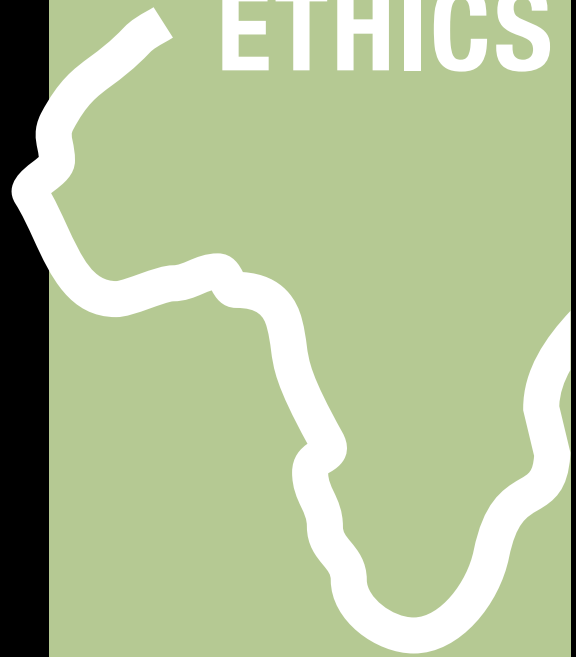


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Reviewed by Marilise Smurthwaite

Does business education cultivate environmental citizenship?

RIYAADH LILLAH & SUZETTE VIVIERS

ABSTRACT

Reductive management theories (based on the utility maximisation economic model) are increasingly being criticised as the cause of recent corporate scandals. Management education has neglected the interwovenness of humans and the environment, and the moral obligation of businesses towards the natural environment. This study identified perceptions of students and academics at a prominent South African university regarding levels of environmental awareness and values, implications of environmental management, environmental education, pro-environmental behaviours, and incentives to go green, using a questionnaire. The results revealed that business students and academics differ from their counterparts in other faculties regarding perceptions of factors that influence environmentally responsible citizenship.

Keywords: ecological ethics; environmental education; environmental values; incentives; natural environment; utility maximisation

INTRODUCTION

The recent spate of corporate scandals (involving corporate practices which, together with other factors, culminated in the 2008 financial crisis) has resulted in mounting criticism of the ethical integrity of management practices in for-profit organisations. This, in turn, has resulted in calls for a reorientation of management education, which, at present, exposes students to the economic model of utility maximisation (Goshal, 2005). An article published in this journal in 2009 echoed this sentiment by proclaiming that business education erodes the character of management students (Elegido, 2009).

Although Elegido does not explicitly point out exactly what he means by character, he implies that character refers to how the individual understands and conducts him/herself within the

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broader context of society. Thus, it could be said that his focus is on the broadly ethical manner in which individuals understand and interact with one another. Elegido (2009:16) further argues that commonly used economic and social models of human behaviour are highly reductive, and that “business schools fail to acquaint their students with broader and more inclusive views of human nature.”

In recent times, consideration for the natural environment has become more widely publicised, and has emerged as an important aspect of human existence. Furthermore, climate change has been identified as one of the greatest challenges faced by humanity, and, more specifically, for present purposes, businesses¹ (World Wildlife Fund, 2008). Scientific consensus, reflected in reports of the Intergovernmental Panel on Climate Change (IPCC), is that the earth is indeed warming, mainly due to greenhouse gas emissions from human activity (IPCC 4th Assessment Report, 2007)². The consequences of climate change threaten the survival of many plant and animal species, as well as food and water security, creating an increased potential for conflict as a result of resource scarcity. However, the IPCC only published peer-reviewed empirical research until June 2006. Since then, a significant body of peer-reviewed empirical research has been published that shows that the assumptions made in the 2007 IPCC report were too conservative, and that observed climate change is, in fact, occurring at a more rapid pace than previously thought (World Energy Outlook, 2008; Romm, 2008). Leading scientists worldwide are calling for an immediate and dramatic reduction in greenhouse gas emissions by 2020, in order to limit the effects of climate change.

Direct implications of climate change for South Africa (some of which have already been observed) include temperature rises above the global average, an increase in flooding in the eastern part of the country, and a rise in sea level (State of the environment, 2010). It therefore follows that no one, including business managers, can afford to ignore the causal link between human society and nature today.

Because it is impossible to detach economic endeavours from imminent ecological limits, it has to be admitted that business ethics and, more specifically, business education, cannot isolate itself from ethical matters pertaining to the natural environment. A discipline that takes a more encompassing approach to understanding the complex relationship between humans and their social and natural environments is ecological ethics. Curry (2007) points out that the more common term *environmental ethics* presupposes a dualism between human beings and non-human nature – an assumption that centres on human interests. Because the word *ecology* treats humans and biota as integral parts of ecological systems, the phrase *ecological ethics* is less presumptuous and more accurate, as it affirms the interdependence of humans and nature (Kovel, 2002:10). Curry (2007) remarks that ethics is not something “optional,” something to be addressed, after one’s needs, both physical and financial, have been met. Rather, ethics cuts directly to the core of all human activity.

There is also something ancient about an ecological ethic. Keller (2008) states that, “prior to Abrahamic monotheism and Greek rationalism, ancient peoples, particularly nomadic hunter-gatherers, probably considered themselves as integral parts of what encompassed them, moving with herds, in concert with meteorological and seasonal changes, seeing themselves as one kind amongst other living beings.” They probably did not see themselves apart from the environment, as modern society has learned to do – with conspicuously detrimental effects on the integrity of natural ecosystems (Berry, 1996). Innovations of the industrial revolution further distanced us from the natural world, and technological comfort has come at the expense of the awareness of our responsibilities as environmental citizens (Keller, 2008).

PROBLEM STATEMENT

Assuming that a shift towards environmentally responsible citizenship reflects a change from a self-centred axiological approach on the part

of individuals to one of greater awareness of their interconnectedness with the rest of society and its natural surroundings, the purpose of this study was to investigate whether signs of such a shift could be detected among students and academics. Specific attention was given to the following: environmental awareness and values, the implications of environmental management, environmental education, and pro-environmental behaviours. The research was undertaken in recognition of the increasingly important role that universities ought to play in addressing the challenges posed by human-induced environmental degradation.

Although the researchers acknowledge that many factors other than education can influence the development of character, this article will focus on education as a key determinant in creating an environmentally responsible citizenry. Several researchers (e.g., Armstrong & Impara, 1991; Hawthorne & Alabaster, 1999; Cordano *et al.*, 2003, and Short, 2010:7) found that environmental education interventions have a significant impact on promoting pro-environmental behaviour.

This article will present selected findings from an online survey that aimed to assess the perceptions of students and academics at a South African university toward *greening* the university. The term *green* should be read as implying the promotion of a set of values and behaviours that are compatible with the assumption that the interests of individuals and the natural environment coincide. For higher education institutions, this means re-orientating the teaching, research, engagement, and operations of the university towards an increasing awareness of the need to consider and act upon the *interwovenness* of humanity and nature.

RESEARCH QUESTIONS AND OBJECTIVES

Given the problem investigated, this study focussed on the following questions:

- Are there differences between the environmental awareness and values of

students and academics of the Business and Economic Sciences (BES) faculty and those of respondents in other faculties?

- What are the perceptions of students and academics toward the implications of environmental management? Are BES students and academics more, or less, convinced of the benefits of environmental management than their peers in other faculties?
- How much importance do students and academics attach to integrating green topics into existing modules, especially those registered and working in the BES faculty?
- To what extent do students and academics engage in green initiatives on campus? Are BES students and staff more, or less, engaged in pro-environmental behaviours?
- Which incentives are likely to motivate students and academics to engage in environmentally friendly activities whilst on campus? Are students and academics in the BES faculty more, or less, motivated by incentives to go green than respondents in other faculties?

In addressing these questions, the following research objectives were formulated:

- To conduct an in-depth literature review on ecological ethics, environmental citizenship, environmental awareness and values, the implications of environmental management, environmental education, and pro-environmental behaviours;
- To develop a research instrument to investigate the environmental perceptions and behaviours of students and academics;
- To collect and analyse primary quantitative data by means of appropriate statistical procedures; and
- To draw pertinent conclusions and provide recommendations to decision-makers at higher education institutions, particularly those in BES faculties.

RESEARCH DESIGN AND METHODOLOGY

In this study, a positivistic research paradigm was adopted. Two survey questionnaires (one each for students and academics) were developed, based on literature and consultations with environmental experts at two South African universities. Each questionnaire consisted of six sections requesting the biographical details of the respondents, as well as their perceptions of a range of environmental issues. In this article, only statistics relating to students' and academics' environmental awareness and values, their perceptions of the implications of environmental management, their desire to learn about green topics, the pro-environmental behaviours in which students and academics engage, and the incentives that could motivate them to engage in more pro-environmental behaviours will be reported and commented on.

Descriptive and inferential statistics were calculated, using Statistica version 9. Statistical significance was measured at the 5% confidence level.

SAMPLE DESCRIPTION

The biographical details of students and academics are presented in Tables 1 and 2.

TABLE 1: SAMPLE DESCRIPTION – STUDENTS

| | | All faculties | | BES | |
|----------------|---|---------------|--------------|-----------|--------------|
| | | N | % | N | % |
| Gender | Male | 147 | 45.9 | 49 | 49.5 |
| | Female | 179 | 54.1 | 50 | 50.5 |
| | Total | 326 | 100.0 | 99 | 100.0 |
| Level of study | Undergraduate | 259 | 79.4 | 86 | 86.9 |
| | Postgraduate | 67 | 20.6 | 13 | 13.4 |
| | Total | 326 | 100.0 | 99 | 100.0 |
| Faculty | Arts | 51 | 15.5 | N/A | N/A |
| | Business and economic sciences (BES) | 99 | 30.4 | N/A | N/A |
| | Education | 13 | 4.0 | N/A | N/A |
| | Engineering, the built environment and IT | 52 | 16.0 | N/A | N/A |
| | Health science | 29 | 8.9 | N/A | N/A |
| | Law | 10 | 3.1 | N/A | N/A |
| | Science | 72 | 22.1 | N/A | N/A |
| | Total | 326 | 100.0 | | |

TABLE 2: SAMPLE DESCRIPTION – ACADEMICS

| | | All faculties | | BES | |
|-----------------|--|---------------|--------------|-----------|--------------|
| | | N | % | N | % |
| Gender | Male | 106 | 42.1 | 15 | 48.4 |
| | Female | 146 | 57.9 | 16 | 51.6 |
| | Total | 252 | 100.0 | 31 | 100.0 |
| Age | 22 – 30 years | 41 | 16.3 | 8 | 25.8 |
| | 31 – 40 years | 60 | 23.8 | 9 | 29.0 |
| | Older than 40 years | 151 | 59.9 | 14 | 45.2 |
| | Total | 252 | 100.0 | 31 | 100.0 |
| Job description | Academic | 126 | 50.00 | 25 | 80.6 |
| | Administrative / Support / Technical | 126 | 50.00 | 6 | 19.4 |
| | Total | 252 | 100.0 | 31 | 100.0 |
| Faculty | Arts | 20 | 15.9 | N/A | N/A |
| | Business and economic sciences (BES) | 25 | 19.8 | N/A | N/A |
| | Education | 9 | 7.1 | N/A | N/A |
| | Engineering, the built environment, and IT | 15 | 11.9 | N/A | N/A |
| | Health sciences | 15 | 11.9 | N/A | N/A |
| | Law | 3 | 2.4 | N/A | N/A |
| | Science | 39 | 31.0 | N/A | N/A |
| | Total | 126 | 100.0 | | |

As indicated in Table 1, the majority of students who participated in the survey were female (54.1%). Most students were enrolled for undergraduate qualifications (79.4%), particularly in the BES faculty (30.4%). Of the academics (Table 2), most respondents (57.9%) were female. Close to one fifth of the academics responding to the survey (19.8%) were employed in the BES faculty. The profile of these respondents, however, differs from the overall sample, in that they tended to be younger than the other academics in the sample.

LITERATURE REVIEW

Ecological ethics

According to Minteer and Collins (2008), ecological ethics as a field reflects respect for both the complexity of environmental problems and the capacity of citizens, ethicists, and scientists to address those problems, while examining the underlying values that may be in conflict. One could add that, because ecology implies the interconnectedness of living beings and inorganic things, ecological ethics appropriately takes such

interconnectedness into consideration (Kovel, 2002:14).

Curry (2007) distinguishes between degrees of non-anthropocentrism by referring to *shades of green*. These shades range from light green (shallow anthropocentrism), through medium green (the extension of traditional human-orientated moral philosophy to non-humans), to the dark green ethics of *ecocentrism*.

According to Keller (2008), the devaluation of non-human nature is the principal problem in Western culture, and Curry (2007) argues that the origin of this problem can be traced back to the process of modernisation. Keller (2008) suggests that the core cause of the current environmental crisis relates to the conception of nature as a machine – the essential attribute of modernity that precipitated today’s deleterious ecological consequences. Modern society tends to see the universe as a superlatively exquisite machine, created by God, and designed to operate according to the mathematical laws of physics (Heisenberg, 1958). Thus, according to Foster and Burkett (2000), the foundation of the modern view of nature is one of mechanistic materialism (mechanism), the view which is advocated by Bacon, Galileo, Harvey, Hobbes, Descartes, Newton, and others.

In short, modernism in science and philosophy (before Darwin) holds that nature is material, and operates mechanically according to strict causal laws; that all natural phenomena can be described in terms of inert matter in motion, and that nature is devoid of inherent value or purpose.

The practical outcome of the mechanistic view of nature has been the utilisation of environmental systems for economic ends (Bernstein, 1981). Thus, the only value non-human biota have is use-value for humans. The mechanistic view of nature leads directly to an economic theory that non-human nature is “a set of inert raw resources to be mastered and exploited by human reason” (Curry, 2007). Environmental and ecological philosophy must address the metaphysical and axiological failures of the mechanistic view of nature, in order to lay a new foundation for

an inclusive human perspective on ecological systems; that is, one that acknowledges humanity’s intimate involvement in these systems. This would entail recognition that the traditional anthropocentric value system has to be replaced by one that is ecocentric. On an individual level and in practical terms, a shift towards an ecocentric value system can be seen as a shift towards environmental citizenship.

Environmental citizenship

According to Dobson (2010:6), environmental citizenship can be loosely defined as “pro-environmental behaviour, in public and in private, driven by a belief in fairness of the distribution of environmental goods, in participation, and in the co-creation of sustainability policy.”

MacGregor and Szerszynski (2003) offer a slightly different definition of environmental citizenship. These authors characterise environmental citizenship as a personal desire to learn more about the environment and to take responsible environmental action, encouraging individuals, communities, and organisations to consider environmental rights and duties, and being concerned about the earth.

Hawthorne and Alabaster (1999) developed and tested a model dealing with the factors that influence environmental citizenship. Their model included the following factors: environmental information, awareness, concern, attitudes/beliefs, education and training, knowledge, skills, literacy, and responsible behaviour. Some significant influencing factors identified were: the desire to act, ability to act, desire to learn, environmental literacy, environmental concern, and environmental education and training. In line with Hawthorne and Alabaster’s reasoning, this study gave specific attention to students’ and academics’ environmental awareness and values, their perceptions of the implication of environmental management, their desire to engage in environmental education (whether to learn or to teach), their engagement in pro-environmental behaviours, and incentives that could motivate them to engage in pro-environmental behaviours.

Environmental awareness and values

The 21st century has seen a surge of environmental awareness and concern amongst the general public (Roberts, Kivilu & Davids, 2010:195), as well as for-profit organisations (MIT Sloan Management Review & The Boston Consulting Group, 2011). Most of the frameworks or guiding principles for environmental education (such as the Belgrade Charter of 1975 and the Tbilisi Declaration of 1977) view an environmental awareness as the first step to creating an environmentally responsible citizenry. Moody and Hartel (2007) state that any environmentally responsible student (business, or other) should have a basic awareness and understanding of how the earth works as a physical system, recognise the relationship between the natural environment and human impacts thereon, and have an appreciation for the complexity of these interactions.

Venkataraman (2008) claims that, as citizens become increasingly aware of environmental problems, the challenge for environmental education remains to promote a sense of responsibility and environmental stewardship. While awareness of environmental issues does indeed play a pivotal role, it does not guarantee action. He argues that “much still remains to be done to find the most effective ways to teach about the environment and impart personal responsibility and action.”

Dietz, Fitzgerald, and Shwom (2005) define *values* as principles that aid in decision-making when preferences are in conflict. These authors also define values in economic terms, as a guide when making decisions among different alternatives, according to a utilitarian ethic (the greatest good for the greatest number of people). According to Onkila (2008), environmental values are contained within axiological universalism. In this approach, motivational content is described as the understanding, appreciation, tolerance, and protection of all human beings and nature.

If the implications of the preceding considerations for university education are taken into account, it seems clear that a greater awareness of human

impacts on the environment and the consequences thereof can be fostered among students, by integrating green topics (emphasising the interconnectedness of humans and nature) into existing modules.

The South African Department of Environmental Affairs (2010:29) reported that, although more attention has been given to environmental knowledge in higher education curricula, this attempt has been “ad hoc, small scale, dependent on lecturer interest, uneven across the education and training system, and appears to be inadequate” to create an environmentally responsible citizenry.

Maduna (2010:1) analysed the prospectuses of BES faculties and business schools at 23 South African higher education institutions to gain insight into the types of environmentally-orientated modules and qualifications being offered. Of the 38 existing modules and qualifications offered in 2010, 14 were short courses, 12 were electives, eight were compulsory modules, and four were full qualifications. Most of these (47%) were offered at postgraduate level, 29 percent were lifelong learning programmes, and 24 percent were undergraduate modules and qualifications. The most prevalent topics addressed included environmental economics (34%), followed by environmental management (29%), and environmental law (11%). Only three modules included elements of ecological ethics. Thus, it would seem that ecological ethics modules that could create a greater awareness of green issues and cultivate environmental values have been neglected by BES faculties and business schools in South Africa.

Implications of environmental management

For the purpose of this research, environmental management was defined as the actions of individuals to protect the quality and continuity of life through the conservation of natural resources and the prevention of pollution (Newton, 2005:3; Lesourd & Schilizzi, 2001:36). The benefits of environmental management for private and public enterprises (including universities) include

(Darnall *et al.*, 2006; Millet, 2005:5; Sammalisto & Arvidsson, 2005; Sadgrove, 1997:123):

- a reduction in environmental and associated risks;
- improved legal compliance;
- continuous improvement in processes and cost reduction, leading to increased efficiency and profits;
- satisfaction of customer needs for green products and services;
- improved reputation, which can be an important marketing tool to gain competitive advantage;
- improved employee morale; and
- complete transparency.

Given these benefits, especially increased profits, it could be said that directors of companies have a fiduciary duty towards shareholders to implement sound environmental management systems. In the spirit of promoting transparency, all companies listed on the Johannesburg Stock Exchange have, since 2010, been required to produce integrated reports that reflect, not only the company's financial position, but also its social and environmental impact (Integrated Reporting Committee, 2011). Part of implementing an environmental management system (EMS) is creating a document trail of all activities related to the EMS. As such, an EMS could assist in generating integrated reports now required of listed companies, which, in turn, will ensure legal compliance and transparency in terms of an organisation's environmental impact.

A key element of an EMS is the requirement for an organisation's major stakeholders (students and academics, in the case of a higher education institution) to receive relevant training, which provides an important vehicle for changing individual and organisational behaviours toward the environment (Thomas, 2004:37). Ferrar (2008) reaffirms this assertion by stating that organisations responding to the challenge of climate change will create

a demand for professionals who can operate in a low-carbon economy, and, thus, also for environmental education.

Environmental education

According to Loubser (2005:45), environmental education is inseparable from human considerations of social, economic, political, and ecological factors. The Belgrade Charter, adopted at the United Nations's Educational, Scientific and Cultural Organization (UNESCO) workshop held in Yugoslavia in 1975, characterises environmental education as a participatory process that has the potential to develop individuals who have the knowledge, skills, motivation, and commitment to take action, both individually and collectively, to address current and prevent future environmental issues.

Cortese (2003) and others (such as Uhl and Anderson (2001), Wright (2002), and Zietsman and Pretorius (2006)) highlight the critical role that higher education institutions should play in preparing present and future generations to effectively deal with a warming planet. As public institutions, higher education institutions can meet their obligation to support sustainable societies by incorporating sound environmental management principles into their teaching and research endeavours, engaging with stakeholders, and taking the lead in terms of greening their own operations. This all-encompassing approach should create an atmosphere in which environmental education can flourish and equip students with the environmental knowledge, skills, and values that society needs for real progress in striving for a low-carbon economy. According to Sherren (2006), two approaches exist to incorporating sustainability topics into tertiary qualifications. Firstly, all qualifications (however specialised) should produce environmentally literate graduates. and, secondly, environmental specialists should be produced. In this study, the relative importance of various green topics that should be integrated into existing modules will be investigated.

Pro-environmental behaviours

Most definitions of environmental education and environmental citizenry refer to some form of behaviour, action, or active participation that is aimed at protecting the natural environment. In fact, Short (2010:9) states that participation in environmental protection is inherent in the goals of environmental education as prescribed by the Tbilisi Conference Declaration (1977). As environmental citizenry is seen as the intended outcome of environmental education (Hawthorne & Alabaster, 1999:26), it can be argued that pro-environmental behaviours are a reflection of the degree to which individuals prescribe to environmental citizenship. De Groot and Steg (2008:330) state that pro-environmental behaviours refer to any actions taken to protect and conserve the environment for all living creatures (human and non-human) in a personal and professional capacity.

