human responsibility is not a mandate derived from our creation in the image of God, but an expression of gratitude to God for the gift of life in Jesus Christ. It is not simply a moral duty but a response of thankfulness” (De Gruchy 1996:104).

He continues to say that through Christ man is able to execute his freedom. "... but precisely because we have regained our freedom to be human beings we can now exercise our responsibility as God's stewards" (De Grucy 1996:104). He subscribes to Bonhoeffer's understanding of responsibility namely that man surrenders his life to the service of others (De Grucy 1996:105). Responsibility also refers to discipleship – Christians learn to follow Jesus Christ day by day (see Romans 14:12, Colossians 3:23). Conradie (2003) adds similar ideas. He says that the stewardship principle can hardly be understood outside the Christian tradition. Genesis 1:28 deals with *kabash* (to subject, to dominate) and *radah* (to rule). The general application is ideologically understood as domination. He argues instead for an interpretation of care and protection. These words cannot be freed from their violent connotation, and neither can it be justified to limit their meaning to exploitation only. The inclination is rather to add responsibility to the interpretation of these words.

An unwarranted and undisciplined application of responsibility should be avoided. Dzansi (2006:176, 180) captures the essence of ethics well when he says that ethics must provide guidance so that decisions can be made with honesty, respect and fairness. The *ubuntu* approach has the common good as integrator for hospitality, care and neighbourly love. Van Niekerk (2005:214-217) says that an ethic of responsibility demands accountability of ethical decisions. Responsibility is the midway between inflexible rule, morality and utilitarianism, which regards all ethics as unimportant and ignores them.

*The ethical dilemma grows in situations where very little choice is left* ("the minimisation of choices"). Two concepts inform this debate: *minus malum* (the lesser evil) and *minus bonum* (the lesser good). These concepts relate to two ethical figures: the compromise and a growth ethic or an ethic of possibility (Burggrave). The argument is driven that no choice should be made between these concepts but that these concepts can help to address the conflict in borderline situations. This view relates to the compromise. A compromise has to do with the choice between two conflicting norms in a borderline situation. In a borderline situation norms are in conflict with each other and a conflict of interest is created. It then necessitates a choice between the norms. A growth ethic should assist one to grow through the current situation to the desired situation.

The value of a growth ethic is its assistance in dealing with the results of the borderline situation after the choice of the lesser of two evils has been made. In practice this means that the choice for an abortion to save the life of the mother is a lesser evil (*minus malum*) and the research following on the aborted embryos is the lesser good (*vere bonum*). The choices of the *minus malum* and the *vere bonum* should contribute towards the ethical growth of the researcher. Ethics aspire to the ideal situation but are very often confronted by a reality where no clear-cut options are available. Burggrave (2006:25) also says that an ethic of growth will lead to meaningful living and acting.

He emphasises that although people might not be living according to meaningful Christian norms it doesn't mean that there is no validity in these norms. He makes an important observation: "Ethics has to be transcended in a double direction: both downward and upward." Downwards means it is part of one's daily life and actions. Upwards means that it is directed towards a hopeful future which mankind cannot create or enforce since it is given in grace only (Burggraeve 2006:26). Eventually it becomes an ethic of mercy. He says: "Going along life's way is not an aimless wandering about but having a horizon – literally a "panoramic view" – before you that not only reaches farther but also higher and invites you to go to the top."

Another feature of a growth ethic is its humbleness, its hope (as desire and expectation). It opposes the perception of perfection. It also calls on care and forgiveness. The crux is that man should strive to keep his moral behaviour as close as possible to the Biblical norm.

It would be unrealistic to think that all situations are faultless, non-problematic and not ethically challenged. No one should shy away from the imperfect world in which we live. Hart and Neil Brady (2005) remind us that no manager or organisation is free from making mistakes. The challenge is how can mistakes be corrected and imagination for research maintained. It is in this context that the triple helix approach to professional ethics can be scaffolded in the broader context of *workplace spirituality*. Workplace spirituality is not primarily linked to religion in the workplace but rather to how the workplace contributes towards the meaning of existence. This is warranted by, amongst other things, the disconnecting of individuals due to the specialisation in organisations (Hart and Neil Brady 2005:422). Robbins *et al.* (2003:60) write:

"What is workplace spirituality? It is not about organized religious practices. Rather, it is a recognition of an inner life that nourishes and is nourished by meaningful work that takes place in the context of the community. Employees are looking for meaning, purpose and a sense of connectedness or community from their work and their workplace."