Monroe (2003) distinguishes between five categories of environmental behaviours, namely environmental activism, non-activist political behaviours, consumer behaviours, ecosystem behaviours, and behaviours specific to individual expertise or a workplace. Examples for each of Monroe’s different categories of environmental behaviours are provided in Table 3.

TABLE 3: FIVE CATEGORIES OF ENVIRONMENTAL BEHAVIOURS

| | Category of behaviour | Examples of behaviours |
|---|--|--|
| 1 | Environmental activism | Actively participating in, or leading, environmental initiatives. |
| 2 | Non-activist political behaviours | Joining an organisation, voting for pro-environmental political parties, signing a petition, or writing a cheque. |
| 3 | Consumer behaviours | Purchasing green products, recycling, reducing energy use, altering consumption and investment decisions, etc. |
| 4 | Ecosystem behaviours | Building bird boxes, planting sea oats, counting wildlife populations, promoting the use of fire breaks, etc. |
| 5 | Behaviours specific to individual expertise or workplace | Reducing waste in the production process, establishing mortgage criteria for energy-efficient houses, suing a polluter, etc. |

Source: Adapted from Monroe (2003)

A different approach to categorising pro-environmental behaviours is to distinguish between intent-orientated and impact-orientated behaviours (Poortinga *et al.*, 2004:75). Intent-orientated behaviours are driven by individuals’ environmental concern, and are pursued regardless of its impact on the environment. In contrast, impact-orientated behaviours are undertaken based on the direct impact of such behaviours on the environment. Gatersleben *et al.* (2002:335) found that environmental values influence intent-orientated behaviours, while socio-demographic variables, such as age and household income, are related to impact-orientated behaviours.

RESEARCH HYPOTHESES

Based on the literature review and the premise that BES students and academics might differ from students and academics in other faculties, two sets of null hypotheses were formulated and tested in this study.

H_{0,1}: There is no difference between BES students and students in other faculties in terms of:

H_{0,1.1}: their awareness of their impact on the natural environment;

H_{0,1.2}: the environmental values they exhibit;

H_{0,1.3}: their perceptions of the implications of environmental management;

H_{0,1.4}: their desire to learn about environmental topics in their modules;

H_{0,1.5}: the extent to which they engage in pro-environmental behaviours; and

H_{0,1.6}: the incentives that could motivate them to engage in pro-environmental behaviours.

H_{0,2}: There is no difference between BES academics and academics in other faculties in terms of:

H_{0,2.1}: their awareness of their impact on the natural environment;

H_{0,2.2}: the environmental values they exhibit;

H_{0,2.3}: their perceptions of the implications of environmental management;

$H_{0,2,4}$: their desire to incorporate environmental topics in their modules;

$H_{0,2,5}$: the extent to which they engage in pro-environmental behaviours; and

$H_{0,2,6}$: the incentives that could motivate them to engage in pro-environmental behaviours.

EMPIRICAL FINDINGS - STUDENTS

Environmental awareness and values

Statements in this section of the questionnaire gauged students' perceptions on a five-point Likert scale, where 1 represented *strongly disagree* and 5 represented *strongly agree*. Appropriate statistical tests were used to test the hypotheses.

Table 4 contains descriptive and inferential statistics on the level of green awareness among students, as well as the environmental values they exhibit. Statements are ranked from the highest to the lowest mean scores for respondents in the BES faculty.

According to the results in Table 4, all students had a relatively high level of awareness of their impact on the natural environment. Although not statistically significant, it should be noted that BES students were slightly less aware of their environmental impact.

As shown in Table 4, students in the BES faculty viewed only two statements dealing with environmental values as important (mean scores³ 4.2), whereas students in the other faculties viewed all five statements reflecting green values as very important. The mean scores for BES students were consistently lower than those of students in other faculties. All five mean scores were statistically significant. Business students seem to exhibit less respect for plant and animal life, as well as less concern about the protection and preservation of non-human nature.

Based on these findings, $H_{0,1,1}$ dealing with the environmental awareness of BES students cannot be rejected; however, $H_{0,1,2}$ dealing with the environmental values exhibited by students can be rejected. This finding is in line with the argument that business education erodes character to a

TABLE 4: ENVIRONMENTAL AWARENESS AND VALUES - STUDENTS

| Code | Statement | Mean | | Standard deviation | | Valid N | | df | t value | P value ^(a) |
|---|---|-----------------|-----|--------------------|------|-----------------|-----|-----|---------|------------------------|
| | | Other faculties | BES | Other faculties | BES | Other faculties | BES | | | |
| Environmental values 1 ($H_{0,1,2}$) | I respect all plant life on the campus where I study. | 4.6 | 4.3 | 0.70 | 0.91 | 225 | 96 | 319 | 3.345 | 0.001* |
| Environmental values 2 ($H_{0,1,2}$) | The protection of the natural environment on the campus where I study is important to me. | 4.6 | 4.3 | 0.76 | 0.89 | 226 | 99 | 323 | 2.907 | 0.004* |
| Environmental values 3 ($H_{0,1,2}$) | I respect all animal life on the campus where I study. | 4.5 | 4.2 | 0.90 | 1.07 | 226 | 99 | 323 | 2.508 | 0.013* |
| Environmental values 4 ($H_{0,1,2}$) | It is important to me that plant biodiversity be maintained on the campus where I study. | 4.4 | 4.0 | 0.96 | 1.04 | 226 | 99 | 323 | 3.096 | 0.002* |
| Awareness of environmental impact 1 ($H_{0,1,1}$) | I have an impact on the natural environment of the campus where I study. | 4.0 | 3.8 | 1.12 | 1.14 | 227 | 99 | 324 | 1.613 | 0.108 |
| Environmental Values 5 ($H_{0,1,2}$) | It is important to me that animal biodiversity be maintained on the campus where I study. | 4.3 | 3.8 | 1.01 | 1.24 | 226 | 97 | 321 | 3.408 | 0.001* |
| Awareness of environmental impact 2 ($H_{0,1,1}$) | I have become more aware of my impact on the natural environment on the campus where I study within the past 12 months. | 3.4 | 3.2 | 1.26 | 1.23 | 227 | 98 | 323 | 0.809 | 0.419 |

(a) An * indicates statistical significance at the 95% confidence level

large extent, where character is understood as specified in ethical and value-orientated terms pertaining to the interdependence of society and the natural environment. The researchers are aware of the fact that character development depends on more than just education. However, research has shown that educational intervention not only has lasting positive effects on environmental perceptions and behaviours (Hsu, 2004:37; Johnson & Manoli, 2008:115), but also enhances some of the other influencing factors of environmental citizenship, such as locus of control, environmental responsibility, intention to act, and perceived ability to act (Armstrong & Impara, 1991; Hawthorne & Alabaster, 1999; Cordano *et al.*, 2003; Short, 2010).

Implications of environmental management

Four statements were formulated to gauge students' views on the implications of greening the university. As indicated earlier, literature suggests that sound environmental management could lead to improved reputation and cost savings for a university something that is of primary importance in the long term. Students' views on this topic are shown in Table 5.

As illustrated in Table 5, BES students had consistently lower mean scores than students from other faculties. Students in other faculties viewed the reputation of the university as a leader in the field of sound environmental management in South Africa as more important than students in the BES faculty did. The difference between the groups was, however, not statistically significant. A statistically significant difference was observed in the perceptions of students in the BES faculty and other students on the question of whether green initiatives will save the university money. Students in the BES faculty were not as convinced as their counterparts in other faculties that this would be the case. Based on these findings, $H_{0,1,3}$ can be rejected.

Environmental education

Students were requested to indicate the degree of importance they attach to the integration of several green topics into existing modules (See Table 6). In this study, the degree of importance that students attach to the incorporation of green topics into existing module was assumed to represent their desire to learn about the topic. As mentioned earlier, Hawthorne and Alabaster

TABLE 5: IMPLICATIONS OF ENVIRONMENTAL MANAGEMENT – STUDENTS

| Code | Statement | Means | | Standard deviation | | Valid N | | df | t value | P value(a) |
|--|---|-----------------|-----|--------------------|------|-----------------|-----|-----|---------|---------------|
| | | Other faculties | BES | Other faculties | BES | Other faculties | BES | | | |
| Environmental implications 1 ($H_{0,1,3}$) | It is important to me that my university becomes a pioneer in the field of good environmental management among organisations in South Africa. | 4.5 | 4.4 | 0.78 | 0.82 | 226 | 99 | 323 | 1.498 | 0.135 |
| Environmental implications 2 ($H_{0,1,3}$) | It is important to me that my university becomes a pioneer in the field of good environmental management among South African universities. | 4.5 | 4.4 | 0.82 | 0.82 | 225 | 99 | 322 | 1.142 | 0.255 |
| Environmental implications 3 ($H_{0,1,3}$) | Green initiatives will save the university money. | 3.8 | 3.4 | 1.07 | 1.17 | 225 | 97 | 320 | 2.796 | 0.006* |
| Environmental implications 4 ($H_{0,1,3}$) | Green initiatives will not be too expensive to implement. | 3.6 | 3.4 | 1.07 | 0.95 | 225 | 99 | 322 | 1.008 | 0.314 |

(a) An * indicates statistical significance at the 95% confidence level

TABLE 6: SIGNIFICANT DIFFERENCES IN STUDENTS' PERCEPTIONS OF ENVIRONMENTAL EDUCATION, ACCORDING TO FACULTY

| Code | It will be valuable if a topic such as ___ can be incorporated into an EXISTING module. | Faculty – mean scores | | | | | | | | F test | P value(a) |
|--|---|-----------------------|-----|-----------|---|-----------------|-----|---------|---------------|--------|---------------|
| | | Arts | BES | Education | Engineering, the built environment and IT | Health Sciences | Law | Science | All faculties | | |
| Environmental topic 1 (H_{0,1,4}) | environmental law | 4.0 | 3.8 | 3.8 | 3.6 | 3.7 | 4.9 | 4.2 | 3.9 | 3.151 | 0.005* |
| Environmental topic 2 (H_{0,1,4}) | green design and construction | 3.9 | 3.7 | 3.7 | 4.0 | 3.8 | 4.5 | 4.4 | 3.9 | 3.156 | 0.005* |
| Environmental topic 3 (H_{0,1,4}) | green IT | 3.8 | 3.7 | 4.0 | 3.9 | 3.8 | 4.3 | 4.1 | 3.9 | 1.135 | 0.341 |
| Environmental topic 4 (H_{0,1,4}) | environmental economics | 3.6 | 3.6 | 3.5 | 3.4 | 3.4 | 3.6 | 4.1 | 3.7 | 2.819 | 0.011* |
| Environmental topic 5 (H_{0,1,4}) | ecological ethics | 3.7 | 3.6 | 3.8 | 3.7 | 3.6 | 4.1 | 4.1 | 3.8 | 1.839 | 0.091 |
| Environmental topic 6 (H_{0,1,4}) | environmental journalism | 3.6 | 3.5 | 3.5 | 3.5 | 3.7 | 4.3 | 4.1 | 3.7 | 2.407 | 0.027* |
| Environmental topic 7 (H_{0,1,4}) | environmental reporting (accounting) | 3.4 | 3.4 | 3.3 | 3.4 | 3.5 | 3.7 | 4.0 | 3.5 | 2.179 | 0.045* |

(a) An * indicates statistical significance at the 95% confidence level

(1999) found that desire to learn significantly influences environmental education and training and, consequently, environmental citizenship.

Based on the responses of the entire sample, the integration of topics relating to environmental law, green design, and construction, and green IT were regarded the most valuable (mean scores of 3.9 for each statement). Significant differences existed between students enrolled in different faculties regarding the five topics (three of which involved BES students, and will be discussed here). To identify significant pair-wise differences, the Tukey honest significant difference (HSD) *post hoc* test was performed.

With regard to the perceived value of green design and construction, the *post hoc* test revealed a significant difference between the perceptions of students registered in the Science faculty and BES students (*post hoc* $p = 0.002$). Of the two groups, science students attached the most value to incorporating this topic into existing modules.

In terms of the perceived value of environmental economics, significant differences existed in the perceptions of students registered in the Science and BES faculties (*post hoc* $p = 0.047$), between Science students and those registered in the Engineering, Built Environment and IT faculty (*post hoc* $p = 0.012$), as well as between Science and Health Sciences students (*post hoc* $p = 0.045$). In all three cases, Science students were the most in favour of incorporating environmental economics topics into existing modules (mean scores are indicated in Table 6).

With regard to the perceived value of environmental journalism, the *post hoc* test again showed a significant difference in the perceptions of students registered in the Science and BES faculties. Science students viewed integrating environmental journalism topics into an existing module as more valuable than students in the BES faculty did (*post hoc* $p = 0.030$).

It is encouraging to note that Science students were interested in topics outside of their

immediate field of study. However, it is disconcerting that BES students consistently expressed lower interest in environmental education than students registered in other faculties did. Based on the findings shown in Table 6, $H_{0,1.4}$ can be rejected.

Pro-environmental behaviours

In this section of the questionnaire, students were requested to indicate to what extent they

differences were identified in terms of the pro-environmental behaviours of students registered in different faculties. In terms of closing doors between air-conditioned and non-conditioned spaces, the *post hoc* test revealed significant pairwise differences among students from the Arts faculty and those from the Education and Science faculties (*post hoc* $p = 0.0353$ and $p = 0.040$ respectively). In both cases, Arts students were

TABLE 7: PRO-ENVIRONMENTAL BEHAVIOURS EXHIBITED PER FACULTY – STUDENTS

| Code | While on campus, do you: | Faculty – mean scores | | | | | | | | F test | P value ^(a) |
|---|---|-----------------------|-----|-----------|---|-----------------|-----|---------|---------------|--------|------------------------|
| | | Arts | BES | Education | Engineering, the built environment and IT | Health sciences | Law | Science | All faculties | | |
| Pro-environmental behaviour 1 ($H_{0,1.5}$) | print and copy documents on both sides of a page? | 3.5 | 3.6 | 2.5 | 3.6 | 3.2 | 3.2 | 3.5 | 3.5 | 1.354 | 0.233 |
| Pro-environmental behaviour 2 ($H_{0,1.5}$) | switch off your computer when you are done using it? | 3.4 | 3.1 | 2.6 | 3.4 | 2.9 | 3.3 | 3.2 | 3.2 | 0.615 | 0.719 |
| Pro-environmental behaviour 3 ($H_{0,1.5}$) | optimise the use of sunlight to reduce the use of electricity? | 2.7 | 2.9 | 2.5 | 2.9 | 2.4 | 2.8 | 2.5 | 2.7 | 1.156 | 0.330 |
| Pro-environmental behaviour 4 ($H_{0,1.5}$) | turn off lights where possible? | 2.7 | 2.7 | 2.2 | 2.5 | 2.4 | 2.8 | 1.9 | 2.4 | 2.658 | 0.016* |
| Pro-environmental behaviour 5 ($H_{0,1.5}$) | dispose hazardous waste properly? | 2.7 | 2.7 | 2.5 | 2.5 | 2.3 | 3.2 | 2.2 | 2.5 | 1.175 | 0.320 |
| Pro-environmental behaviour 6 ($H_{0,1.5}$) | keep doors closed between air conditioned and non-conditioned spaces? | 2.5 | 2.2 | 1.3 | 1.8 | 2.3 | 2.3 | 1.8 | 2.1 | 3.240 | 0.004* |
| Pro-environmental behaviour 7 ($H_{0,1.5}$) | open taps only minimally when using them? | 1.6 | 1.7 | 1.2 | 1.8 | 1.8 | 1.7 | 1.8 | 1.7 | 1.001 | 0.425 |
| Pro-environmental behaviour 8 ($H_{0,1.5}$) | make sure you properly close taps after using them? | 1.1 | 1.3 | 1.2 | 1.4 | 1.5 | 1.1 | 1.3 | 1.3 | 1.211 | 0.301 |

(a) An * indicates statistical significance at the 95% confidence level

engage in various pro-environmental behaviours. Descriptive and inferential statistics in this regard are provided in Table 7.

As can be seen in Table 7, in contrast to the results previously discussed, BES students consistently had higher mean scores than students in some of the other faculties. In line with the overall sample, BES students often engaged in activities to conserve paper and electricity. Two significant

more likely to engage in this simple, but effective, practice to conserve energy.

In respect of switching off unnecessary lights, significant differences were identified among students registered in the Science faculty and those registered in the Arts and BES faculties (*post hoc* $p = 0.037$ and 0.008 respectively). In both cases, Science students were less likely to switch off lights where possible. Based on the findings of Table 7, $H_{0,1.5}$ can be rejected.

TABLE 8: INCENTIVES FOR ENGAGING IN PRO-ENVIRONMENTAL BEHAVIOURS – STUDENTS

| Code | Statement | Means | | Standard deviation | | Valid N | | df | t value | P value |
|---------------------------------------|--|-----------------|-----|--------------------|------|-----------------|-----|-----|---------|-------------|
| | | Other faculties | BES | Other faculties | BES | Other faculties | BES | | | |
| Incentive 1 ($H_{0,1.6}$) | I would be more willing to engage in greening actions at the university if incentives were offered. | 3.8 | 3.9 | 1.16 | 1.16 | 226 | 98 | 322 | -0.199 | .842 |
| Incentive 2 ($H_{0,1.6}$) | Incentives like competitions between residences or faculties for green status would encourage me to become greener in my daily activities. | 3.9 | 3.8 | 1.15 | 1.19 | 225 | 96 | 319 | 0.970 | .333 |
| Incentive 3 ($H_{0,1.6}$) | A green award for any initiative to protect the natural environment on campus will motivate me to become greener in my daily activities. | 3.7 | 3.6 | 1.10 | 1.27 | 224 | 98 | 320 | 1.158 | .248 |
| Incentive 4 ($H_{0,1.6}$) | A Green Student of the Year award will serve as incentive for me to become more environmentally sensitive. | 3.6 | 3.5 | 1.25 | 1.36 | 226 | 98 | 322 | 0.079 | .937 |
| Incentive 5 ($H_{0,1.6}$) | A Green Researcher of the Year award will serve as incentive for me to become more environmentally sensitive. | 3.6 | 3.4 | 1.19 | 1.21 | 226 | 98 | 322 | 1.553 | .121 |

Incentives for engaging in pro-environmental behaviours

In this section, the perceptions of students were gauged regarding incentives that would motivate them to become more environmentally responsible in their daily activities. Table 8 provides the descriptive and inferential statistics in this regard.

With the exception of one statement, the mean scores for BES students were consistently lower than those of other students. Although not statistically significant, BES students did indicate that they would be more motivated to engage in pro-environmental behaviours if incentives were offered. This finding lends some support to the argument regarding the reductive utility maximisation theories to which these students are typically exposed. However, BES students were also less interested in other forms of recognition, such as green awards and competitions between residences for green status (although these findings were not statistically significant). As none of the p-values (contained in Table 8) indicated statistical significance, $H_{0,1.6}$ cannot be rejected.

EMPRICIAL FINDINGS – ACADEMICS

Environmental awareness and values

Table 9 contains statistics on the level of environmental awareness among academics, as well as the importance they attach to selected environmental values.

In terms of the environmental awareness of academics, BES and other academics were neutral regarding an increase in the awareness of their environmental impact. A significant difference was identified with respect to enhanced environmental awareness; however, this did not relate to the BES faculty. Furthermore, both BES and other academics agreed that they have an impact on the natural environment; however BES academics were slightly less convinced than their counterparts of their impact on the environment.

As shown in Table 8, two statements dealing with environmental values showed statistically significant differences between academics in the BES faculty and those in other faculties. In both cases, BES academics viewed the maintenance of non-human nature as significantly less important than their counterparts in other faculties did (*post hoc* $p = 0.038$ and $p = 0.043$ respectively).

TABLE 9: ENVIRONMENTAL AWARENESS AND VALUES – ACADEMICS

| Code | Statement | Mean scores | | Valid N | | Standard deviation | | F test | P value ^(a) |
|--|--|-----------------|-----|-----------------|-----|--------------------|-----|--------|------------------------|
| | | Other faculties | BES | Other faculties | BES | Other faculties | BES | | |
| Environmental values 2 (H _{0,2,2}) | The protection of the natural environment on the campus where I work is important to me. | 4.7 | 4.5 | 117 | 31 | 0.9 | 0.6 | 1.850 | .159 |
| Environmental values 1 (H _{0,2,2}) | I respect all plant life on the campus where I work. | 4.7 | 4.5 | 117 | 31 | 0.8 | 0.6 | 1.181 | .308 |
| Environmental values 3 (H _{0,2,2}) | I respect all animal life on the campus where I work. | 4.6 | 4.5 | 117 | 31 | 0.9 | 0.7 | 1.181 | .308 |
| Environmental values 4 (H _{0,2,2}) | It is important to me that plant biodiversity be maintained on the campus where I work. | 4.6 | 4.1 | 117 | 31 | 0.9 | 0.7 | 5.529 | .004* |
| Environmental values 5 (H _{0,2,2}) | It is important to me that animal biodiversity be maintained on the campus where I work. | 4.5 | 4.0 | 117 | 31 | 0.9 | 0.7 | 5.009 | .007* |
| Awareness of environmental impact 1 (H _{0,2,1}) | I have an impact on the natural environment of the campus where I work. | 4.1 | 3.9 | 117 | 31 | 1.2 | 1.1 | 0.475 | .622 |
| Awareness of environmental impact 2 (H _{0,2,1}) | I have become more aware of my impact on the natural environment of the campus where I work within the past 12 months. | 3.1 | 3.2 | 117 | 31 | 1.4 | 1.3 | 4.078 | .018* |

(a) An * indicates statistical significance at the 95% confidence level

TABLE 10: IMPLICATIONS OF ENVIRONMENTAL MANAGEMENT – ACADEMICS

| Code | Statement | Mean scores | | Valid N | | Standard deviation | | F test | P value |
|---|--|-----------------|-----|-----------------|-----|--------------------|-----|--------|--------------|
| | | Other Faculties | BES | Other faculties | BES | Other faculties | BES | | |
| Environmental implications 2 (H _{0,2,3}) | It is important to me that the university becomes a pioneer in the field of good environmental management among South African universities. | 4.4 | 4.3 | 116 | 31 | 0.9 | 0.8 | 0.407 | 0.665 |
| Environmental implications 1 (H _{0,2,3}) | It is important to me that the university becomes a pioneer in the field of good environmental management among organisations in South Africa. | 4.4 | 4.3 | 117 | 31 | 0.9 | 0.8 | 0.117 | 0.889 |
| Environmental implications 3 (H _{0,2,3}) | Green initiatives will save the university money. | 3.8 | 4.0 | 116 | 30 | 1.2 | 1.1 | 0.41 | 0.659 |
| Environmental implications 4 (H _{0,2,3}) | Green initiatives will not be too expensive. | 3.5 | 3.2 | 116 | 31 | 1.2 | 1.1 | 1.360 | 0.258 |

It could thus be said that academics in the BES faculty probably have a moderate mechanistic view of nature (as characterised earlier), and may be perpetuating this view through their teaching activities.

The findings (shown in Table 9) indicated that $H_{0,2,1}$ cannot be rejected, whereas $H_{0,2,2}$ can be rejected.

Implications of environmental management

More details on the perceptions of academics with regard to the financial implications of going green are provided in Table 10.

As illustrated in Table 10, BES academics had lower mean scores than academics in other faculties for almost all statements dealing with the implications of environmental management. Academics in other faculties perceived all of the statements as highly important, whereas BES academics only attached a high level of importance to three of the four statements. BES academics were neutral when asked if greening the university would be too expensive. However, academics working in the BES faculty were more

convinced that environmental management would lead to cost savings for the university. Since no statistically significant differences were observed, $H_{0,2,3}$ cannot be rejected.

Environmental education

Table 11 contains descriptive and inferential statistics relating to the perceptions of academics on integrating green topics into existing modules.

The mean scores for the entire academic sample indicated that academics placed high importance on the integration of all the selected green topics. This was also the case in students' perceptions of environmental education (see Table 7). Academics in the Law faculty consistently attached more value to integrating green topics into curricula than other faculties did. BES academics did not differ much in their opinions on environmental education. Academics were also asked if "all lecturers at NMMU should include environmental management topics in modules offered at undergraduate level." In terms of this question, BES academics were more convinced of the need for integrating environmental management topics in modules offered at undergraduate level

TABLE 11: ENVIRONMENTAL EDUCATION – ACADEMICS

| Codes | It will be valuable if a topic such as ___ can be incorporated into an EXISTING module. | Faculty - mean scores | | | | | | | | F test | P value |
|--|---|-----------------------|-----|-----------|---|-----------------|-----|---------|---------------|--------|--------------|
| | | Arts | BES | Education | Engineering, the built environment and IT | Health sciences | Law | Science | All faculties | | |
| Environmental topic 7 ($H_{0,2,4}$) | environmental reporting (accounting) | 3.9 | 4.1 | 3.6 | 3.6 | 3.4 | 5.0 | 3.8 | 3.8 | 1.295 | 0.266 |
| Environmental topic 5 ($H_{0,2,4}$) | ecological ethics | 4.2 | 4.1 | 4.0 | 3.8 | 4.1 | 5.0 | 4.0 | 4.1 | 0.537 | 0.779 |
| Environmental topic 2 ($H_{0,2,4}$) | green design and construction | 4.2 | 4.1 | 4.1 | 4.4 | 4.1 | 4.5 | 4.2 | 4.2 | 0.148 | 0.989 |
| Environmental topic 4 ($H_{0,2,4}$) | environmental economics | 3.9 | 4.0 | 4.0 | 3.9 | 3.7 | 5.0 | 4.0 | 4.0 | 0.623 | 0.711 |
| Environmental topic 3 ($H_{0,2,4}$) | green IT | 4.0 | 4.0 | 4.3 | 3.9 | 4.1 | 5.0 | 4.1 | 4.1 | 0.466 | 0.832 |
| Environmental topic 1 ($H_{0,2,4}$) | environmental law | 4.0 | 3.9 | 4.1 | 3.5 | 4.0 | 5.0 | 4.1 | 4.0 | 0.734 | 0.623 |
| Environmental topic 6 ($H_{0,2,4}$) | environmental journalism | 3.8 | 3.6 | 3.5 | 3.6 | 3.8 | 5.0 | 3.7 | 3.7 | 0.665 | 0.678 |

TABLE 12: PRO-ENVIRONMENTAL BEHAVIOURS – ACADEMICS

| Code | While on campus, do you: | Faculty – mean scores | | | | | | | | | F test | P value ^(a) |
|--|---|-----------------------|-----|-----------|---|-----------------|-----|---------|---------------|-------|---------------|------------------------|
| | | Arts | BES | Education | Engineering, the built environment & IT | Health sciences | Law | Science | All faculties | | | |
| Pro-environmental behaviour 5 ($H_{0,2.5}$) | dispose hazardous waste properly? | 2.1 | 2.8 | 2.7 | 2.6 | 1.9 | 3.0 | 2.0 | 2.3 | 1.702 | 0.126 | |
| Pro-environmental behaviour 3 ($H_{0,2.5}$) | optimise the use of sunlight to reduce the use of electricity? | 2.1 | 2.6 | 1.6 | 3.1 | 1.8 | 2.5 | 1.8 | 2.2 | 3.676 | 0.002* | |
| Pro-environmental behaviour 1 ($H_{0,2.5}$) | print and copy documents on both sides of a page? | 2.5 | 2.6 | 2.5 | 2.8 | 2.1 | 2.5 | 2.8 | 2.6 | 0.844 | 0.538 | |
| Pro-environmental behaviour 6 ($H_{0,2.5}$) | keep doors closed between air-conditioned and non-conditioned spaces? | 1.8 | 2.4 | 1.7 | 2.1 | 1.7 | 2.5 | 1.8 | 1.9 | 1.440 | 0.204 | |
| Pro-environmental behaviour 2 ($H_{0,2.5}$) | switch off your computer when you are done using it? | 1.7 | 2.0 | 1.8 | 2.9 | 2.2 | 3.5 | 2.5 | 2.2 | 2.185 | 0.048* | |
| Pro-environmental behaviour 4 ($H_{0,2.5}$) | turn off lights where possible? | 1.6 | 1.9 | 1.5 | 2.2 | 1.5 | 2.0 | 1.6 | 1.7 | 1.176 | 0.323 | |
| Pro-environmental behaviour 7 ($H_{0,2.5}$) | open taps only minimally when using them? | 1.4 | 1.7 | 1.3 | 2.4 | 1.5 | 1.0 | 1.5 | 1.6 | 2.778 | 0.014* | |
| Pro-environmental behaviour 8 ($H_{0,2.5}$) | make sure you properly close taps after using them? | 1.2 | 1.1 | 1.1 | 1.6 | 1.1 | 3.0 | 1.2 | 1.2 | 3.353 | 0.004* | |

(a) An * indicates statistical significance at the 95% confidence level

than their colleagues in the Science faculty (*post hoc* $p = 0.035$).

In an open-ended question, several academics indicated that they were willing to integrate more green topics into modules, *but* required information and training before doing so. Many of these respondents were in the BES faculty. As a significant difference existed in the perceptions of academics on this issue, $H_{0,2.4}$ can be rejected.

Pro-environmental behaviours

As in the case of students, academics were asked to indicate to what extent they engaged in certain pro-environmental behaviours. The descriptive and inferential statistics in this regard are provided in Table 12.

According to the statistics contained in Table 12, all academics attached a relatively low level of importance to almost all the statements

dealing with pro-environmental behaviours. Responses of BES academics followed the same trend. BES academics were neutral regarding the importance of properly disposing of hazardous waste, optimising the use of sunlight to reduce electricity usage, and printing documents on both sides of a page. These academics placed relatively low importance on all other statements relating to pro-environmental behaviours.

Four significant differences were identified between academics working in different faculties, all related to energy and water usage on campus. The *post hoc* test revealed that only one of these significant differences involved BES academics (*post hoc* $p = 0.003$). In terms of water usage, academics working in the Law faculty viewed closing taps properly after using them as significantly more important than BES academics did. Given this finding, $H_{0,2.5}$ can be rejected.

TABLE 13: INCENTIVES FOR ENGAGING IN PRO-ENVIRONMENTAL BEHAVIOURS – ACADEMICS

| Code | Statement | Mean scores | | Valid N | | Standard deviation | | F test | P value ^(a) |
|--|---|-----------------|-----|-----------------|-----|--------------------|-----|--------|------------------------|
| | | Other faculties | BES | Other faculties | BES | Other faculties | BES | | |
| Incentive 1 (H _{0.2.4}) | I would be more willing to engage in greening actions at the university if incentives were offered. | 3.3 | 3.7 | 101 | 31 | 1.5 | 1.2 | 1.136 | 0.34 |
| Incentive 2 (H _{0.2.4}) | A <i>Green Lecturer of the Year</i> award will serve as incentive for me to become more environmentally sensitive. | 2.9 | 3.5 | 100 | 31 | 1.4 | 1.5 | 5.049 | 0.001* |
| Incentive 3 (H _{0.2.4}) | A <i>Green Employee of the Year</i> award will serve as incentive for me to become more environmentally sensitive. | 2.8 | 3.5 | 101 | 31 | 1.4 | 1.3 | 2.282 | 0.061 |
| Incentive 4 (H _{0.2.4}) | A <i>Green researcher of the Year</i> award will serve as incentive for me to become more environmentally sensitive. | 2.9 | 3.4 | 101 | 31 | 1.4 | 1.4 | 2.012 | 0.094 |
| Incentive 5 (H _{0.2.4}) | A <i>Green Award</i> for any initiative to protect the natural environment on campus will motivate me to become greener in my daily activities. | 3.1 | 3.4 | 100 | 31 | 1.4 | 1.3 | 3.688 | 0.006* |
| Incentive 6 (H _{0.2.4}) | Incentives like competitions between departments or faculties for green status would encourage me to become greener in my daily activities. | 3.1 | 3.4 | 101 | 31 | 1.4 | 1.3 | 1.153 | 0.332 |

(a) An * indicates statistical significance at the 95% confidence level

Incentives for going green

Table 13 contains the incentives that could motivate academics to become more environmentally responsible citizens.

The mean scores of academics in the BES faculty were consistently higher (for all the incentives), compared to those of academics in other faculties. Irrespective of faculty, academics placed the highest value on incentives in motivating them to be more environmentally friendly; however, BES academics attached a slightly higher importance to this statement. Two statistically significant differences were noted. In the first instance, the *post hoc* test was not powerful enough to indicate pair-wise differences at the 5% confidence level. Secondly, academics in the BES faculty indicated that they would be more motivated to go green if awards for these initiatives were offered. As such, H_{0.2.6} can be rejected.

As in the case of students, academics expressed a willingness to engage in pro-environmental

behaviours at the university, if incentives were offered. However, based on the mean score for this question, students were more interested in going green than academics were, should incentives be offered (students' mean score = 3.9; academics' mean score = 3.4). Green awards and competitions for green status between departments and faculties were highly regarded by academics as incentives for going green.

In an open-ended question, academics were asked to provide examples of other incentives that would motivate them to become greener whilst on campus. As in the case of students, the most-mentioned incentives for going green (suggested by 55% of participating academics) involved money, prizes, and competitions. It should, however, be noted that quite a number of academics (21.7%) stated that they did not need incentives to become more environmentally friendly in their daily activities. As this was *not* the case with students, it would appear that intrinsically motivated academics could be valuable role models in

the efforts of higher education institutions to change moral orientations. They could show students and colleagues that a concern for the natural environment should stem from a sense of moral obligation, and not depend on a reward being offered. One academic remarked: "For me, going green is a rational decision, not based on incentives. Use information, not incentives."

SUMMARY AND CONCLUSIONS

This article argues that there is a need for greater recognition of the interwovenness of humans and the natural environment. More specifically, the role of business education in creating an environmentally responsible citizenry is questioned. Based on the premise that business education erodes the character of students and could thus impede the cultivation of environmental citizenship, this article set out to assess whether differences exist between the perceptions of BES students and academics and their counterparts in other faculties in terms of their environmental awareness and values, the implications of environmental management, their desire to learn about environmental topics, the extent to which they engage in pro-environmental behaviours, and the incentives that could motivate them to engage in pro-environmental behaviours.

A summary of the statistical outcomes of this research is provided in Table 14.

The empirical results showed that there are, in fact, differences between BES students and students of other faculties in terms of the environmental values they exhibit, their perceptions of the implications of environmental management, their desire to learn about environmental topics, and the extent to which they engage in pro-environmental behaviours. BES students exhibited less respect for, and were less concerned about, protecting and preserving non-human nature. Furthermore, BES students were also less convinced that environmental management could lead to cost savings for the university. In terms of their desire to learn about environmental topics, BES students attached

significantly less importance to incorporating green design and construction, environmental economics, and environmental journalism into existing modules, compared to Science students.

Significant differences were observed between BES and other academics in terms of the environmental values they exhibit, their desire to incorporate environmental topics in the module they teach, the extent to which they engage in pro-environmental behaviours, and the incentives that could motivate them to engage in pro-environmental behaviours. BES academics attached significantly less importance to preserving non-human nature than academics from other faculties did. However, BES academics were more convinced of the value of integrating environmental management topics into modules offered at undergraduate level. In terms of the extent to which academics engaged in pro-environmental behaviours, BES academics indicated that they would be significantly more motivated to engage in pro-environmental behaviours if any kind of incentive were offered.

This research also produced some unintended outcomes, which were not accounted for in the initial research process. Some of these are: students and academics are motivated by money, prizes, and competitions to go green, BES students place the least importance on environmental topics being incorporated into modules, and Science students and academics seem to prescribe to environmental citizenship to a larger extent than other students and academics do (at least for some of the issues investigated in this study). It is disconcerting that BES students expressed almost no interest in these topics. This might be explained by the fact that South Africa is an emerging economy, and topics addressed in business modules are more likely to centre on issues such as job creation, entrepreneurship, and poverty alleviation, rather than environmental management topics. However, these students need to be taught that what is good for the natural environment can also be good for the bottom line of a business.

Given the differences between BES students and academics and their peers in other faculties, it

TABLE 14: SUMMARY OF EMPIRICAL FINDINGS

| Hypothesis | Summary of significant differences | Outcome of hypothesis test |
|---|--|---|
| There is no difference between BES students and students in other faculties in terms of: | H _{0,1,1} : their awareness of their impact on the natural environment | Cannot reject the null hypothesis |
| | H _{0,1,2} : the environmental values they exhibit | BES students exhibited significantly less respect for plant and animal life, and were also less concerned about protecting and preserving plant and animal biodiversity than students registered in other faculties. Can reject the null hypothesis |
| | H _{0,1,3} : their perceptions on the implications of environmental management | BES students were not as convinced as their counterparts in other faculties that green initiatives will save the university money. Can reject the null hypothesis |
| | H _{0,1,4} : their desire to learn about environmental topics in their modules | BES students attached less value to incorporating green design and construction, environmental economics, and environmental journalism into existing modules than Science students. Can reject the null hypothesis |
| | H _{0,1,5} : the extent to which they engage in pro-environmental behaviours | BES students were more likely, compared to Science students, to switch off lights (to save energy) where possible. Can reject the null hypothesis |
| | H _{0,1,6} : the incentives that could motivate them to engage in pro-environmental behaviours | Cannot reject the null hypothesis |
| There is no difference between BES academics and academics in other faculties in terms of: | H _{0,2,1} : their awareness of their impact on the natural environment | Cannot reject the null hypothesis |
| | H _{0,2,2} : the environmental values they exhibit | BES academics viewed the maintenance of non-human nature as significantly less important than their counterparts in other faculties did. Can reject the null hypothesis |
| | H _{0,2,3} : their perceptions on the implications of environmental management | Cannot reject the null hypothesis |
| | H _{0,2,4} : their desire to incorporate environmental topics in their modules | BES academics were more convinced of the need for integrating environmental management topics into modules offered at undergraduate level. Can reject the null hypothesis |
| | H _{0,2,5} : the extent to which they engage in pro-environmental behaviours | BES academics viewed the proper closing of taps (to save a precious natural resource) as significantly less important, compared to academics in the Law faculty. Can reject the null hypothesis |
| | H _{0,2,6} : the incentives that could motivate them to go green | Compared to other academics, the BES academics indicated that they would be more motivated to go green if incentives of any kind were offered. Can reject the null hypothesis |

could be concluded that signs exist that suggest that current business education is not ideal for cultivating environmental citizenship. In the words of Curry (2007), business students and academics in this sample can be classified as being “light green” in their ecological orientation. The urgent need for environmentally responsible graduates in the South African and international labour market means that serious consideration should be given to addressing this situation.

RECOMMENDATIONS

It is recommended that business education be transformed and re-orientated to meet the changing ecological needs of both business and society. This could be done by including more environmental topics in business modules, and exposing students to more inclusive models of economic, social, and ecological interactions. However, the re-education of BES academics

is needed to accomplish this task. This re-education should be based on a multidisciplinary approach to learning about business and the interconnectedness of social and environmental systems, and enable academics to be role models for environmental citizenship.

Therefore, in dealing with the discrepancy in the environmental values exhibited by BES students and the importance that students and academics placed on money and prizes as incentives to go green, the researchers suggest that academics turn to the principles advocated by virtue ethicists. In the context of this study, academics are thus encouraged to prescribe to and instil virtues such as respect for the natural environment in their peers and students. The researchers are proposing that more should be done to cultivate environmental virtues/values and a sense of moral obligation among students and academics, particularly among those in the BES faculty. This is important for the long-term sustainability of healthy ecological relations, and would, at the same time, benefit business profitability and sustainability.

Taking into account the lack of interest amongst BES students to learn about environmental topics, it is recommended that BES faculties make a concerted effort to create awareness regarding the importance of such topics, which could prepare them to be competitive in a low-carbon economy. New career opportunities that accompany a shift towards a low-carbon economy should also be brought to the attention of BES students – this could be accomplished through career days and counselling. BES academics should also collaborate with Science academics to identify the factors in Science education that could possibly result in a greater recognition of the interdependence of human and non-human nature.

LIMITATIONS OF THE STUDY

The outcomes of this research should be interpreted within a number of contextual constraints. Firstly, the outcomes apply to only one university in South Africa, and may thus

not be universally applicable. Secondly, the outcomes are dominated by the perceptions of undergraduate students (79.4% of all students; 86.9% of BES students), who may not yet have had the full benefit of management education at tertiary level. Thirdly, the data presented in this article are self-reported, and not actual observations. Thus, only the perceptions of respondents with regard to the issues investigated were analysed and interpreted, an approach that lends itself to social desirability bias on the part of respondents (Thompson & Phua, 2005). Lastly, only a limited number of factors that have a bearing on environmental citizenship were investigated; many other factors such as the ability to learn, the ability to act, and even religious affiliation have been proven to have a strong influence on environmental citizenship (Hawthorne & Alabaster, 1999).

SUGGESTIONS FOR FUTURE RESEARCH

Given the restriction on the generalisability of the outcomes of this research, imposed by the sample, it would be useful for future research to consider using a larger, more representative sample. Once the sampling issue has been addressed, it would also be interesting to investigate whether differences can be identified amongst students who have had greater exposure to business education and those who have not (e.g., postgraduate vs. undergraduate business students). Furthermore, given the increasing recognition of environmental issues, future research could also take a longitudinal approach to identifying differences over time in business students' orientation towards the environment.

To overcome the social desirability bias of respondents, researchers could make use of triangulation, by employing different research methods and using multiple data sources. By doing this, researchers could validate the self-reported data provided by respondents, and possibly obtain more accurate representations of reality. Future studies in environmental citizenship should also take a more encompassing approach to

investigating this phenomenon. This would mean paying attention to a larger range of factors that have an impact on environmental citizenship.

Based on the differences identified between BES and other students and academics in this research, great value could be added to understanding these differences by investigating their possible causes. Is it possible that students with low environmental consciousness are drawn to business studies? Is the exposure to business education really the cause of discrepancies in environmental citizenship? If so, then the problem with business students' attitudes towards the natural environment may not be causally connected to the economic models to which they are exposed. Rather, it may mean that they need some form of remedial education to overcome the values and personal inclinations regarding the environment that they bring with them to the higher education system.

These questions allude to concerns that have also been expressed by Elegido (2009:17) in terms of indoctrination and self-selection, and can be investigated by means of pre- and post tests. The pre-test should take place prior to the start of a student's business studies, i.e. before he/she is exposed to reductive management theories and utility maximisation models, which could affect his/her reasoning and values. The post-test should take place after completion of the business qualification.

Another area of research that needs attention is the development, effectiveness, and assessment of existing green business education. Best practices in terms of green business education should be identified, and could serve as a basis for continually improving attempts at such education. Given the relative success of Science education in cultivating environmental citizenship among students, researchers also need to consider what could be learned from this discipline and transferred to business education.

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End notes

1. It should be noted that, although climate change is referred to in many cases in this research, the researcher is aware that climate change is only one of the environmental problems facing humanity at present. Other (related) environmental problems include global warming, deforestation, water and air pollution, soil erosion, etc. Climate change is referred to because it is directly or indirectly related to a host of other environmental problems.
2. The IPCC is in the process of compiling another report, which will be made available in 2013/2014.