Many reasons can be provided as to why workplace spirituality is in demand. Man has an ongoing search for meaning – also in the workplace. Work should entail more rewards than simply a job and a salary. Since people spend so much time at work, they continue asking how work can give purpose and meaning to their lives. Another reason is the uncertainty of the modern workplace. Uncertainty creates anxiety. The ethical question is *How are these issues addressed?* (Robbins *et al.* 2003:60-61).

Workplace spirituality can bring ethical meaning to the professional environment. It hinges on enhancing meaning in the workplace through professional behaviour. Meaning is best articulated through the armour of ethics as a lifestyle. Consider the following remark by Strydom (2005). He says that ethical principals should be internalised in the personality of the researcher to such an extent that ethically guided decisions become part of the researcher's lifestyle.

Having an ethical standard is therefore the one behavioural essential without which no workplace can be. There is value in the remark of Harris, Pritchard and Rabins (2005), namely that ethics have a preventive role to play. Ethical people can safeguard society from many malpractices. Ethical people can bring safety and wellness to society. This in no way means that they are policing the world, and neither that they are whistle-blowing all the time. Ethical people adopt normative behaviour as a life style. Ethical professionals live up to ethical behaviour that goes far beyond (in the positive sense!) that which is expected by their ethical codes. Ethical behaviour in the research environment creates new knowledge that improves the well-being of people and their society. It is for this reason that integrity should be the branding of the modern workplace. Audi and Murphy (2006) rightly point out that there are many faces to integrity. From its Latin origin, *integritas*, it can mean completeness, purity or uprightness. Although these are not synonyms for integrity, its opposites signal precisely what integrity is not: defects, underdevelopment of moral aspects or behaviour. In analysing different uses of the word "integrity", it can imply *oneness* of character (person lives by his/her standards which are aligned with universally accepted behaviour – shall not lie, cheat, steal, etc.), Doing the right thing requires reflection. Integration of conduct and character in individuals, groups, institutions and society is therefore beyond debate. Essentially two kinds of integrity are needed in professionalism: integrity as a certain kind of unity of character, and integrity identified either with specific moral virtues or with moral virtues in general.

From a Reformed perspective the approach to ethics advocated in this study means that the Reformed researcher must be influenced by the Reformed ethos. This ethos must direct his/her understanding, unfolding and interpretation of reality. An ethos is not subject to scientific proof but is *a priori* for a researcher. For the Reformed researcher the Bible will provide the *principle* (how things ought to be) which has to be applied to a concrete situation (the *norm* for the situation).

Any model is meaningless, however, if it cannot be implemented. In the next paragraph this model will be tested against examples taken from medicine, engineering, journalism, business and education.

## 9. APPLICATION

The triple helix approach (responsible acts, making decisions, growth) can be applied to the following research challenges in five fields of research: medicine, engineering, journalism, business and education. Examples will be related to the research context:

<b>Professional ethics</b>	<b>Medicine</b>	<b>Engineering</b>	<b>Journalism</b>	<b>Business</b>	<b>Education</b>
Example	Designer babies	Design and manufacturing of light motor vehicles	Unnamed resources to support news story	Manipulation of research budgets to meet own research objectives	Poor supervision
Ethical problem	May one interfere with the unborn baby's sex and/or physical characteristics?	Light motor vehicles can save on energy and more people can have access to cars. Light vehicles not so safe on troublesome roads. More vehicles mean more pollution.	Claims are made but how is the information verified?	A lack of effective budget and risk controls can endanger the successful completion of a project.	Problem of plagiarism, mediocre work, science is a fallacy, under-prepared supervisors
Responsibility	No gender discrimination. Individual consumer preferences should be avoided, such as colour of hair, height' no scientific	Design cars that don't compromise on safety and don't contribute towards pollution.	Anonymity of resource can be respected but not if the person is unlawfully protected.	Not to use funding for items not approved in the budget.	Integrity to science.