Critical pedagogy for teaching HRM in the context of social change

SHAUN RUGGUNAN & DOROTHY SPILLER

ABSTRACT

This paper considers the imperatives of human resource management (HRM) studies in the context of contemporary South Africa. The authors draw on critical management studies (CMS) and the principles of emancipatory education to inform their argument for a critical and relevant HRM curriculum and associated teaching and learning approaches. The authors propose that the content and processes of HRM education must prepare students for critical participation in the contemporary South African society and workplace. The discussion outlines the rationale for the study, the specific prompts for its initiation, the theoretical framework of CMS, and Freire's concept of emancipatory education.

Keywords: critical management studies, emancipatory education, human resources management, criticality, ethics

INTRODUCTION AND RATIONALE

The rationale for this paper emerged from debates on the purpose of higher education and, specifically, the purpose of business education within the context of the current global financial crisis. Over the past two decades, the debate about the purposes of university education has intensified (Barnett, 2005). Multiple stakeholders contend vociferously for particular priorities in university education and for certain agendas. Contributors to the discussion include governments, employers, university leaders, academics, and students. Contestation about the goals of university education has been fuelled by significant changes in the sector, such as mass higher education, internationalisation, technological developments, and reduction in government financial support and rises

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in student fees. Additionally, the rapidity of change in contemporary society has compelled the higher education sector to try and redefine and articulate its usefulness and purpose. The pressure to demonstrate relevance is exacerbated in professional disciplines such as management, because of its immediate and direct relationship to employers and future work opportunities.

The literature on the role of business education debates the purpose and practice of business education (Fenwick, 2005; Hault and Perret, 2011; Islam, 2012; Moosmayer, 2011; Pellisery, 2013; Spicer et al., 2009), yet South African academia's participation in the literature and debates remains largely absent. The Global Foundation for Management Education (GFME) published a series of essays in 2010, attempting to engage with the role of management education within the context of the global financial crisis. Scholarly reflections on the global financial crisis (Das, 2011; Davies, 2010; Stiglitz, 2010) suggest that perhaps a new and more critical approach towards business education is required. As Adler et al. (2007:1) contended, critical management studies have profound consequences for changing management practices. At its core, CMS do not focus on the

... personal failures of managers nor the poor management of specific firms, but the social injustice and environmental destructiveness of the broader social and economic systems that these managers and firms serve and reproduce.

Instead, CMS encourages a management studies education that is concerned with social justice, equitable and fair human resources practices, concern for the environment, and the consequences of unethical business practices.

Adam Jones, writing in the Guardian, in 2009, asked, "Are business schools responsible for the financial crisis? Whilst such a question may be blunt, and clearly the answer to such a question needs to be nuanced, it does raise the spectre of what exactly is happening in business education at universities. Are the courses on social corporate responsibility and ethics in business merely 'add-ons' and peripheral to mainstream business

curricula? More so, where are the components for a more critical perspective in business curricula? What does a critical business studies education entail, and what does this mean for the business studies academic?

South Africa is not viewed as having a critical management studies tradition or movement. This paper is an attempt to spearhead the debate on the role of CMS in the classroom.

Our objectives are as follows:

- To understand how CMS and emancipatory education can inform a critical approach to teaching and learning in human resources management education at a tertiary level; and
- To explore how this may operate in practice.

The authors reflect on these objectives in the context of HRM education in contemporary South Africa. The paper proposes that HRM educators must prepare students for critical participation in a volatile and dynamic workplace that is beset by challenges that were inherited from the Apartheid era and the uncertainties and tensions attendant to the new democracy. The term *critical participation* was chosen deliberately to emphasise the need to develop practitioners who are not simply agents of business, but who are equipped to interrogate the social, political, and ethical values that underlie business practices and discourses. Corresponding to this goal, the paper argues for an HRM curriculum and teaching and learning approaches that help to nurture the attributes of reflection, discernment, critique, and evaluation.

In the ensuing discussion, these questions about the content and processes of HRM education are considered in an exploratory manner. The exploration is located in the ideas of CMS and emancipatory education, and the specific personal and political prompts for the study are identified. Supported by the framework of CMS and emancipatory education, the paper outlines a proposal for reconceptualising the curriculum, teaching and learning approaches, and assessment strategies in HRM education.

The vision and strategies that are proposed are seen as the first stage of an extended project that aims to review current HRM education design and approaches, and offer approaches that will hopefully equip students for critical participation in the workplace.

This paper begins with the personal narrative of one of the authors (Shaun Ruggunan), who is currently lecturing in HRM at the School of Management, Information Technology and Public Governance, which is located in the College of Law and Management of UKZN. The paper outlines the contextual drivers that prompted initial stocktaking of the teaching and learning space that he was occupying and in which he was inducting students into the profession of HRM. In particular, he was concerned that students were being prepared in ways that did not equip them to contest business and organisational norms and their attendant hierarchies and inequities. From this recognition, the research idea to evaluate the critical component of the teaching of HRM at UKZN evolved.

In the next stage of this paper, the authors locate themselves in relation to ideas from and debate within the CMS literature. Informed by the educational theories of Freire, the authors articulate the criteria they will use to take stock of the current teaching of HRM at UKZN, and suggest alternatives. The paper concludes with a preliminary framework for a curriculum, together with teaching and learning approaches, that, it is contended, aligns with the development of social awareness, and equips students to become critically engaged and socially responsible practitioners. The authors argue that the learning space, and the place that teachers and learners occupy in it, need radical transformation in order to meet the challenges of HRM practice in the space that is contemporary South Africa.

QUESTIONING THE LEARNING SPACE: SPECIFIC PROMPTS FOR THE STUDY

Personal challenges in the teaching of HRM

The research investigation began with a literal change of space for Shaun when he moved from teaching Labour Studies in the School of Sociology and Social Science to Human Resource Management in the School of Management. Serendipitously, Shaun was a participant in another research project in higher education, which Dorothy Spiller was undertaking at UKZN, and their interview discussion led Shaun to reflect on his teaching and the nature of the students' learning. The interview provided a space for Shaun to verbalise what he did in his classroom, and to register a sense of loss in relation to his goals and approaches in his previous teaching. For example, this description of his current practice suggested how he had slipped into a production model of education that is analogous to the 'banking' model of education that Freire challenged (1970; 1993). He said:

My relationship with students is governed by numbers. At honours level, I have 80 students in my class. I adopt an old-fashioned, traditional relationship, and base my teaching on the textbook (interview with Dorothy Spiller, June 2012).

This comment immediately prompted a reflection on the contrast with his teaching in Labour Studies, which he described in dramatically different language: *When I taught industrial sociology, I wanted to **transform** students' ideas of what work is* (interview with Dorothy Spiller, June 2012).

Shaun subsequently contacted Dorothy to explore this shift in his personal teacher thinking and -behaviours, and the discussion then evolved into the idea of research into the way HRM was being taught at UKZN and the ideologies that these pedagogies implicitly or explicitly promoted. For Shaun, there were serious questions about the modifications to his teaching goals and behaviours and the potential implications for the education he was offering to students, and the messages

that he might be sending to students about the role of HRM practitioners in contemporary South Africa.

Political and social context and the teaching of HRM

Shaun's personal uneasiness about the shift in his aspirations and practices as an educator was reinforced by contemporaneous events in South Africa. The dynamics of the South African context was exemplified in the fatal shooting of 42 miners in August 2012, at Marikana. This incident reverberated throughout the country in both the popular media and in academic circles. The massacre was equated to that of the infamous June sixteenth massacre of 1976, when Apartheid was at its height in South Africa. What made Marikana unique is that it was the first post-Apartheid protest that resulted in such high fatalities. It also represented a showdown between employees (miners) and mining capital. The popular media's discourse portrayed the miners as uncivilised, violent, and ungrateful for the employment offered to them by mining capital. Capital in South Africa was aggrieved, and was portrayed as the victim of this tragedy. No mention was made of the appalling living and working conditions of these miners, or the historical role of mining companies in supporting the Apartheid state, or violations of basic health and safety regulations in the industry.

Observing this discourse play out in the media and subsequently in academia, particularly in commerce and business schools, Shaun was alarmed that the debate in management studies failed to question or address the moral and ethical values that underpinned the prevailing discourses about the event. It led him to reflect on the absence of critical debate about underlying moral and ethical assumptions of HRM practice in the context of business studies. In stark contrast, colleagues in labour studies at UKZN were turning their classrooms into laboratories to investigate the political and moral economy of the mining industry in South Africa. It could be contended that such considerations are dealt with in courses about ethics; it is argued by the authors that such

stand-alone courses on ethics cannot provide a sustained learning experience that embeds the development of critiquing and questioning competencies. The Marikana massacre gave Shaun the impetus to disrupt the existing curriculum for an industrial relations module that he was lecturing within the School of Management, and to trial the inquiry-based approach that the authors advocate as a key principle for the design of a revised curriculum. The original syllabus for that course was a checklist of the different types of labour legislation required to be known by HRM practitioners. For Shaun, given the context of Marikana, HRM practitioners needed to be able to assess the veracity of claims made by capital, state, and the media that situated business as the victim and the miners as irrational agents. With this in mind, Shaun decided to adopt a CMS perspective in presenting this particular issue (Marikana). This process sparked a curiosity in Shaun to examine the hidden curriculum, as well as the overt curriculum, of HRM within his department.

These catalysts and Shaun's classroom experimentation generated further dialogue between the authors, and led to the gradual formulation of a research study that would involve investigating and evaluating current HRM teaching at UKZN, and eventually formulating different teaching and learning paradigms and specific strategies to enhance criticality in the teaching of HRM.

THEORETICAL FRAMEWORK: CMS AND EMANCIPATORY EDUCATION

The CMS tradition

The idea of critical management studies (CMS) is not new, and the notion that management students need to be educated to question prevailing business and organisational norms has been well articulated by CMS scholars and advocates (Alvesson and Wilmott, 1992; Cunliffe, Forray, and Knights, 2002; Dehler, 2010; Fenwick, 2005; Fournier and Grey, 2000;; Grey and Willmot, 2005). This push towards a values-based and

informed study of management has been given further impetus by the United Nations' Principles for Responsible Management, which provides a framework for ethical behaviours in management (Forray and Leigh, 2010).

To date, CMS has remained dominated by the work of British and American researchers, and, as such, both the theorisation and empirical evidence are limited to these contexts. Lately, Scandinavian academics have contributed to CMS. Notably, there is lack of contribution from academics from the developing world or academics studying the development of CMS within developing world contexts. The exception to this is the work by Gazi Islam (2007; 2012ab; 2013ab), who has published work on CMS and critical industrial psychology within the context of emerging economies like Brazil. More recently, Pellisery (2013) argued for the application of CMS within a developing world context.

CMS does not advocate educating students in a particular morality, but advocates educational approaches that help to develop students' capacity to interrogate the norms and values underlying prevailing economic discourses and business practices. CMS draws on a wide range of intellectual traditions such as Marxism, feminism, postmodernist thinking, and Freire's ideas about emancipatory education. While the focus of CMS will vary according to the

ideological underpinning, CMS scholars and teachers share a number of common values and approaches. People working under the CMS banner are committed to a form of management education that critiques the normative and prioritises human well-being and social equity over profitability and performance. Educators in the CMS tradition hope to contribute to the development of practitioners who are committed to the questioning of prevailing power imbalances and work towards social justice. Fournier and Grey (2000) identified three key components of CMS that have been widely used as benchmarks by CMS educators. These indicators are anti-performativity, denaturalisation, and reflexivity.

Anti-performativity refers to a critique of a focus on production and outputs, *denaturalisation* invites the regular and deliberate interrogation of processes that appear to be normal and natural, while *reflexivity* requires scrutiny of practice and behaviours and the assumptions on which they are based. All of these elements involve deliberate deconstruction and critical evaluation of the norm. From the perspective of the authors of this paper, these key elements are a natural corollary of Freire's belief in the importance of 'conscientization,' in the course of which learners become aware of the power structures of society, and acquire tools to contribute to social transformation (1970; 1993).

TABLE 1: COMPONENTS OF CRITICAL MANAGEMENT STUDIES

| Component | Features |
|---------------------|---|
| Anti-performativity | Management and organisations are not outcomes of the instrumental rationality of the knowledge produced by managers and management studies. Social relations should not be treated as "maximising output from a given input" (Grey and Willmot, 2005:6). To do so renders the politics and ethics of the organisation invisible. The primary function therefore of research and education in management studies is not to increase performance and productivity in a narrow, instrumentalist way. |
| Denaturalisation | The opening up and questioning of what has come to be seen as a given, unproblematic, and natural in management theory and practice. This includes hierarchy, dominant relations, managerial superiority (Alveson and Willmott, 1992:11-13; Grey and Willmot, 2005:5). |
| Reflexivity | This is an anti-positivist stance that posits that researchers and academics cannot be independent of the context in which they work and research. To be reflexive means to be aware of one's position (power, race, gender, status, class) for example) and how that position informs ones research agenda. As such, the knowledge one produces is not value free, and the critical academic acknowledges this. |

Some opponents of CMS argue that an emphasis on critiquing poses the danger of it being a self-indulgent intellectual exercise that does not translate automatically into changes in behaviour. Indeed, even seasoned advocates of CMS such as Grey and Fournier recognise the potentially paralysing role of the non-performative stance of CMS practitioners. Grey and Fournier noted the preoccupation “with the grounds and righteousness of our critique which distracts us from engaging with organisational practices and participants” (2002:22). The present authors recognise that the current workplace in South Africa and the society it represents need critique that forces action and engagement, as opposed to intellectual carping from the side lines. As such, the authors argue that the refinement of CMS with the notion of *critical performativity* (Spicer, Alvesson, and Karreman, 2009) is a more useful conception that accommodates some of the realities of educational spaces and organisational contexts, and is more likely to bring about change. It is a conception that the authors have translated into their own term of *critical participation*. Spicer et al. (2009) defined *critical performativity* as “active and subversive intervention into managerial discourses and practices. This is achieved through affirmation, care, pragmatism, engagement with potentialities and a normative orientation” (2009:538). Spicer et al. (2009) have particular problems with the anti-performative approach of CMS, and argued that the notion of performativity needs to be redefined to highlight active engagement. Spicer et al. (2009) essentially argued for a change-from-within approach that includes engagement and dialogue with mainstream practitioners and theorists, and complements deconstruction with construction. In so doing, practitioners and theorists will be acknowledging “the contexts and constraints of management. It needs to take seriously the life-worlds and struggles of those engaged with it” (Spicer et al., 2009:545). This model of constructive dialogue would also help to allay the concerns of those who question the practical possibility of implementing CMS in a traditional higher education setting (for example, Reynolds, 1999; Choo, 2007).

Critical management studies and human resources management

The three concepts of anti-performativity, denaturalisation, and reflexivity are key to creating a more critical discipline of human resources management. For example, reflexivity on the part of the HRM academic is integral to constructing a HRM programme that is not presented as a ‘value-free’ science (Moosmayer, 2011). The overly positivist approach taken by HRM at UKZN is evidenced in the nature of articles published by academics in the discipline. Furthermore, the bulk of the theses produced at Master’s and doctoral level reflects national trends in the discipline towards positivist value-free approaches to measuring HRM concepts such as job satisfaction, work engagement, and motivation. The positivist approach places the academic as a value-free agent in the classroom. Moosmayer (2010:9) referred to this as a “paradox of value-free science and the need for value-orientated management studies.” The aim and function of management as a science is being increasingly called into question (Starkey and Madan, 2000, *British Journal of Management*, Vol. 12, Special Issue, 2001, Lukea-Bhiwajee, 2010). Contributors to the special issue, for example, suggested that management studies need to shift from an instrumentalist economic perspective that treats employers as resources to a Mode 3 form of management research “that is targeted toward society and the greater good” (Huff and Huff, 2001:51). Much of the critique from academia was that positivism constructed the management sciences (of which HRM is a sub-discipline) as an “economic science [that] is value free” (Moosmayer, 2010:51). This scientific approach is guided by the principle of profit maximisation. As Moosmayer contended, this value-free approach has certainly been the dominant approach or paradigm informing management studies since its conception as a discipline. One only needs to think of Taylorism and scientific management to understand that the guiding paradigm of the management sciences has been one of utilitarianism and profit maximisation. In this sense, the management sciences are not

value free, but have an implicit and explicit set of values that are based on a purely economic rationale and construct of the human being as a human resource who needs to be managed to achieve a profit-maximisation function. This was certainly the goal of Taylor, who is widely lauded in management studies literature as the 'father of scientific management.' How then can the management studies academic disrupt this notion of a value-free or economic rationalist approach to HRM? One approach, as suggested by Moosmayer (2010) and Lukea-Bhiwajee (2010), is to encourage greater introspection about the nature and purpose of the discipline amongst academics. This may encourage a shift towards a more social and critical perspective in the ways in which the discipline is taught and the research is generated. As human beings, it is impossible for us to be objective or value free, despite the contentions of positivism (Lukea-Bhiwajee, 2010). An honest and thorough conversation is needed by management studies academics about the purpose and values that they wish to impart to students of management and HRM. The present authors endorse the argument by Lukea-Bhiwajee (2010:235) that "the time has come for business schools to practice giving voices to their values through management education." Academics need to be value agents, and being scientific does not imply being value free.

Emancipatory education

It is also vital that a critical approach to the teaching of management is complemented by an appropriate curriculum and teaching, learning, and assessment approaches. The work of Freire (1970, 1993) set the direction for the character of the learning that is more likely to foster the development of learners who will question the order of society and be equipped to bring about change. The planning and implementation of learning should aspire to be 'problem posing,' and be built on dialogue, focus on relationships, context, and process. An emancipatory education approach aims to construct a teaching and learning experience that encourages the questioning of society and its norms and values. The curriculum and the teaching, learning, and assessment need

to be built around Freire's principle of problem posing within a learning environment in which teachers and learners are partners in the learning process (1970:19). For Freire, the process of conscientisation cannot happen within the standard 'banking' model of education, which tends to involve the handing over of a product from teacher to students. These courses tend to be arranged in a linear model, often around a series of topics or even text book chapters. These traditional processes send strong messages about the nature of knowledge as incontestable, and do not encourage the unsettling of assumptions or the questioning of values. Instead, these pedagogical approaches continue to endorse the model of "obedience to authority and accepting of dominator-based hierarchy" (Hooks, 2003:19-20). It is the principles of Freire that, for the present authors, provide the touchstone for reviewing and redesigning HRM curricula that can prepare students for critical participation in the South African workplace as HRM practitioners.

Building a critical HRM programme

In reviewing and redesigning HRM programmes to develop students' capacity to critique and question, a number of key components need to be considered. These are outlined in the next section of the discussion.

Curriculum content and programme structure

The curriculum needs to be built on a particular understanding of the purposes of university education and of the intellectual project of HRM. The vision that informs this paper is that the purpose of academia is more than the instrumental production of workers. The production of skills for employment must be complemented by the education of critical graduates whose purpose it is to question this instrumentality. Thus, we advocate HRM that draws on the characteristics of anti-performativity. Students need to learn the principles of HRM (such as selection, recruitment, performance management, HR information systems, diversity), and simultaneously critique the ways in which these practices occur or are

conveyed. In order to nurture this capacity for critical participation in the workplace, HRM curricula and courses need to include a number of key elements.

There needs to be an inclusion and embedding of political economy and moral economy in HRM curricula, to foster recognition of and disrupt prevailing ideologies of HRM.

A critical curriculum for HRM in an emerging economy context needs to include education in political economy as a key learning outcome. Political economy provides both a historical and a social context for students trying to understand where, why, and how the management of people in organisational contexts occurs. An argument could be made that these aspects of the syllabus or curriculum are best left to industrial sociologists, and students can register for modules on the sociology of work. However, the reality at a multiple-site campus such as UKZN is that commerce faculties and curricula work in isolation from humanities and social science faculties. Management Sciences (including HRM) works very much in pedagogic and research isolation from colleagues in other faculties. This is exacerbated by the layout of the university, which means that the Commerce faculty and the Business School are located 15 kilometres away from the Social Science school of UKZN. Some consequences of this are that students cannot choose electives that may provide political economy context for their studies in HRM. Furthermore, even on single-campus universities, business and commerce schools work very much in isolation from their colleagues in sociology of work. More importantly, HRM as a discipline does not sufficiently allow for a critique of itself and its pedagogic practices. In contrast, business schools in the United Kingdom, the United States of America, and Scandinavia actively employed and recruit sociologists, psychologists, and a range of other social scientists to teach their HRM programmes (Thompson, 2010). This was, in part, due to the closing down of social science faculties at many universities in the United Kingdom, but it was also due to an emerging recognition that existing models of management, education, and

commerce education in general are straining in terms of their relevance in the current context of global financial crises. There is a general sense amongst the public and intellectuals that business schools have largely failed in their social responsibility projects.

HRM curricula need to be rooted in the context of moral economy. As Smyth and Pryke (2006) argued, management studies have tended to ignore the role of ethics and values in relationships in both research and practice. Sayer (2003:14) further contended that most “management and economic theory and practice either see profit and growth motives as their primary interests, thus subsuming and absorbing morality within these interests or perceive it as a purely personal matter. Smyth and Pryke (2006:9) took issue with prevailing discourses in HRM that demarcate the moral as personal, and therefore not the domain of work, organisations, and HRM. They contend that “morality is central to economic functioning.” Morality is foundational, and underpins the market economy. Students need to be presented with multiple perspectives of the ways in which economies function, so as to promote a problem-solving approach in the classroom. Inevitably, students will experience the contradictions between in the imperatives of the moral economy and those of the market economy.