	arrogance. Positive use - to cure genetic defects in children.				
Decisions	Choose sex should never be for consumer (heir to the family business, men needed in war time situations) or pragmatic reasons (already have three sons). Positive decision if it contributes towards human health.	Inventing alternative transport systems. Road safety would be a special requirement	Sensation must never be the reason for publishing information to the detriment of other people.	To adjust and approve and to have control mechanisms in place.	No student should be assigned to supervisor not qualified for the job.
Growth	Value of person beyond gender. Gender equality should be promoted.	Owning a car is a sign of prosperity but not at the expense of other people. Individual interest less important than group's interest.	A good scoop less important than the moral commitment towards people.	Access to funding doesn't mean that one can misuse funds.	Supervisors should learn how to supervise. This is a skill alongside their professional scientific field of study. Cannot argue that if a supervisor

					knows his/her field of study then it will follow automatically that he/she is also an effective supervisor
Contribution by theological ethics	God is Creator; children are changed from persons to products, dignity of human life, children as gifts from God (Psalm 137), family life not based on gender.	Personal wealth (individual gain) can never outweigh responsibility towards the group and the environment.	No unverified information should be revealed.	Eighth command -ment forbids stealing of money.	Having a work ethic means commitment to profession and also to update oneself on things that one is not well informed of.
Meaning for professional ethics	God created equality of gender. Gender imbalances due to cultural behaviour and not creation order.	Individual advantages should not ignore the impact on the group and <i>vice versa</i> .	Individuals should be treated with dignity. How will sensation change behaviour?	Understand risk, financial control, accountability in view of the eighth command -ment.	Part of being a professional -al is to have (and master) skills associated with job.

## 10. THE IMPLICATIONS FOR A RESEARCH CULTURE

Doing research cannot be without *ethical responsibility*. Responsibility in the ethical sense means the identification of the principles laid down for doing research and contextualising the related norm for a given situation. Ten (there should be more!) virtues can be identified from theological ethics for professional ethics in research.

- God is the creator of all things and has entrusted man to take care of them. Part of the cultural mandate (Genesis 1:28) is to find answers to the challenges associated with the universe. Christian scientists will affirm that God is present in all forms of knowledge. True knowledge will be linked to God (Psalm 111:10), that God is the Truth (John 11:25). At the same time the Christian scientist will also affirm that Christ is the Redeemer of a fallen world and that salvation should be evident in the world of knowledge as well (Matthew 28:18-20). Doing research in a professional manner is not to prove God but to rejoice in His presence in the created world.
- Human life is God-given. It should be protected and never subjected to research where the risk is of such a nature that life and dignity are challenged (Exodus 20:13, Job 10: 8-12, Psalm 139: 13-16). Human life can never be regarded as laboratory equipment. Medical/Health ethics committees have the responsibility to see to the humane treatment of all people in controlled research experiments. Legislation must be progressive and should not allow the “fabrication” of human embryos for research only.
- Although the animal kingdom is subject to man's control this doesn't mean that animals can be exploited for research. Although animal life is not equal to human life (Genesis 2: 19-20, 9:6, Psalm 8:6-8), animals can be used in research if risk controls are in place. Man's control over all created creatures doesn't mean that these creatures can be exploited or experimented upon without controls in place.
- The environment must never be exploited at the expense of ecology, natural resources and healthy living conditions. God gave the earth to man to keep it on His behalf. As part of this covenant, the earth must be preserved in such a manner that it contributes to the welfare of mankind. Researchers must be mindful that God is the true Owner of the land (Psalm 24) and that the earth also suffers due to man's sin (Romans 8:19).