Correspondingly, the curriculum and course content should promote critical questioning of the morality and ethics of business practices. South African business school lecture halls are the perfect laboratory in which to experiment with teaching HRM within the context of moral economy. HRM, sociology, and industrial psychology were social sciences that, in many ways, reinforced Apartheid South Africa’s policies of racialised capitalism. This was done based on amoral pseudo-scientific positivist eugenic ideas that rationalised racialised capitalism; a post-Apartheid project requires educationalists to teach within the context of moral economy. This does not mean courses in business ethics, but rather having moral economy inform each HRM module being taught. Grey (2004) and Lukea-Bhiwajee (2010) demonstrated in their work that

an integrated ethical component is mostly absent from HRM- and management studies modules that they have surveyed.

Learning outcomes

Course learning outcomes need to include higher order verbs such as *critique* and *evaluate*, but the expectation that students will acquire the ability to engage critically must be matched with appropriate teaching and learning approaches. Specifically, teachers need to model and demonstrate critical inquiry, and students need coaching in and regular practice opportunities to develop skills like detecting assumptions and values, recognising multiple perspectives, and scrutinising language. The capacity to be critical is difficult for students, and academics have a responsibility to teach students how to do this; otherwise, the desire that HRM students will question the ethics of their practices will remain empty rhetoric.

Incorporating interdisciplinary perspectives

HRM is a social science, and there is a need to incorporate social science perspectives in the teaching of HRM. This is an important recognition because, at UKZN, as at all South African universities, HRM is housed within a commerce faculty, and not within the social sciences faculty. The spatial dynamics of a multi-site campus like UKZN means that all commerce-related disciplines (for example HRM, marketing, supply chain management, economics, and accounting) are housed on the Westville Campus, and all social science disciplines (for example, sociology, psychology, and labour studies) are housed 15kms away, at the Howard College campus. The implication of this, from a practical and curriculum perspective, is that students registered for a BCom (HRM) degree are unlikely to major in a social science subject like psychology or labour studies that may provide them with alternate perspectives on workplaces. Students who wish to combine an HRM and a labour studies major would need to travel between campuses on a daily basis, at their own

expense. Timetabling difficulties compound the challenge of attending classes at two campuses. Social science electives for BCom students, whilst theoretically possible, are rarely registered for, given the logistical issues of a multiple-site campus. A pedagogical implication is that, for most BCom (HRM) students, their curricula are exclusively commerce-based, with no interventions from disciplines such as sociology, psychology, or labour studies. The workplace for HRM students is therefore constructed solely as an organisation, and workers as organisational citizens, rather than workers as social citizens first, and organisational citizens second. If students are not able to access social science modules like labour studies due to logistical reasons, then the onus is on HRM academics to provide a more critical and socially orientated and contextualised HRM curriculum that draws on a social science paradigm. This curriculum should be aimed at producing more than an organisational citizen or 'good employee,' but also be aimed at producing a social and critical citizen and 'bad employee' who questions the social, economic, and organisational status quo.

Context-specific and context-sensitive study materials

If students are to become critical HRM practitioners in South Africa, they will need to be alert to the socially constructed values and assumptions that underpin behaviours and thinking in organisations, and which frequently bolster inequitable power relationships. Text books and resource materials that are developed in other contexts reinforce a perception of employment relations concerns as context-neutral, and determined and resolved by the implementation and application of universally valid rules and procedures. If Freire's goal of conscientisation is to be attainable, South African problems, cases, and organisations need to be the material that students are invited to examine critically. Students need to be assessing the strengths and limitations of standard HRM tools within the complexities of South African realities, as well as recognising the power imbalances that these tools may support.

Research paradigm

There needs to be a move away from theoretical, orthodox positivist research methodologies to mixed methodologies and qualitative methodologies of research in the discipline. As argued earlier in the paper, science is not value free, and positivism and associated quantitative approaches to research in HRM must not be represented as value-free approaches. Positivism itself is a cultural development in the sciences and, as such, cannot be value free, and quantitative measurement may not always be able to capture all aspects of what is being measured. In particular, values, experiences, and emotions are constructed in language, and language needs to be deconstructed in order to identify and evaluate prevailing power relations. The present authors do not dispute that quantitative approaches have enormous value for the discipline, but the philosophy of research that underpins it needs to be made more explicit, and it is argued that methodological pluralism in the classroom and in HRM research approaches is more appropriate. Such pluralism is more likely to give learners the ability to access multiple perspectives, in particular, the voice of workers in HRM research and classroom learning.

Pedagogical models to promote criticality

The inquiry-based model of learning provides a potential pedagogical framework for repositioning the students' role in the learning process and for moving from 'banking' to 'problem-posing' (Freire, 1970; 1993). The inquiry-based model of teaching and learning is designed to help students to develop research-minded dispositions such as critical evaluation and questioning (Healey, 2005; Land and Gordon, 2008). The curriculum is designed around problems, questions, or points of inquiry, and teachers and learners collaborate to use course materials to investigate the problems. In this model, the students are positioned as co-inquirers, rather than passive recipients of information. In terms of citizenship and social participation, this approach helps students to develop a sense of themselves as engaged and questioning agents in the workforce

and the community. Alongside this co-inquiry model, the positioning of students and teachers as partners in a dialogical process is important (Baxter Magolda, 2004; Freire, 1970; 1973). The framework of inquiry-based learning sits well with the educational philosophy of learning partnerships developed by Baxter Magolda (2004; 2009), which is underpinned by her 20-year longitudinal study of (American) students' epistemological beliefs. One common pattern was her finding that college students relied extensively on external authorities in their learning process. There was a corresponding recognition of how poorly equipped this left students to deal with the complexities of contemporary society or, as Barnett sees it, "supercomplexity." Barnett describes supercomplexity as follows:

Supercomplexity denotes a fragile world but it is a fragility brought on not merely by social technological change; it is a fragility in the way in which we understand ourselves and in the ways in which we feel secure about acting in the world (2006:6).

Baxter Magolda's extensive research demonstrated a chasm between the way many students saw knowledge as absolute and located in an external authority, and the unprecedented level of uncertainty in contemporary society. (It is possible to suggest that, in the period of immense social transformation that characterises contemporary South Africa, the need for intellectual flexibility and moral vigilance is even greater). In response to the finding of student dependence on authority, Magolda developed the concept of learning partnerships. Her model was informed by the interviewees' stories of the factors that helped them to develop autonomy in various spheres of life after college. In Baxter Magolda's Learning Partnerships Model, a transition to autonomy is enabled by "merging three supportive components with three challenges in the learning environment" (2009:150). In this model, the support components are described as "validating learners' ability to know, situating learning in learners' experience, and defining learning as mutually constructing meaning" (Baxter Magolda, 2009:150). The challenge components

that can encourage learner autonomy are the recognition that “knowledge is complex and socially constructed, self is central to knowledge construction, and authority and expertise are shared among knowledgeable peers” (Baxter Magolda, 2009:150). In the context of the present study, these components align well with the need to educate students to become active agents in their society, and whose education informs their engagement with economic, political, and social environments. Furthermore, these students will be better equipped to face their working contexts, armed with vigilance and critical questioning. They will be well-versed in the recognition that the nature of reality is slippery and continually being formed and reformed, depending on the agendas of those involved.

Examples of teaching, learning, and assessment practices to promote critical questioning

While many management educators may endorse some of the aspirations for their students that are advocated in this study, they can remain locked into teaching, learning, and assessment behaviours that are counterproductive. In order for students to develop a voice in the learning process, they need to be engaged in ways that challenge and disturb their thinking from the beginning of their studies, and be given authentic opportunities to contribute to design, content, and assessment of their learning. Bearing in mind the key principle of the Learning Partnerships Model, these shifts in the structure of the learning experience need to be introduced with plenty of support and coaching, so that students can grow in confidence and capacity, and move gradually to learner autonomy and trust in the legitimacy and value of their own voice. Furthermore, this process needs to be embedded throughout a degree or programme, or the reliance on an external authority cannot be altered fundamentally and for the long term. Two broad shifts in the way teaching and learning are conducted can assist in this process. These shifts involve a reconceptualisation of the role of the lecturer in the learning process, and approaching the learning materials through cases, problems,

or points of inquiry; these two elements will be outlined in the following section.

The role of the lecturer

In order for students to develop a voice in the learning process, changes to the teaching and learning process cannot be piecemeal, but need to be built on a reconceptualisation of the lecturer’s role and a reconfiguration of learning spaces and the relationship between them.

Typically, university academics work within a fairly linear model, in which lectures, small group teaching, readings, assessment, and on-line activities (when used) may be quite bounded and distinctive learning spaces. It is argued that it is more helpful to see these activities as inter-linked learning sites, all of which can be brought directly or indirectly into the learning space.

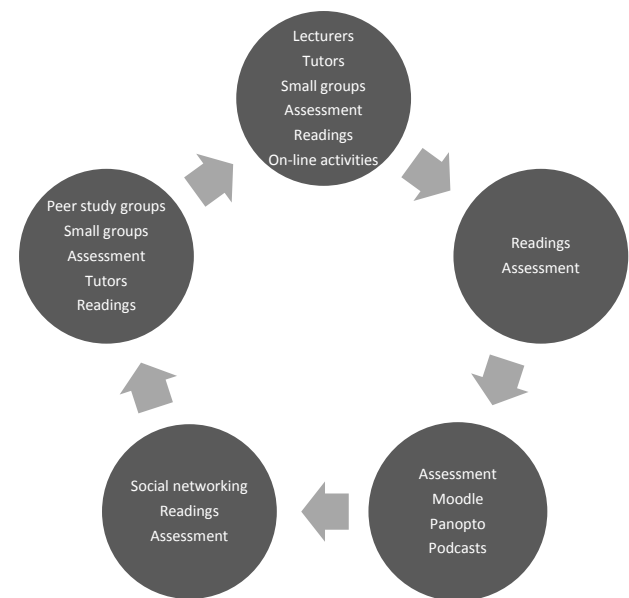


Figure 1: Interlinked sites of learning

Within this paradigm, the lecturer’s role also needs rethinking. McWilliam (2008:263-265) offered an evocative conception of the lecturer as “meddler-in-the-middle,” a positioning that sees teacher and students as “mutually involved in assembling and dis-assembling cultural products.” The teacher is conceptualised as “being a usefully ignorant co-worker in the thick of the action.” The idea of teacher as ‘meddler in the middle’ fits comfortably with the pedagogy of inquiry-based learning, in which students are co-inquirers in

the learning process (Healey, 2005; Land, 2008).

What could this look like in practice? In HRM, a key case that requires the students to identify and apply core HRM practices and raises issues of power inequities and ethical debates could be the point of inquiry around which the teaching and learning are built. Instead of framing the large class as a sequence of topics related to HRM competencies, the course is built around a key case that requires the application of a number of core competencies, but also invites students to investigate issue of social control, power, and morality. As suggested in the diagram, the learning could occur in a number of inter-linked sites. For example, students could be allocated to groups, and assessment could require groups to make electronic submissions around a case that requires them to identify the required competencies, and explain how they would apply these.

Teaching and assessment need to open up new lines of inquiry, as opposed to focussing on procedures and the application of rules. As research has demonstrated that assessment is the primary determinant of the quality of student learning, it is important that the assessment promotes sustainable and relevant learning. A critical management education must consider, not only the formats of assessment, but also the power inequities in the assessment and evaluation processes. Partnership cannot be restricted to teaching and learning spaces, but student participation needs to be extended to dialogue around assessment, including criteria and incorporating self- and peer assessment. As Reynolds and Trehan (2000) argued, academics cannot hold all the power in assessment in the context of learning that asks students to challenge and question social hierarchies and the unequal distribution of power.

An experiment in building teaching and learning around a case study

As has been argued, developing students' critical capacities requires an entire curriculum- and pedagogical overhaul. The following example is presented simply to give a more specific

impression of what inquiry-based learning can look like in practice. However, it must be emphasised that the value and long-term impact of teaching and learning in this way are severely limited if it is an isolated activity that is not matched by the structure and teaching and learning approaches in the rest of the course and the HRM programme as a whole.

The case study of Marikana illustrates how a particular event, problem, or scenario can be a focal point for both learning course content and examining the discourses that converge around the content. In the context of a 14-week labour legislation module offered by UKZN in 2012, it was useful to juxtapose the public and private personalities of organisations such as Lonmin (the ground zero of the Marikana massacre). Students were provided with information from Lonmin's official webpage, annual report, and corporate social responsibility report. Students then had to read the Benchmarks Foundation's report on the ways in which mining companies like Lonmin failed to live up to their corporate social responsibilities to miners. Given that the news of the industrial dispute was unfolding in the South African media on a daily basis, students were encouraged to bring newspapers, trade magazines, as well as video clips of how the media represented the views of Lonmin and of the miners. Students had to become active agents in reading and challenging the discourses of business, organised labour, and the state of the Lonmin issue. They were forced to engage with the complexity of a situation that, in essence, was the collapse of an industrial relations system. Students were guided to act like detectives in wading through the various sources. It was important that they had access to various sources, since the trade unions and workers who were killed were being vilified by the popular press (Alexander, 2013).

Students needed to recognise that being an HR practitioner is not only about being an organisational citizen, but also about reading complex social situations, and understanding political economy, moral economy, and being critical social citizens. The assessment was

designed to correspond to the learning approach. In their class essay and examinations students, were asked to provide an interpretation of what, according to their understanding, accounted for the situation at Lonmin. Whilst some provided very managerial accounts (lazy and ungrateful workers, ill-disciplined trade unions), the bulk of students responses demonstrated that they engaged deeply with a complex situation, and gave some surprisingly insightful answers. They were able to identify the following as components of the events of the massacre:

- Massive economic inequalities in South African society;
- A low-wage culture in the mining industry;
- Mining capital's dominance of the South African economy and capital outflows of profits generated from industry to investors abroad;
- The politics of race and racism in the mining sector;
- An appalling occupational health and safety record of Lonmin and the mining industry in general in South Africa;
- Failure of Lonmin to live up to its public promises and corporate social responsibilities; and
- A recalcitrant government, reluctant to interfere with mining capital's privilege.

That the students were able to identify the themes above in a labour legislation HRM module was encouraging. However, such insights are only possible with a specific type of pedagogy. It is a pedagogy that encourages complexity, dissonance, and an attention to local context. It can occur through choosing locally relevant case studies that are morally and socially complex, and to which there are no 'model' answers. Ultimately, however, the full impact of working in this way can only be experienced when the approaches are embedded in an entire programme.

CONCLUSION

The authors intend to use this paper as a starting point for a critical evaluation of the current content of the HRM programme at UKZN, its underpinning research paradigm, and the related teaching, learning, and assessment practices. It is hoped that this will aid the construction of a programme that does not simply prepare HRM practitioners, but which enables them to negotiate the complex tension between critique and performance in HRM practice, and not simply become agents of those with economic power. It is hoped that the anticipated research journey will help to transform the way in which HRM students are educated, and assist them to not simply reproduce or regulate relations in the work place, but to evaluate them, and contribute to justice and social equity.

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Globalisation and its influence on ethical decision-making in business: China and intellectual property

ARNO NEVELING, DANIEL MALAN & ANNA YORTT

ABSTRACT

Ethical decision-making in business is influenced by various factors, including the external environment, organisational factors, and society. Business ethics in China have changed in the last few decades, predominantly as a result of globalisation. However, such changes can take some time to start to manifest, which is seen in the lag between policy changes and tangible changes in the approach to intellectual property rights, as observed in the patent application trends in China. A change in approach to intellectual property indicates to what degree various countries have embraced the opportunities presented by globalisation.

Keywords: Globalisation, business ethics, intellectual property, China

INTRODUCTION: DIFFERENCES IN ETHICAL DECISION-MAKING

Ethical decision-making in business is influenced and shaped by various factors, including the external environment, organisational factors, and society. Business ethics in China and, consequently, ethical decision-making have emerged and developed mainly due to economic reforms in response to globalisation. Globalisation is hailed as a way to spread cosmopolitan values, as well as to enhance employment conditions and standards of living. However, it is also seen as a new wave of colonialism imposed by developed countries and multinational companies on poor

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countries, synonymous with exploitation and impoverishment of both people and nature (Brennan, 2006:133).

Küng (1997:18) argued that economic globalisation requires globalisation in ethics, with minimum specific ethical values with basic attitudes and standards that are binding on all nations and all classes.

In traditional Chinese culture, ethics plays a central role in Chinese society, but business ethics in China is a new discipline. The practice of business ethics is still weak, and transforming theory into practice is key (Hong, 2001:90).

Business ethics, and thus ethical decision-making, in China has emerged and developed mainly in response to economic reforms (Xiaohe, 1997:1509), while the development process of business ethics was driven mainly by four factors: reflections on economic reform, the legacy of Chinese traditional ethics, the influence of Marxist philosophy and ethics, and the influence of business ethics from abroad. The four factors can be rephrased as the economic system, culture, the political system, and the influence of globalisation.

As globalisation resulted in a knowledge economy, China encountered many new ethical issues (Lu, 2001:113), such as the justification and protection of intellectual property (IP), and the role of government in the protection of IP and public interests (Lu, 2001:117). IP can be defined as intangible assets that include brand value, patents, know-how, copyright, trademarks, and designs (TaylorWessing, 2008:4). According to the European definition, an invention must be new, non-obvious, and industrially useful to be patentable (Davis, 2004:401). Trademarks are signs or symbols to identify goods and services, whereas copyright protects original literary and artistic works.

IP has become a global issue because of the interconnectedness brought about by globalisation. For companies operating in the global market, the safeguarding of IP in developing economies is just as important as in developed countries. The Internet provides a further

challenge to intellectual property rights (IPR), from counterfeit goods being sold, to domain name- and trademark piracy. IP protection and patents, the IP type that is the focus of this paper, play a critical role in motivating innovation and competition amongst countries in a globalising world where no country can survive economically in isolation (Botta and Tsai, 2004).

Historically, emerging markets were attractive to expanding companies for a number of reasons, such as affordable and skilled labour. However, companies must be careful in these markets, and develop a risk management strategy to effectively protect their interests. Whereas corruption is a big concern in Central and Eastern Europe, IP management is the concern when operating in China (Credit control, 2005). Interestingly, more companies are willing to take on the potential problem of corruption rather than the potential loss of IP, as shown by a survey of companies that contemplate expansion. A total of 74% of companies were investigating expansion into Central and Eastern Europe, as opposed to only 43% that considered China.

IPR were brought to the forefront of economic development in China in 1978, when China opened its door to the outside world. Economic development became the main focus of the country, and foreign direct investment (FDI) and technology transfer became the foundation of Sino-foreign relations (Yang, 2003:131). As a result, multinational companies could extend their reach and operations into China.

The most significant international development in IPR has been the signing of the agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) under the multilateral trade negotiations at the Uruguay Rounds. This was a major landmark in the discipline of International Law (Mathur, 2007:1). The extent of protection and enforcement of intellectual property rights varied widely around the world, and these differences became a source of tension in international economic relations. The TRIPS agreement is an attempt to narrow the gaps in the way intellectual property rights are protected around the world, and to bring them under common international rules.

THE INCREASING ROLE OF INTELLECTUAL PROPERTY RIGHTS IN THE AGE OF GLOBALISATION

The increasing role of IPR can be explained by four interrelated trends. Firstly, intangible assets are increasingly a source of competitive advantage. Secondly, business activities are becoming more globalised. Thirdly, advances in digital technologies make replicating and transferring easier, and, finally, there are significant changes in many countries in the legal framework that governs the strength and scope of IPR (Davis, 2004:400).

However, some do not look favourably upon IP protection. Griffin (2003:794) postulated that the move towards protection is in the wrong direction. Lawyers go through enormous effort to establish ownership of ideas (patents and trademarks) that can give companies or individuals extremely valuable monopoly privileges. On the positive side, together with the highly competitive global work environment, the major challenge for companies is to innovate faster (Erez and Gati, 2004:591).

Despite negative feelings towards IP protection, developing countries are dependent on companies in the developed world for technology (Bosworth and Young, 2000:454). Many countries have policies in place to obtain technology from abroad. International firms, through inbound foreign direct investment (FDI) and licensing activities, represent a ready conduit to obtain technology.

IP regulations have been tied to trade-access negotiations ever since the birth of the WTO, in 1994, which was formed as a result of the increase in trade, a direct result of globalisation. As a result, and as a by-product of globalisation, the rules of the game that affect the use of technology, and thus IP, changed (Teitel, 2005:458).

However, despite WTO efforts and the TRIPS agreement, there is still flexibility in adjusting national systems to national requirements, taking into account the trade-off between public good and private interest, even though there is

a tendency towards convergence in national and regional systems, as a result of international treaties and agreements (WIPO, 2007:vi).

Linking IP regulations to trade agreements was initially pursued by industrialised countries, such as the USA, in an effort to stop the sale of counterfeit copies of copyrighted and trademarked goods. Bird (2006) mentioned action by the United States government that led the BRIC countries (Brazil, Russia, India, and China) to change their legal landscapes. Although all four of these countries now have stronger IP laws, enforcement thereof remains a different matter altogether.

China has a reputation as a 'pirate nation' with a complete disregard for IP (Grulke, 2006:40). One recent example was the Shanghai automobile show of 2003 (Grimes, 2005), where GM launched a new \$9 000 compact car, only to find a similar Chinese version on the floor for \$6 000. GM lost the subsequent court case, as the courts ruled: "GM has no evidence for the case." Another example was when Toyota found another manufacturer using the Toyota logo on their cars. Toyota also lost, as the court ruled that China did not recognise the Toyota brand.

Legal and administrative differences in national or regional patent systems have a significant impact on the number of patents being filed (WIPO, 2007:vi), as do a number of other factors. The size of the country also plays a significant role. To some extent, the differences between patent offices reflect the stage of industrial development, international trade, and investment in the respective countries.

A country's approach to international trade involving technology management, ownership of knowledge, and business processes is strongly influenced by interknitted societal, moral, and ethical issues (Ganguli, 2000:168). Copying, an ethical issue, is permitted in the absence of legally determined exclusive rights, and, in some societies, it is even encouraged.

According to Griffin (2003:795), the situation is far worse when it comes to technology patents, as opposed to trademarks. Griffin believes the

answer lies in reforming the World Intellectual Property Organisation (WIPO), to make it more difficult for inventors to obtain patents. Four proposals are made, of which the first is to stop companies patenting minor product differentiations. Secondly, companies should be prevented from acquiring defensive patent portfolios consisting of a large number of patents as a way to choke competition and inhibit innovation by the competition. Another proposal is that companies should be prevented from engaging in anticompetitive strategies, such as litigation against smaller companies as a way to increase the costs of entry into the industry.

The social impact of IPR was demonstrated by a study by Adams (2008:729) that showed that strengthening IP rights, and openness of the economy, are positively correlated with income inequality around the world, while globalisation was found to explain only 15% of the variance in income inequality. There is another negative side to IPR. Collier (2000:72) mentioned the example where multinational companies attempted to patent genetic components of plants and animals, thus preventing companies in poor countries from using these to manufacture medicines, cosmetics, or foodstuffs. These patents were capturing age-old knowledge of indigenous people about uses and applications of these substances. Collier also mentioned that some companies have the technology to render seed infertile in order to enforce restriction of its use, even though farmers have been growing their own traditional crops, such as wheat and rice, in India.

Under the World Trade Organisation's (WTO's) TRIPS, India has ceded the right to free-ride on foreign advances, something India's generic drug makers used to exploit very well (The Economist, 2007:8). India now grants 20 years of patent protection to inventions made since 1995. It hopes that the tighter laws will inspire new exploits in innovation and, in addition, reassure foreigners who are still wary of inventing or making original products in India. A recent study by the World Bank expressed the hope that the strategy will succeed (Dutz, 2007:38).

During the period from 1950 to 1980, countries in Latin America and East Asia, then in the earlier stages of industrialising, incorporated and adapted technology relatively freely (Teitel, 2005:458). The TRIPS agreement emphasises faithful adherence to patent laws and other IP restrictions, making this much less likely today. Until recently, some countries, including India, had IP regulations that permitted the patenting of certain new products, but not their manufacturing processes. This is not permitted by TRIPS. In the medical field, this may lead to higher health costs, due to price differences between patented and generic products, and also serve as a disincentive to local innovation in this field, because local innovators used to search for alternative ways to manufacture patented chemical or pharmaceutical products.

Even though China has joined the WTO, and is thus bound by TRIPS, it is still argued that China will continue violating these provisions. However, in an unprecedented move in February 2008, China lost before the WTO over its import restrictions on car parts. The Economist (2008:69) argued that, on a symbolic and practical level, the case may be a turning point for many industries in China, and the start of a new era in which China is attacked by litigation.

THE CHANGING FACE OF IP AND ITS PROTECTION

Boldrin argued that both economic and social progress are the result of the persistent creation of new ideas and goods, their free exchange, and competition among creators, producers, and imitators of goods and ideas. Boldrin (2006:25) further argued that IP laws protect a monopoly on how other people make use of ideas.

Currently, the protection of IP is a sensitive issue that receives a lot of attention in the WTO. However, the fear of losing IP rights is an old phenomenon. During the eighteenth and nineteenth centuries, inventors had to simultaneously submit patent applications in all the countries where the inventor wanted patent

protection, or risk ending up with no patent protection for all except one of the nations to which the patent was submitted, with the reason being that the first application destroyed the novelty of any subsequent application (Bird, 2006:320). The lack of global protection was a burning issue, so much so that, in 1873, inventors refused to attend an international exhibition of inventions in Vienna, for fear of losing their patent rights.

From the Paris Convention to TRIPS

The 1883, the Paris Convention for the Protection of Industrial Property established the principle of national treatment, which requires nations to grant foreign patent holders the same rights as given to its own citizens (Bird, 2006:321). The Convention required signatories to impose minimum standards of IP protection. Over time, the Convention has been revised extensively, and remains the foundation of international IP law. However, the Convention allowed for discretion on the part of countries, some of which excluded fields, such as pharmaceuticals, from protection. As a result, the Paris Convention failed to sufficiently limit piracy of IP.

Reshaping the global IP regime began in earnest between 1986 and 1994, during the early phases of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) (Bird, 2006:321). The process was driven by the United States, with support from Europe and Japan (Bird, 2006:322). However, developing countries, led by India and Brazil, initially resisted these efforts to link trade and IP rights under GATT, arguing that the discussion of IP rights exceeded GATT's original mandate (Bird, 2006:323). Developing countries considered WIPO, where they could effectively block any changes because they make up more than half of the membership, to be the appropriate forum.

By 1989, the developing countries had succumbed to US threats of trade sanctions, resulting in IP rights being placed on the GATT agenda. The eventual outcome was the adoption in 1994 of the Agreement on Trade-Related Aspects

of Intellectual Property Rights (TRIPS) (Bird, 2006:324). This agreement provided broader protections for IP rights by establishing minimum terms of protection, and authorising trade sanctions against non-compliant nations.

A lot of coercion was necessary to convince countries such as India. During the 1989 Indian economic crisis, the United States pressured India through its influence over the International Monetary Fund (IMF), on which India depended to get through the crisis. India also depended on direct grants and trade from the US, also their biggest trading partner (Bird, 2006:329). Russia was pressurised by being placed on the Watch List in 1995 and the Priority Watch List in 1997, signifying its non-compliance with IP standards. Pressure on China to improve IP protection almost resulted in a series of trade wars between the US and China. During the 1990s, the US repeatedly threatened to impose sanctions against China, eventually resulting in China agreeing to improve and enforce its IP laws.

Up to the conclusion of the Uruguay Round in 1994, the scope and strength of IP protection varied between countries, for reasons such as varying levels of economic and technological development (Dutfield, 2005:533). TRIPS established enforceable universal minimum standards of IPR protection and enforcement. These relatively high minimum standards were an attempt to specifically resolve copyright piracy, unauthorised use of trademarks, and competition from firms producing generic drugs because they were not bound by law to respect patents. According to TRIPS, WTO member states are given the freedom to develop their own IPR laws, as long as they stay within the spirit of the agreement (Ganguli, 2000:168). Essentially, every country must find the balance that satisfies its own national interests while complying with the agreement, as depicted in Figure 1.

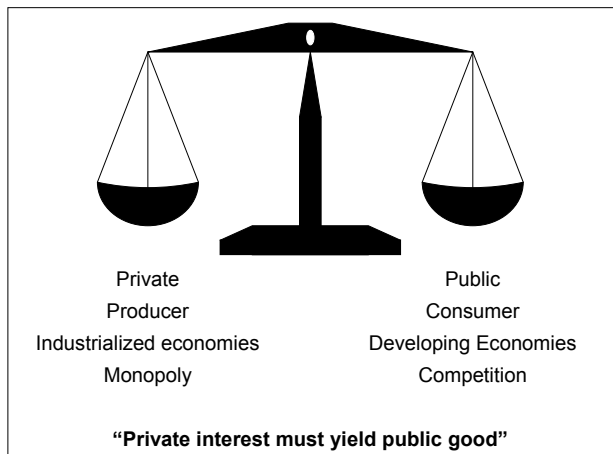


Figure 1: (Ganguli, 2000:168)

Anecdotal evidence suggests that illegal copying is important in the early stages of a country moving from a developing to a developed country, with Japan being a good example of this (Bosworth and Yang, 2000:454). The dilemma is that developed countries want their IP to be protected, and will go as far as applying sanctions to prevent developing countries from copying. With the eventual signing of TRIPS, the protection of IP became a key element of international trade negotiations.

TRIPS offers member countries some flexibility, with Asian countries being more proactive in making use of these flexibilities. India used these flexibilities of IPR rules to refuse patents on existing medicines, specifically the provision in Patent Law that states that patent monopolies will only be awarded for “truly innovative medicines” rather than minor changes to existing ones (Adams, 2008:732). The flexibility provides developing countries with the opportunity to pursue economic and social goals, including measures necessary to protect public health and nutrition (Mathur, 2007:5). However, developing countries must find a balance between protecting their national interests and the interests of the international community (Shen, 2005:197).

IPR protection is recognised as part of the legal infrastructure that supports investments in research and development, which, in turn, leads to innovation and, subsequently, to economic development. However, it is difficult to envisage this happening in the 50 least developed countries

(LDCs) that filed just ten global patents per year between 2000 and 2004 (Adams, 2008:732).

A recent review of empirical evidence found a statistically significant positive correlation between stronger IPR protection and higher levels of technology transfer under TRIPS, although a number of limitations were identified (Watson, 2011). Another advantage of IPR is that it stimulates local innovation and the transfer of technologies that foster local innovation. Since 1995, when the TRIPS agreement came into force, developing and the least developed countries have undertaken significant reforms in their IP systems. In addition, the developing and least developed countries experienced large growth in foreign direct investment, import of both goods and service, patent applications by foreigners and locals, and increases in research-and-development-to-gross-domestic-product (GDP) ratios.

La Croix and Konan (2002:760) argued that China’s desire to become a member of the WTO fundamentally changed the nature of their approach to IP. The IP systems of India and China were flawed and practically powerless to provide real protection to inventors prior to the 1970s (Botta and Tsai, 2004:1). Botta and Tsai argued that reforms of their IP position in order to be competitive in the new global economy are a direct result of globalisation. This desire to join the WTO overcame the limited capacity of China’s legal system and society’s willingness to rapidly change in response to both domestic and foreign pressure. China had to make these changes to appease the US and the EU, and thus prevent a veto to ascension to the WTO.

The playing field for filing patents has changed in the age of globalisation. Multinational companies nowadays often introduce products into a number of markets at the same time, a practice that requires comprehensive international IPR protection right from the start (Davis, 2004:402). Previously, the practice was to introduce products locally, and then gradually expand to international markets.

The ease with which IP can be protected,

defended, and exploited differs from jurisdiction to jurisdiction. IP decisions are increasingly impacted by a range of IP regimes, a consequence of the increasingly global economy, the growth of the internet and knowledge-based economies, and low-cost travel.

The importance of IP

Analysis performed by Mondal and Gupta (2006:29) indicated that strong IPR around the globe can improve the welfare of both developed and developing countries.

The conventional wisdom, as advocated by the Washington Consensus, is that continued economic growth will result in the expansion of the middle class, increased employment, and a higher savings rate among the poor, consequently resulting in the reduction in income inequality (Adams, 2008:726). This implies that, in order for developing economies to catch up with the living standards of developed countries, they must open their markets by lowering tariffs, removing trade restrictions, granting privileges to foreign investors, and enforcing IPR. Some studies suggested that strengthening IPR in poor countries can stimulate invention and new technologies. A recent WIPO report noted that intangible assets, such as knowledge, are replacing traditional tangible assets as the driving forces of economic development. Evidence, however, indicates the opposite. Latin American and African countries have more open economies and stronger IPR protection than Asian countries, but the level of income inequality is lower in Asia. Chu and Peng (2011) also found that better patent protection increases both economic growth and income inequality.

In compiling the first Global Intellectual Property Index (GIPI), TaylorWessing (2008:4) cited a study that suggested that only 20% of the average company's value is made up of tangible and financial assets. The remaining 80%, excluded from book value, can broadly be viewed as IP, including brand value, goodwill, patents, know-how, copyright, and trademarks.

Lack of trust in IPR in developing countries

Today, despite TRIPS, the lack of IPR protection in many countries is regarded by many as the single most significant threat to international competitiveness (Bird, 2006:319). Companies in developed countries are rarely willing to license technology to companies in developing countries that do not have comprehensive IPR laws together with their effective enforcement (Bosworth and Yang, 2000:453). The successful enactment and enforcement of such laws in developing countries should result in greater cross-border flows of IP from companies in developed countries to the developing world. Bosworth and Yang (2000:454) argued that the protection of IP is now at the forefront of the globalisation of markets in ideas, technology, and economics.

However, companies cannot afford to ignore the market opportunities in the large emerging market countries, especially the BRICS. This leaves many companies in developed countries in a predicament. The BRIC countries (excluding South Africa) do not yet have fully developed IP protection and enforcement mechanisms.

A changing approach to IP

A number of different treaties, of which the TRIPS agreement is the most significant, resulted in the standardisation of international IPR laws and enforcement mechanisms, extending these rights to most countries in the world. For some types of technology, trade secrets are adequate protection, but, in most cases, patents are necessary. IP laws need to be strong, effective, and enforced, if licensing from abroad is to be encouraged (Bosworth and Yang, 2000:454).

The internationalisation of IP from the late 20th century onwards was accelerated by the globalisation of cross-border businesses (Yang and Clarke, 2005:549).

Furthermore, the scope of IP expanded dramatically. Some new areas that need a standard approach across the world and that currently are under discussion are the Internet domain, access to drugs, and e-commerce. Computer programs and databases currently need to be

protected across different IPR, namely patents, trade secrets, and copyrights, depending on the country concerned.

Growing competition from developing countries in Asia and Latin America means that multinational companies have had to change their approach to patenting. The globalisation of business activities has also profoundly affected company patenting policies (Davis, 2004:405). Multinational companies used to apply for patents in selected countries that were earmarked as markets for their goods, but nowadays seek much broader international protection for their goods.

Patent philosophies also changed over time (Davis, 2004:408). In the past, innovators only patented selectively, patenting products and not the method, which was kept as a trade secret. Today, this poses a risk to companies, because other companies can patent the process and thus block the original inventor.

The Global Intellectual Property Index (GIPI)

The virtues and limitations of the various IP regimes differ significantly. TaylorWessing (2008:4) developed the GIPI to provide a point of reference by which the IP regimes of different jurisdictions can be assessed. The overall inaugural GIPI results of 2008 and the fourth (TaylorWessing, 2013) and latest (2013) ratings (with 36 jurisdictions and also including designs and data-protection indices) are set out below, showing the rank and rating for each jurisdiction. The list of jurisdictions in the indexes is divided into tiers to allow for statistically marginal differences (TaylorWessing, 2008:6).

In the inaugural index, the original four BRIC countries (Brazil, Russia, India, and China) formed the lowest tier for each of the separate indices and the combined GIPI by a significant margin. China was at the bottom of each index, more than 300 points lower than any of the Tier 1 jurisdictions. The latest index indicates that the gap is closing, now standing at less than 100 points. The original four BRIC countries have seen some of the highest increases in ratings since GIPI1, but they

still languish at the bottom of the rankings. South Africa, the newest member of BRICS, has the most established IPR regime of the group. It appears to have dropped significantly since the first ranking, but when ignoring newcomers to the ranking, it dropped only marginally. However, it is ranked amongst the lowest of all the jurisdictions for attacking patent registrations, while the backlog of cases at the registry is a concern, together with it not permitting multi-class applications (TaylorWessing, 2013:25).

TABLE 1: ORIGINAL GIPI RATINGS (2008)

| Jurisdiction | Tier | GIPI Rank | GIPI Rating | Trademark Rank | Patent Rank | Copyright Rank |
|--------------|------|-----------|-------------|----------------|-------------|----------------|
| UK | 1 | 1 | 768 | 1 | 1 | 2 |
| USA | | 2 | 762 | 6 | 2 | 1 |
| Germany | | 3 | 749 | 2 | 3 | 3 |
| Netherlands | 2 | 4 | 740 | 3 | 4 | 4 |
| Australia | | 5 | 733 | 4 | 6 | 7 |
| Canada | | 6 | 732 | 7 | 5 | 5 |
| New Zealand | | 7 | 724 | 5 | 7 | 6 |
| Singapore | | 8 | 709 | 8 | 8 | 8 |
| France | | 9 | 693 | 9 | 9 | 9 |
| Israel | | 3 | 10 | 664 | 10 | 11 |
| Japan | 11 | | 659 | 12 | 10 | 11 |
| Spain | 12 | | 652 | 11 | 12 | 12 |
| South Africa | 13 | | 619 | 13 | 14 | 14 |
| South Korea | 14 | | 619 | 14 | 13 | 13 |
| Poland | 4 | 15 | 576 | 15 | 16 | 16 |
| Dubai (UAE) | | 16 | 575 | 16 | 15 | 18 |
| Italy | | 17 | 571 | 17 | 17 | 15 |
| Mexico | | 18 | 550 | 18 | 18 | 17 |
| India | 5 | 19 | 489 | 20 | 19 | 19 |
| Brazil | | 20 | 484 | 19 | 21 | 20 |
| Russia | | 21 | 480 | 21 | 20 | 21 |
| China | | 22 | 448 | 22 | 22 | 22 |

In GIPI1, China, Brazil, Russia, and India were all regarded as very poor jurisdictions in which to manage all forms of IP. However, China recently joined the two key WIPO treaties for copyright protection (TaylorWessing, 2008:8), while Russia has made strong commitments to improve with

the launch of a new IP court (TaylorWessing, 2013:32). Russia's move into the fourth tier is most probably the result of the overhaul of its IP laws, for the third time in a decade.

As far as trademarks are concerned, China's IP regime is reforming rapidly. This was attributed to China being the host of the 2008 Olympics and two WTO complaints filed by the US government (TaylorWessing, 2008:12). Not only has legislation been amended, but there is also greater buy-in from senior officials and professionals. Additionally, enforcement against counterfeiters, demonstrated by recent successes for Pfizer and Louis Vuitton, has been more effective. In 2006, there was a five percent increase to more than 14 000 civil IP trials related to trademarks. However, counterfeiting remains a significant problem, with a reported 70% of all global counterfeit goods originating from China (TaylorWessing, 2013:31). In recent years, China has been developing an increasingly sophisticated patent system. The Supreme People's Court and the State Intellectual Property Office (SIPO) have been actively making and proposing changes in multiple areas, including infringement, claim amendment, enforcement, and compulsory licensing (TaylorWessing, 2013:32). China is also making changes to its copyright laws. However, it is still perceived that, in China, copyright is often unenforceable, and the benefits of copyright are not understood (TaylorWessing, 2008:17).

The slow processing of trials in India creates a negative perception of their IP regime (TaylorWessing, 2008:17), with the enforcement of patents, in particular cost effectiveness, adding to its low ranking (TaylorWessing, 2013:33).

Improvement in Brazil includes the modernisation of the Brazilian National Institute of Intellectual Property, with the aim of reducing the grant time of patents (TaylorWessing, 2013:31). Trademark filings have increased almost 200% in Brazil since GIPI3 in 2011, and enforcement by the National Council to Combat Piracy has also been improved. However, delays in both the registry and the courts mean that the trademark system remains a key weakness. It is believed that the hosting the football World Cup in 2014 and the Olympics

in 2016 will result in the greater recognition of the value of IP within Brazil (TaylorWessing, 2013:20).

TABLE 2: GIPI RATINGS FOR SELECTED COUNTRIES IN 2013 AND 2008

| Jurisdiction | Tier | GIPI Rank | GIPI Rating | 2008 GIPI Rank (and tier) | Trademark Rank | Patent Rank | Copyright Rank |
|--------------|------|-----------|-------------|---------------------------|----------------|-------------|----------------|
| UK | 1 | 1 | 657 | 1 (1) | 1 | 2 | 1 |
| Germany | | 2 | 656 | 3 (1) | 2 | 1 | 4 |
| Netherlands | | 3 | 655 | 4 (2↑) | 5 | 3 | 12 |
| Sweden | | 4 | 653 | - | 6 | 4 | 4 |
| Australia | | 5 | 652 | 5 (2↑) | 3 | 7 | 17 |
| New Zealand | 2 | 6 | 643 | 7 (2) | 4 | 9 | 13 |
| Switzerland | | 7 | 643 | - | 10 | 5 | 7 |
| France | | 8 | 642 | 9 (2) | 9 | 7 | 6 |
| USA | | 10 | 639 | 2 (1↓) | 10 | 11 | 2 |
| Canada | | 11 | 638 | 6 (2) | 7 | 13 | 13 |
| Singapore | | 12 | 637 | 8 (2) | 13 | 9 | 3 |
| Japan | 3 | 15 | 628 | 11 (3) | 15 | 12 | 9 |
| South Korea | | 18 | 620 | 14 (3) | 20 | 15 | 9 |
| Israel | | 20 | 615 | 10 (3) | 19 | 19 | 22 |
| UAE | | 24 | 598 | 16 (4↑) | 25 | 24 | 23 |
| Saudi Arabia | 4 | =25 | 591 | - | 26 | 27 | 30 |
| South Africa | | =25 | 591 | 13 (3↓) | 24 | 29 | 33 |
| Turkey | | =25 | 591 | - | 29 | 28 | 26 |
| Russia | | 29 | 588 | 21 (5↑) | 32 | 25 | 25 |
| Mexico | | 30 | 586 | 18 (4) | 28 | 32 | 28 |
| Brazil | | 31 | 581 | 20 (5↑) | 31 | 33 | 27 |
| Indonesia | 5 | 34 | 572 | - | 34 | 34 | 36 |
| China | | 35 | 567 | 22 (5) | 36 | 26 | 32 |
| India | | 36 | 565 | 19 (5) | 35 | 35 | 35 |

DEVELOPING BRICS COUNTRIES AND INTELLECTUAL PROPERTY

Historically, the BRIC countries (prior to South Africa joining) were seen purely as countries with vast reservoirs of cheap labour (TaylorWessing, 2008:15). This is changing, as these countries are increasingly becoming knowledge-based economies, and have therefore started to adjust their systems to provide effective protection for the knowledge and developments that originate from within these countries.