- As part of man's calling to rule creation, new knowledge must be created to solve mankind's problems and to improve living conditions. The development of knowledge must contribute towards an orderly creation (Isaiah 28:23-29). Man is not living up to his scientific calling if the same knowledge is simply repacked without improving on what is already known (the problem with many publications in journals), if misbehaviour is encouraged (Proverbs 9:17) and if destruction is promoted. A peace culture should be the branding of scientific development. Research is not there to replace God or to vest all trust in mankind (Genesis 11:1-9).
- Research must promote a lifestyle coined by the characteristics of the kingdom. The attitude of the professional scientist must continuously be scrutinised. The Biblical way is to examine one's motivations for doing something (Proverbs 4:23), not to mislead anyone with one's knowledge (Proverbs 4:25, Exodus 20:16) and to take on the truth as a lifestyle. He who does that will be responsible (obedient) towards the values of God's kingdom as especially proclaimed through the Sermon on the Mount (Matthew 5-7).
- Theological ethics call on a different professional behaviour. It acknowledges the triumph of God's grace over man and his world, it reminds researchers that their research is a sacrifice to God, that research behaviour contributes towards the proclamation of God's kingdom, that the salvation and mercy of Christ are carried into research practices and that research in return continues this into man's world.
- Professional ethics in research should live a culture of *koinonia* and *diakonia* which, in turn, should constitute a *shalom* community. Professionals should recognise other people and their needs through research. The supervisor should assist his/her student to unlock his/her potential, the postgraduate student should commit him/herself towards his/her study, the university should provide an environment conducive to research, research groups should contribute towards the betterment of people's social and physical living conditions and researchers should set the example of a professional lifestyle.
- The Frankenstein monster image of the scientist should be replaced by a scholarly community committed to integrity in the research environment. Other people's ideas and knowledge should be respected, trustworthiness should be the orientation of all research activities and the protection of the integrity of the research environment should be upheld.

- Research should never degenerate into quasi-religion. Good research is the result of one's commitment towards the kingdom. Good research is the sacrifice of praise for being part of God's mysterious creation that a researcher is privileged to unravel parts of. Professional behaviour is a thanksgiving to God for affording the opportunity to serve society through one's creation of new knowledge.

To contextualise these values, the holiness of life and the dignity of a person may be considered as an example. The researcher who follows Biblical norms associated with human life will recognise the uniqueness of man, his personal values, faith and traditions. The preservation of dignity will follow this recognition. Freedom of choice for a person who is competent to take independent decisions will be respected. Protection and promotion of the welfare of the individual will be top priority. This will lead to treatment of all personal information with confidentiality and coupled to this, the acknowledgement that every person has a right to privacy. The right to privacy is not transferable, not hereditary and not liable to seizure or renunciation.

Research findings should be presented in such a way that the anonymity of the patient is protected. Researchers will at all times take reasonable precautions to ensure that patients will be disadvantaged as little as possible. Researchers will keep strictly to the approved and responsible methods of the experimental procedure. All research programmes should ask whether the programme/project is really necessary, whether the research has been correctly planned from both a scientific and economic viewpoint and whether there is a balance between the risks and the potential value.

## 11. SUMMARY

The discussion in this article presents the cornerstones of a basis theory for professional ethics in research informed by theological ethics. Five principles can be identified.

**Principle one:** Religious orientation informs ethos of approach. It illustrates that no model can be value-free. A rational orientation might find no ground for religious influences on understanding of reality. A confessional orientation can take its point of departure in Scripture.

**Principle two:** Ethics is not about evaluation of a situation or decline of moral behaviour only. Ethics are principles in action via the application of norms/values. The designated model embodies the preferred approach to ethical challenges, namely that decisions must lead to acts. Actions are subject to ethical behaviour. Decisions can never be ethical if they don't lead to responsible acts. Responsible acts are the benchmark for making decisions.

**Principle three:** Since one is dealing with ethical challenges, ethical growth to the desired situation must always be linked to making decisions and responsible acts.

**Principle four:** Professional behaviour must incorporate the notions of responsible acts, making decisions and growth.

**Principle five:** Professional ethics based on theological ethics will be informed by principles such as responsibility, obedience, respect for others, oneself, possessions, the environment, not to steal, not to lie, not to desire what isn't yours, to live to truth, to be of service to one's fellow person, not to do harm, to be committed although other people might not follow suit, not to compare other's weak outputs and to follow their behaviour, etc.

## 12. CONCLUSION

The demonstration of a university's commitment to professional ethical behaviour in research can be via a code of ethics in which the university pronounces its standards for research. This might be useful as orientation tool. Far more important is to create an environment in which a professional ethic is not regarded as a personal achievement but rather as a life orientation.

This article has presented a three-fold approach to ethics in which this value has been promoted. It is quite evident that the creation and sustainability of such a culture entails much more than a "tell me" culture – it warrants a "show me" culture. Theological ethics can do well to sensitise researchers towards a "show me" culture and can – as science in own right – do much to demonstrate integrity in the research environment.

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