Developing countries regard technology transfer as possibly one of the most important areas of interest (Mathur, 2007:3). Empirical economic literature increasingly supports the view that technologies can be spread internationally through international trade and FDI (Park and Lippoldt, 2008:8). However, the pharmaceutical industry represents an industry where technology transfer to developing countries does not occur. Pharmaceutical companies rarely bother to register IP in developing countries, as they believe they stand no reasonable chance of earning a return (Wilson, 2007:24). On top of being expensive, registering a patent is further hampered by excessive regulatory burdens that require substantial paperwork and fees. The 2011 World Bank rankings on the ease of doing business and the regulations that enhance or constrain business activity illustrate this burden in developing countries (The World Bank, 2011). Of the original four BRIC countries, China performs the best, ranked only 79th out of 183 countries. Russia is in position 123, India in position 134, and Brazil in position 127. This does not signify any improvement since 2008, when their ratings were 83rd, 120th, 122nd, and 125th respectively out of 181 countries (The World Bank, 2008b:6).

Governments from countries with varying degrees of development see stronger IPR as an important part of their strategies to enhance FDI inflows and trade (Park and Lippoldt, 2008:8). In response to this view, some countries view trademark protection as a way to assure investors that they can combat imitations. Wealthier developing countries regard IPR as a means to draw in technology that can boost worker productivity, thus exploiting strong IPR policy, to draw in investment and encourage domestic innovation. India and China are two countries that reformed their stance towards IP in order to become more competitive in the age of globalisation (Botta and Tsai, 2004), a complete renaissance of their IP systems that, in the 1970s, were flawed and powerless to provide real protection. The China, SIPO, originally established as the Patent Office of the PRC more than 30 years ago, now plays a central role in IPR, organising and co-ordinating

IPR protection work, improving the IPR protection system, establishing the collaboration mechanism of IP law enforcement, and implementing the China National IP Strategy, to name a few (SIPO, 2013A). SIPO recently released the Plan for Promoting the Strategy for the Development of National Patent Undertakings in 2013, with the aim of implementing key measures to reach the five-year goals of the National IP Strategy. These measures include the enhancing of IP creation, strengthening of IP layout in key industries, promoting the utilisation of IP, reinforcing IP protection, improving IP capacity, developing an IP service industry, and strengthening the development of an IP culture.

Developed and developing countries differ in opinion about the potential value of strong IPR. Botta and Tsai (2004) go as far as claiming that India's current status in the global economy may be attributed to its flawed patent policy. Japan emphasised incremental innovation through patent provisions, allowing industry to get closer to its international counterparts while allowing technology to diffuse through all sectors. Policies such as these have allowed countries like Korea and Japan to transform since the end of the Korean and Second World War respectively. However, since the Patent Amendment Acts of 1999 and 2002, and the liberalisation of economic policies, India was able to create a more Westernised notion of intellectual property rights in political and industrial parties. In short, India recently witnessed the rise of the modern, professional business that emphasises technology and economic advancement.

The argument that strong IPR can assist developing countries in alleviating poverty can be found in an agricultural example. The vast majority of poor people in the rural areas of developing countries are dependent on agriculture to survive (Lalitha, 2004:187). Consequently, new technology that can result in improved yield or reduced production cost will also directly reduce poverty and indirectly help the poor by lowering the price of food. However, India's new patent regime can have immense consequences for agriculture, which provides two-thirds of all Indians with

their livelihood (Mathur, 2007:28). Commentators warn that ambiguous wording in the legislation could open the door for international companies to seek patents over commonly used seeds and slightly modified versions of these seeds that have been rendered resistant to cold, salt, and drought through thousands of years of agricultural practice. As much as 80 percent of all seeds used in planting in India are seeds saved from previous crops, and thus supplied by the farmers themselves.

Basant (2004:70) argued that the direction and quality of entrepreneurial innovation across all sectors of the economy are dependent on the legal framework of IP regimes within a country. The extent of IPR frameworks directly influences the ability of entrepreneurs to take advantage of commercial opportunities. Contracting and other transaction costs can be quite high in the absence of a suitable IP regime. Furthermore, the nature of the IPR regimes in a developing country can determine the ability of companies in that country to enter into partnerships with firms from industrial countries (Basant, 2004:75). Business and government in developed countries argue that IPR helps to stimulate economic growth and reduce poverty, whereas developing countries and non-governmental organisations (NGOs) argue that IPR can do little to stimulate invention in developing countries, because of a lack of the required human and technical capacity (Mathur, 2007:21).

Overall, the problem with IPR lies in implementation, with a general problem being that the enforcement mechanisms are either not functioning well, or there is a lack of willingness by authorities to act. Civil actions being pursued against some pirates are ineffective because disputes can take years to be adjudicated. Furthermore, light penalties fail to be a deterrent. When it comes to copyright piracy, Russia is far worse than Brazil. In terms of enforcement, IPR involves public interests and, consequently, it is likely that the governments will take social welfare into consideration (Liu, 2005:339). Bird (2006:332) mentioned that government action

against illegal copying of academic books and other materials in Brazil is non-existent.

Enforcement of Russian IP laws is poor, while jail sentences as penalties are rare. India also suffers from a weak enforcement system (Bird, 2006:333). Other developing countries, like Argentina, also experience problems in effective enforcement of IP laws and provisions of the TRIPS agreement (Czub, 2001:193).

Despite threats of punitive measures by the US government, as well as the launch of enforcement initiatives, enforcement against local piracy and counterfeiting continues to be insufficient, (Bird, 2004:362). At present, China and Russia are viewed as the greatest threat to industries' copyrights. During 2008, there were a few positive developments, but piracy levels have not materially decreased (Security, 2008:33).

A factor that contributes to the lack of enforcement is that developing countries experience a lack of expertise in IP in academic institutions and in the legal profession (Shen, 2005:188). Another crucial problem is the lack of awareness and understanding of IP amongst key stakeholders and the general public.

Industries within developing countries are now playing a significant role in influencing IPR regimes. The strong IT sector in India is one such example (Basant, 2004:69). Large IT firms, together with firms in high-end niche areas, are dependent on strong IP regimes, as their growth strategies are IP-based. These companies typically seek IP protection in Western nations rather than in India itself, and nowadays even have a positive perception of restrictive IP regimes. IP-generation by subsidiaries of multinational companies in India is also contributing to this change in perception.

Most Indian firms that create IP tend to protect it in the US and other large markets, because it is essential to protect the invention within the relevant market. Most of the IP created in India is specifically for the Western markets (Basant, 2004:72). Furthermore, some IT-related inventions, such as algorithms and business methods, are not

patentable in India, even though the IP regime in India has been made TRIPS compliant.

The Indian government has taken bold steps in modifications to their IP regime, steps that will have major implications for several sectors, including pharmaceuticals, chemicals, biotechnology, and information technology-related sectors (Basant, 2004:70). The significant changes as a result of the IP changes will include the realignment of business strategies by firms in the abovementioned sectors. The role of IP is becoming more prominent as the underlying changes in the industry and technology environments create an increasing awareness of IP-related issues and a positive outlook on IPR (Basant, 2004:73).

However, enforcement of IP laws in India is still a problem, mainly because India's courts are very slow in administering justice. Courts sometimes take as long as ten years to pass judgement (Mehta, 2004:52). The establishment of an effective IPR regime is imperative if India is to be fully integrated into the international system and become a global patent centre. India became a signatory to TRIPS in 1995, after joining the WTO. Developing countries were given ten years as a transition period to bring their national laws in accordance with TRIPS, a time period that ended in 2005 (Mathur, 2007:27).

CHINA AND IP

Ning (2002:116) postulated that economically, culturally, and intellectually, China ought to make greater contributions to civilization and the construction of world culture, because China is a large country with a splendid cultural heritage.

Cultural influence

Culture has a profound influence on the legal system and how it operates in different countries. China adopted a *laissez-faire* approach to providing a structure by which individuals could economically benefit from their ideas, a situation that stems from their cultural history, which is heavily influenced by Confucius and communism

(Botta and Tsai, 2004). Therefore, it should have been expected that China was not going to implement a hard-nosed patent system with which to rigorously act against infringement in a short space of time.

The Chinese culture itself is pro-copying, rather than against it. The Chinese legal system evolved to protect the interests of the state and society as a whole, as opposed to those of the individual (Bosworth and Yang, 2000:455). The communist regime of Mao Zedong exalted the idea of collectivism and, as a result, the value of publicly owned property (Botta and Tsai, 2004); the granting of private property was frowned upon. Consequently, China traditionally had a weak patent system. The concepts of IPR and Confucianism have always been at odds with each other, because IPR are government-sanctioned monopolies that protect the IP owner, while Confucianism holds that learning takes place through copying, and that imitation is a form of flattery (Bosworth and Yang, 2000:455).

The tendency to promote the interests of the state above those of the individual resulted in the lack of implementation of an independent system of administering and enforcing the law (Bosworth and Yang, 2000:455). Furthermore, the emphasis on harmony and self-governance eventually resulted in an aversion to conflict. Despite the sheer size of its economy and population, China, in 2000, was still a Third World country, unable to generate sufficiently high levels of information and advanced techniques to meet their desire for development. Singapore's advance illustrated quite clearly the contribution that technology transfer can make in achieving growth. Thus, the internal pressure for change at the dawn of the open-door policy implied a move away from Confucianism, Marxism, Leninism, and the doctrines of Mao Zedong (Bosworth and Yang, 2000:460).

A changing approach

De Meyer (2001:140) cited three forces that are creating a more favourable background for multinational companies to do new business in China through technology transfer. The first

is that China requires technology that leads to innovation and improvement that also form part of their development strategy. Secondly, there is a changing attitude in the Chinese government to demand the latest technology, rather than previous-generation technology, and, thirdly, IPR is better respected.

Since the late 1970s, China moved from viewing IP as public property to a country with a host of modern IP legislation. Bosworth and Yang (2000:453) associated this change in approach to an upsurge in IP activity in China since 1985. China realised that IP laws were a prerequisite for trade, FDI, and the associated economic growth.

Despite being contradictory to the culture, an IPR system also ran counter to the People's Republic of China's (PRC's) planned economy. Individual welfare was, and arguably still is (at official levels, at least), subordinate to social welfare and national interest (Bosworth and Yang, 2000:456). From 1949 to 1978, there were no effective IPR laws in the PRC, while the central government exercised stringent administrative control over inventions and publications. This control is illustrated by the fact that, between 1950 and 1963, only four patent rights and five inventions were granted in the PRC. A 1963 law stipulated that all inventions are national assets, stifling innovation. With the start of the opening of the economy, a Patent Office was established, in 1980. Since 1982, a series of laws and regulations on technology transfer and IPR protection were introduced, continuing into the 1990s. However, a change in a country's institutional attitude towards IP protection is taking longer. Only recently did the balance shift from administrative authority towards the judiciary (Bosworth and Yang, 2000:458). The general order for addressing disputes in China ranges from judicial litigation, as the least preferred, to non-judicial administrative adjudication, to mediation, which is the most popular.

A strong push for reform since 1978, after the era of Mao Zedong, by the Chinese government marked a victory for the advocates of an outward-facing China that actively takes part in the world economy (Botta and Tsai, 2004).

Dealings with other countries after adopting the open door policy provided Chinese people with the opportunity to see the individualised mode of thinking common in Western countries, and to shift towards capitalism. This change provided the foundations for further reform. The Chinese political leadership started to promote economic development and positive social change in its effort to achieve its goal of becoming a world leader. They realised that, in order to achieve this goal, they had to promote technology and science (Botta and Tsai, 2004). International organisations such as WIPO and the WTO played an important facilitating role in enhancing IP protection in China, as well as in other developing countries.

Currently, China is a member of all of the major international IP conventions, including WIPO, the Berne Convention for Protection of Literary and Artistic Works, the Universal Copyright Convention, the Paris Convention for the Protection of Industrial Property, the Patent Cooperation Treaty, TRIPS, and the Madrid Agreement for the International Registration of Trademarks (Greguras, 2007:449).

China's national objectives are also served by the rapid introduction of IP protection systems. China's desire to acquire advanced technologies from developed countries and its newfound desire to protect its own indigenous technology were internal motivations. China realised that the absence of proper IP protection meant that nobody wanted to transfer technology to China. Yang (2003:137) argued that the Chinese government recognised the need to access new information and technology if it wanted to improve its competitiveness, growth, and development.

Since the early 1980s, China's exports have also gained importance, especially exports of technology. Resultantly, IPR protection became crucial in protecting China's indigenously developed technology. One reason was that 70-80% of the technology exported from the PRC were destined for other developing countries, many of which possessed weak IPR protection themselves (Bosworth and Yang, 2000:461).

Chinese business leaders are realising that they have to be able to protect their own IP in both China and international markets (Holstein, 2007:15). The Chinese government faces many challenges, as IP reforms, including legislation and enforcement, will be based on the balance between economic and political consideration (Liu, 2005:339). Enforcement of copyrights and patents pose a trade-off between encouraging domestic inventive activity at the expense of higher consumer prices and large transfers of copyright and patent royalties to foreigners (La Croix and Konan, 2002:768). In each case, the decision to enforce IPR depends on the size and growth potential of the local industry.

International view of China's IPR

China is a huge market that lacks some sophisticated technologies, and, as a result, is a promising and potentially profitable market for expansion for companies with strong IP portfolios (Liu, 2005:340). Even though China joined the WTO and signed the TRIPS agreement, it cannot satisfy the IPR requirements of industrialised countries and their companies, which is the main barrier in international commercial activities involving technology. In fact, there was a recent dispute between the US and China regarding the poor protection and enforcement of IPR in China under TRIPS. As a result, China amended its copyright law, which was found to be non-compliant with TRIPS (Yu, 2011).

Many global executives view the Chinese market as synonymous with disrespect for IP, and, in some cases, also with the theft thereof (Von Krogh and Haefliger, 2007:23). A good example is the piracy of computer applications, with an estimated 96% of software being used illegally. However, the booming Chinese market means that companies do not contemplate pulling out of China. Traditional IP protection mechanisms, such as patenting, are all but futile, largely because Chinese companies are proficient in reverse engineering. A long-term approach in which innovation within Chinese partner firms is stimulated and in which they see the incentives

will result in a gradual change in local attitudes towards IP.

Von Krogh and Haefliger (2007:24) argued that this is already taking place. Chinese companies themselves are nowadays seeking to enforce IP rights. Recently, Chinese companies have been suing Western companies for patent infringements. In 2006, Netac took PNY Technologies to court in the US, claiming that PNY had infringed a Netac US patent of a flash drive.

The main obstacle in IP protection in China is not its laws, which generally meet international standards, but rather weak enforcement (Greguras, 2007:50). Piracy in many industries continues to impact products, brands, and technologies, and enforcement of both statutory and contractual protection is problematic. It takes between four and seven years for a lawsuit to be heard in China, and monetary compensation is small. Bird (2006:333) argued that, although new interpretations of the Chinese criminal law were recently issued by the Supreme Judicial Court of China, it is questionable whether these interpretations will make any difference with regard to infringements.

In 2001, De Meyer (2001:141) reported that several business people started to form a positive view about China's attitude towards IPR. The situation in China is not worse than in other developing countries, and it is important to remember that IPR in developed countries is also not always exemplary. In addition, Chinese operations are often blamed for leaks that occur elsewhere. Furthermore, Western companies are often naïve, and expose technologies that they should have kept secret.

Another problem experienced in China is the lack of proper technology transfer from the West that takes into account the differences in economic context and culture (De Meyer, 2001:142). Technology developed in the developed world was developed in a context vastly different from that experienced in China. As a result, there is a lack of practical understanding by Chinese workers and engineers. Western companies also observed

that Chinese partners often want to short-circuit a few steps in the natural development of knowledge. Education and training are the answer to bridging the differences in approach and understanding, but the training must focus on context and on the different ways of thinking, rather than on the technology.

The reason why so many cases end up being settled outside of the courts can be attributed to the fact that China has always been a country under centralised regimes, where the people were ruled by government and not the law (Yang et al., 2008:324). The culture of avoiding confrontation and resolving disputes outside of the courts is prevalent, and increases the demand for administrative support. The non-judicial track, accounting for settlement of approximately two-thirds of patent infringement cases, 95% of trademark cases, and most copyright cases, is preferred by companies (Bosworth and Yang, 2000:474). However, this track also presents problems, as arbitration commissions and administration bodies lack adequate numbers of staff with appropriate IP training.

Recent examples illustrating a change in approach

In 2007, the Beijing High People's Court ruled in favour of Pfizer regarding the validity of Pfizer's Chinese patent covering sildenafil citrate, familiarly known as Viagra (Chen, 2008:30). The case went through a number of courts, and the dispute lasted six years. Pfizer received an undisclosed settlement, but the verdict of the highest court did not stop the competitor from producing this product at the time, a clear indication that enforcement is still an issue in China (Holstein, 2007:16).

There are a number of other examples that illustrate the difficulty of protecting IP in China. Huawei copied Cisco's router technology in order to compete against the US-based company in global markets (Holstein, 2007:16). Even though the two companies reached an undisclosed settlement, Huawei products continue to closely resemble Cisco's. In a high-profile case mentioned earlier, General Motors sued Chery Motors for

imitating one of its cars. An agreement between the companies was reached in November 2005, but Chery recently introduced the QQ, an almost perfect imitation of a General Motors product.

Unfortunately, details about most cases are sparse, because lawsuits are usually settled privately. One exception is the case of Starbucks and a competitor in Shanghai that used the Chinese name for Starbucks, Xingbake Cafe. The logo also looked the same, even in colour and style. In 2005, the Shanghai No. 2 Intermediate People's Court ruled in favour of Starbucks, followed by an appeal by Xingbake Café, which they lost in 2006 in the Shanghai Supreme Court (Holstein, 2007:16). However, Xingbake Café continued to do business, regardless of the rulings, leading to the Supreme Court threatening to freeze its bank accounts and seize items. Eventually, Xingbake Café agreed to change its name and pay the settlement of a measly \$63 000, in instalments.

Perhaps the most significant phenomenon is that there were more patent infringements and resultant lawsuits in China than there were in the US in 2005 and 2006, despite the low amount of damages that are granted. In 2005, China saw 2 947 patent infringement cases being filed, compared to the 2 720 filed in the US (Bai et al., 2007:3). Even more significant is the fact that most of these lawsuits were between Chinese parties, with foreign parties only being involved in about five percent of cases (Chen, 2008:32). Chen (2008:32) believes that the enforcement of IP property rights in China will improve as more parties exercise their legal rights in the courts. Bai (2007:6) believes that multinational companies can successfully enforce patents in China, but that it requires skill, experience, and an understanding of the Chinese system.

Von Krogh and Haefliger (2007:23) argued that multinationals doing research and development (R&D) in China must be pleased that a Chinese firm recently sued an US company for patent theft, because it suggests that Chinese businesses are acknowledging the importance of IPR.

The IP environment in China is now safer, but not without risks. Despite the risks, Novartis is

opening a pioneering biomedical R&D facility in China (O'Connell, 2007:26). Novartis is convinced that China is committed to protecting IPR, and that locating their new R&D centre in China is an expression of trust. Another reason for Novartis taking this bold step is that the Chinese government encourages people to study science, such as chemistry and engineering, a reverse of the declining trend observed in the West. The quality of education and training in China improved over recent years, with people becoming fluent in English, the *lingua franca* of R&D and business (O'Connell, 2007:26).

Stumbling blocks in protecting IP

Bosworth and Yang (2000:472) argued that, despite new legislation, companies involved with technology transfer and licensing activity in the PRC will continue to experience stumbling blocks with regard to IPR. Enforcement will remain a problem, while the differences in the law, compared to most Western countries, and its interpretation remain difficult. Furthermore, there is a general lack of professional training of Chinese judges and legal officials with respect to IP issues (Bosworth and Yang, 2000:473). Corruption and threats to judges are not unheard of, and on top of that, Chinese judges also have no security of tenure. Difficulties in obtaining evidence make a lawyer's job difficult, while foreign lawyers are prohibited from participating directly in court proceedings.

Before 1979, all aspects of the country, including business, were fully governed by the government (Yang and Clarke, 2005:548). The legal system established to meet the requirements of the open door policy has features comparable to those in many other countries, but the speedy establishment of the legal system means that many legal articles are open to interpretation. The situation is exacerbated by the limited examples in case law. A further complicating factor is the translation of Chinese to English with its ambiguities in rules, regulations, and laws. The original laws are in Chinese, resulting in confusion in the English version (Yang and Clarke, 2005:547).

Other countries and multinational companies do not necessarily understand Chinese law with regard to IP. Bai (2008:5) mentioned that IP licensing in and outside of China is subject to a myriad Chinese laws, regulations, and judicial interpretations that are significantly different from US law. Approaching technology agreements with language common in US legal documents is likely to cause licensing problems in China, because Chinese laws, such as Contract Law, Patent Law, Unfair Competition Law, Foreign Trade Law, and Antitrust Law, differ from laws in other countries in important ways (Bai, 2008:1).

One significant difference is that Chinese law mandates that, if a Chinese licensee makes improvements to licensed technology, the ownership of the improvements belongs to the Chinese company (Bai, 2008:2). In Western countries, it is common practice that the licensee grants ownership rights to the licensor (Bai, 2008:4). The subsequent licensing of an improvement to the original non-Chinese licensor is subject to China's export control regulations that classify technologies into three broad categories. The first is Prohibited Technologies that cannot be imported into or exported out of China. The second is Restricted Technologies that must be approved by the governmental authority prior to the import or export and, thirdly, Permitted Technologies that may be imported or exported without prior governmental approval.

If the agreement is to be enforced in China, certain provisions of Chinese law are mandatory (Bai, 2008:2). Some of these mandatory provisions are counterintuitive for Westerners, and often illegal in the West. Western companies are often confused by these inconsistencies and, as a result, are penalised under Chinese law for invalid contracts (Bai, 2008:3).

Holstein (2007:14) stated that companies are realising that they have not done the best possible job in guarding against theft when setting up their Chinese operations. Incredible as it may seem, most companies assumed that the Chinese operating environment is similar to the familiar environments in the West. A

practical step in ensuring that Chinese staff are loyal to the company is to train them on ethical expectations, something not covered in their educational system.

A problem with enforcement in China is that it is far from a single political entity. Tough laws implemented at the national level are often ignored at the local level (Sperling, 2004), and the vastness of the country makes enforcement an even bigger task.

PATENT APPLICATION TRENDS

In an effort to show the change in approach to IP by China and the other BRICS countries, this section shows the trends in patent applications in these countries, as well as their involvement in Patent Cooperation Treaty (PCT) filings and patent applications in the US. The PCT is an international treaty between 148 Paris Convention countries, making it possible to ensure priority for inventions simultaneously in each of the member countries by filing a single patent application, instead of filing several separate national or regional patent applications (WIPO, 2013B).

The US is used as a comparison from the developed world. Patent applications are used because it is an indication of trust and whether companies and individuals perceive it as worthwhile to have a patent in the relevant country. All the data used to draw the graphs were obtained from WIPO (2013A).

However, it is important to remember that the motivation to apply for a patent in a specific country depends on a number of things. First of all, the applicant must believe that the legislation there is strong enough to provide protection. Adherence to global rules and being part of global treaties such as TRIPS will also result in an increase in applications. Coupled to this is legislation and the enforcement thereof in preventing others from infringing on a patent. The political and business environment must be conducive to doing business, thus ensuring that a patent can be used in a specific country, otherwise

there is no point in filing a patent. The economy of the country must also be strong enough to lure companies to do business in the country, i.e. the prospects for economic gains must be sufficiently substantial to motivate the effort to file a patent.

Below are a number of graphs that show the differences in the trends in patent applications in the BRICS countries. First of all, it is worthwhile to look at what happened in the US with regard to patent applications since 1985 (Figure 2).

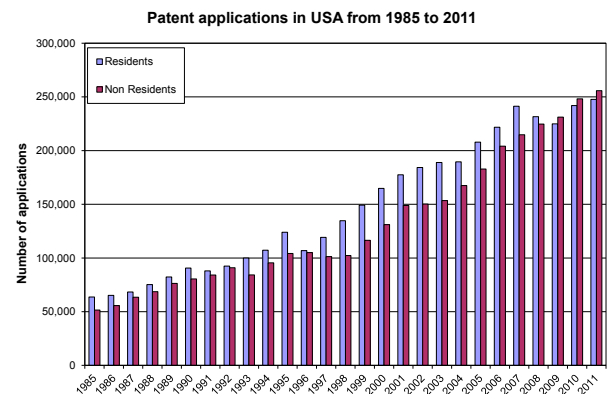


Figure 2: Patent applications in USA from 1985 to 2011

The reason for looking at the trend in the US is that it has a long history of IPR that was not really influenced by international treaties and agreements such as TRIPS, and because it has been the biggest economy globally for quite some time. The steady increase in patent applications clearly shows that there has not been any big event that shaped the patent environment and prompted a different trend in patent applications. Patent applications have been rising steadily, with a small decline during the financial crisis. The five major fields of technology represented in the applications of the last 15 years were computer technology, medical technology, pharmaceuticals, organic fine chemistry, and electrical machinery, apparatus, energy.

On the other hand, patent applications in China have been increasing exponentially since 2000 (see Figure 3). The increase in non-resident patent applications, albeit slowly at first, started in 1992. This upsurge appears to coincide with the PRC's modification of its patent laws in 1990 and 1992 to be compatible with international practice (Bosworth and Yang, 2000:465). China's

entry into the WTO and TRIPS in 2002 did not change the trend in patent applications. Significantly, patent applications from both non-residents and residents increased exponentially over the time period. The increase in resident applications is a clear change in approach to IP by Chinese citizens, while the increase in non-resident patent applications indicates that foreign companies either realised the importance of the Chinese economy or started to trust the Chinese commitment to IPR, or both.

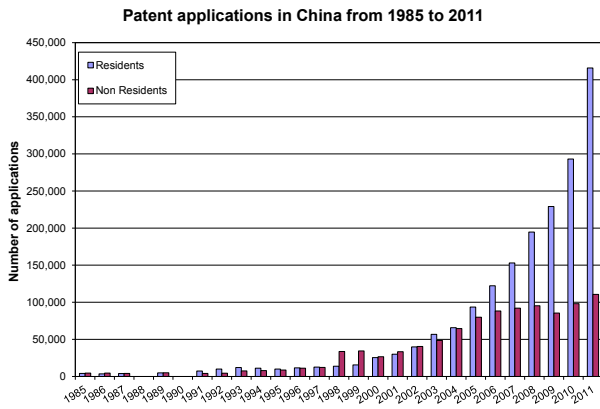


Figure 3: Patent applications in China from 1985 to 2011

During the same period, China’s share of the world merchandise export increased from 1.2 % of world trade in 1983 to 8.2 % in 2006 (WTO, 2008). At the same time, merchandise imports increased from 1.1 % to 6.5 % of world trade, a clear indication of China’s growing importance in the world economy. The top five fields of technology – digital communication, pharmaceuticals, computer technology, electrical machinery, apparatus, energy, and measurement – differ from those of the US.

The trend in Brazil followed a distinctly different pattern (Figure 4). There was a step change in 1997 for non-residents, followed by a gradual increase since 2006, again mainly from non-residents. The hosting of the Soccer World Cup in 2014 and the Olympics in 2016 may have played a role in this increase. The step change can be attributed to Brazil joining the WTO, and thus TRIPS, in 1995. Contrary to China, Brazil’s part of global export merchandise stayed flat at 1.2 % from 1983 to 2006, while merchandise imports decreased

from 0.9 % to 0.8 %. This could be attributed to Brazil’s role in the world economy. The focus on infrastructure development is also clear in the major technology areas being patented over the last 15 years: civil engineering, transport, other special machines, handling, furniture, and games.

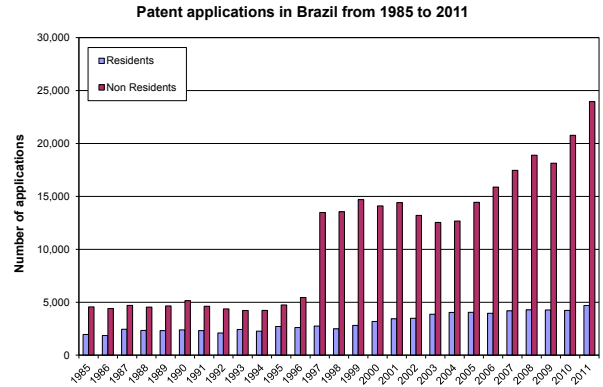


Figure 4: Patent applications in Brazil from 1985 to 2011

The Russian Federation only came into being after the fall of communism, and therefore only data from 1991 is available (Figure 5). The decrease in patent applications from 1992 to 1997 can probably be attributed to the fall-out of the end of the Soviet Union.

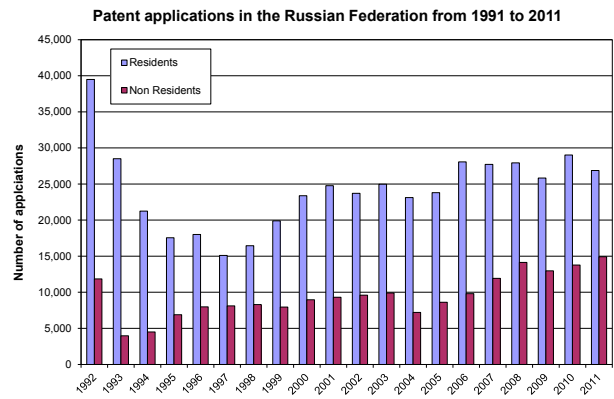


Figure 5: Patent applications in the Russian Federation from 1991 to 2011

What is more striking is that there was no significant increase in non-resident patent applications up to 2009. This is probably due to a lack of trust after recent nationalisations and an aversion due to the financial crises of the late 1990s. There may also be a perception of political risk that convinces inventors not to file patents in the Russian Federation. The Russian Federation

only joined the WTO in August 2012, and any impact on patent applications will only be seen in years to come. The absence of pharmaceuticals and electronic areas are evident in the top five technology areas for patent applications: food chemistry, medical technology, measurement, civil engineering, and materials and metallurgy.

India's graph shows a very interesting trend (Figure 6). In general, the trend is exponential, although not as profound as that of China. What is interesting is that non-resident applications are the real reason behind the exponential increase since 1999.

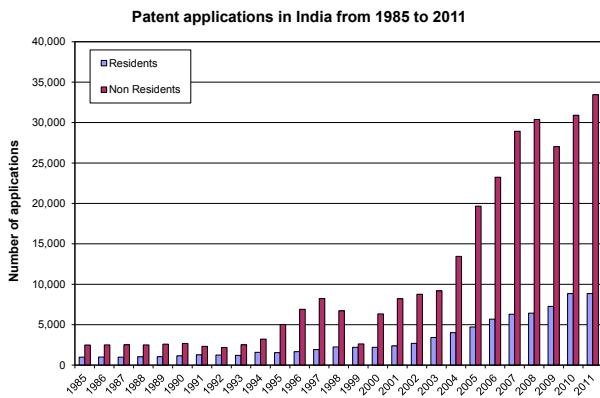


Figure 6: Patent applications in India from 1985 to 2011

It is possible that the reason why resident applications are only increasing linearly is because the government did not do enough to ensure a change in mind-set, as happened in China, with regard to patent filing, but it could also be that the Chinese government did more to stimulate research. During the same period, India's share of both the world merchandise export and import doubled (WTO, 2008). Chemistry-related technology areas are the main focus for patent applications, with pharmaceuticals, organic fine chemistry, biotechnology, computer technology, and basic materials chemistry being the top five. Interestingly, pharmaceuticals and organic fine chemicals combined constitute almost 50 percent of all applications, while representing only 11 percent or less in the other countries mentioned here, and not even making the top ten in Brazil.

In South Africa, the latest addition to the BRICS, a sharp decline in patent applications coincided with the political change of the early 1990s, while

the impact of the Asian financial crisis in the latter half of the same decade is most probably the reason for the sharp decline observed in that period (see Figure 7). It is important to note that South Africa has, over time, developed a substantial amount of patent case law, together with a significant number of legal professionals specialising in IP. The patent application fields are also relatively fragmented, with the top eight technology areas all receiving within 4.5 to 7 percent of the total applications. The stagnation in patenting activity originating from South Africa is also evident in Figures 8 and 9. Speculation on the reason would be the subject for another paper.

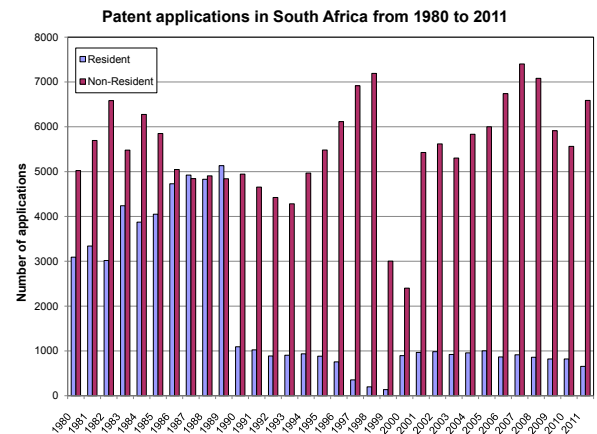


Figure 7: Patent applications in South Africa from 1980 to 2011

The gradual increase in Indian applications is visible in the number of patent applications that originated from India and were filed in the US (see Figure 8). On the other hand, China's total applications in the US increased exponentially. Disappointingly, the applications originating from Brazil and the Russian Federation hardly increased since the start of the decade. A similar picture is seen in PCT filings since 2000 (Figure 9), clearly indicating that Chinese companies and inventors increasingly recognise the PCT as an important channel for the filing of patents. PCT filings in the US originating from India as a percentage of total filings have not increased significantly, while the other BRICS countries have increased this percentage.

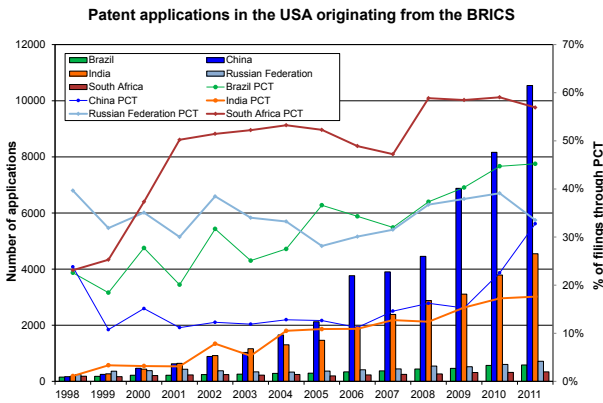


Figure 8: Patent applications in the US originating from the BRICS

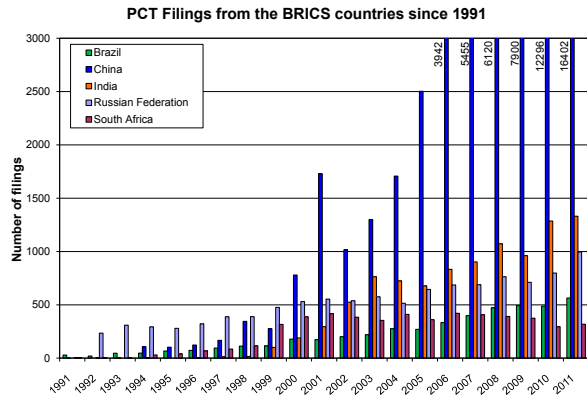


Figure 9: PCT Filings from the BRICS countries since 2000

CONCLUSION

Globalisation has forever changed the environment in which everyone is competing. International institutions play a significant role in setting the rules for business in the globalised world. Being members of these institutions and signatories of treaties is non-negotiable if countries want to play in the global economy and its various markets.

Global institutions are still dominated by the major developed countries, which are democratic countries with market-orientated economies. Consequently, the rules of the institutions are heavily influenced by Western countries' policies. Developing countries have had to change their policies to subscribe to these rules, in order to enter the lucrative Western markets, and thus the world economy.

There is a convergence of developments in legal regimes around the globe, meaning that specificity of IP protection is breaking down (Basant, 2004:76). IPR and protection are relatively new for many companies in the developing world, but they are beginning to learn how to grapple with these, especially in countries where governments are encouraging the role of IP, as is the case in China (Mathur, 2007:43).

China had to adopt certain market-orientated policies to increase its prospects to become a member of the WTO, changes that can be directly related to the influence of globalisation. The desire of the political leadership in China to transform the country into an economic powerhouse and global leader meant that they had to make changes that run counter to the Chinese culture. The significant increase in patent applications domestically and abroad is an indication that companies bought into the new policies. All these changes are also followed by changes in legal environments, and even though enforcement in developing countries is not yet at the desired levels, it is improving.

However, these changes can take some time to manifest, a fact seen in the lag between policy changes and observing tangible changes in approach to IPR, as observed in China.

Von Krogh and Haefliger (2007:24) postulated that the IP environment in China will improve considerably in the next ten years, but only if both Chinese and foreign companies continue to make a concerted effort in generating respect for IP through understanding of the value of IP, and developing the competence in using IP properly and effectively. There are indications that this is indeed happening, largely brought on by China's desire to become a leader in the world economy and the resultant policy and structural changes it brought about, aligned with provisions of the TRIPS agreement. Furthermore, the Chinese economy is growing at a phenomenal pace, increasing the willingness of companies to enter the Chinese market.

Convergence towards a global ethic and acceptable business ethical decision-making are

unavoidable in the current interconnected world. Although it will take some time, an inclusive and single worldview that builds on already existing global ethics will eventually develop. Exactly how the final convergence of a global ethic will look, and when it will be reached, will only be evident in time.

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Book review

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Title: *Developing Business Ethics as Academic Field*

Author: Deon Rossouw

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Year of Publication: 2004

Number of pages: 92

Business ethics is a young and evolving academic field in which purpose and scope, place in the academy, and relationship with the business fraternity are just some of the issues that are hotly debated. Deon Rossouw's book, *Developing Business Ethics as Academic Field* (2004), speaks to these and other issues relevant to the current and future development of this relatively new field. Rossouw is to be commended for producing this text, aimed at making a contribution to the discourse on business ethics in Africa and, for academics and those teaching and researching in the field, providing a most useful addition to the literature.

Rossouw focuses on identifying key "areas of intervention" necessary for the development of business ethics as academic field, especially in Africa, where the field is less developed than in the USA or Europe. Such development requires a research agenda in five areas pertaining to business ethics, viz. its scope, research, teaching, institutionalisation, and interaction. Rossouw uses the introduction to clarify certain terms and concepts. He articulates his understanding of the term *business ethics*, following De George's 1991 distinction between the terms *business ethics*, meaning academic enquiry into the field, and *ethics in business*, meaning other discourse on business ethics. Likewise, he clarifies the difference between business ethics as an academic field and business ethics as a social practice. The former clearly involves academics, the latter, many different entities (business leaders, organisations, etc.). He also usefully provides the five defining characteristics of an academic field, clarifies the term *development* in

such contexts, and argues for the research agenda referred to above. On the basis of this, each area is discussed in one of the five chapters of the book, where Rossouw effectively synthesises the relevant literature, and provides guidelines and frameworks pertinent to the development of business ethics as an academic field.

The first chapter, *The scope of business ethics*, outlines the area of enquiry, clarifies terminology (e.g. business ethics; ethics), and argues the importance of a multifaceted and multidisciplinary approach to business ethics. It also gives a clear account of the two main approaches to the purpose of studying business ethics and their component sub-approaches. In an effort to avoid negative connotations and their associated polarising effect, Rossouw opts not to classify these as "descriptive" versus "normative", but rather refers to the "explanative stream" (a rather awkward term meaning *explanatory*) and the "evaluative stream." The former includes the social scientific, the managerial and the organisational "currents," the latter, the ethical guidance, ethical control, and ethical development "currents." The two streams clearly reflect different approaches to business ethics: the one more heavily descriptive, the other, more inclined to the normative. Rossouw argues that, rather than viewing the two streams as antagonistic and mutually exclusive, business ethics would be better served by seeing them as mutually dependent and complementary. To this end, he urges business ethicists to be flexible ontologically and methodically, and to avoid absolutising the fact-value distinction, given that it is "possible to rationally justify claims about facts, as well as claims about values" (2004:18).

Chapter 2 deals with the significance and necessary contribution of research to the field's development. To boost the academic importance and credibility of business ethics, and to avoid the pitfall of remaining "an infantile academic field," research must firstly be informed by and anchored in existing theory, and produce new theory. In addition, ontological and methodological issues deserve attention. Rossouw convincingly argues for a "rich" ontological perspective, one that considers both the economic setting and the moral agents, as well as their relationship. He rightly advocates a flexible approach rather than methodological rigidity, an approach that uses "triangulation of methodologies," and where specific methodological choices take account of the sensitivity inherent in ethical issues as a research subject. For Rossouw, it is important that the researcher recognises that ethics is embedded in economic activity, and that, in so young a field, there will be sources of ambiguity, such as a lack of agreement on the definition of key terms. Rossouw has carefully navigated between the demand for empirical, quantitative research in the field and the equally pressing necessity to move beyond a mere positivist stance on what constitutes viable and valid research. He makes a convincing case for the relevance and importance of including qualitative research, provided that it demonstrates methodological and theoretical rigour.

Those who teach business ethics will find the discussion in Chapter 3 both thorough and helpful. Here Rossouw examines the possible purposes in teaching business ethics, their presuppositions, and possible teaching strategies for each. Academics could well find it useful to consider which of the three positions (cognitive competence, behavioural competence, and managerial competence) most closely resembles their own purpose and, hence, curriculum and pedagogy in teaching this discipline. Rossouw is meticulous in documenting the purpose, emphasis, content focus, possible pedagogy, required outcomes, and assessment practices for each of these three positions. He furthermore anchors each approach in its theoretical

foundation. Most significant of all, Rossouw argues against viewing these three positions as irreconcilable; such an antagonistic view will adversely affect the development of business ethics as an academic field. Instead, he advocates a complementary approach, where each position draws on the other two, while acknowledging that each has strengths and weaknesses. For Rossouw, this inclusive approach is mandatory, and avoidable only if we choose to teach business ethics "merely as a form of applied ethics within Philosophy" (2004:51), where the cognitive competence position would justifiably be used on its own. This raises an interesting question and one much debated in the literature: What exactly is applied ethics and, if it is a field, which disciplines are included in it, and are those areas actually sub-fields? Would business ethics then be a field or a sub-field? While this cannot be explored here, it is interesting that Rossouw seems to take for granted that business ethics is a field, and makes no reference to the applied ethics field controversy. That said, the last section of Chapter 3 considers the pedagogical requirements of each of the three positions, systematically outlining the relevant teaching strategies for particular outcomes. This is extremely useful to teachers of business ethics, in that it suggests a wide range of possible options, and urges teachers to combine these strategies in proportion to the way they combine the various approaches to teaching purpose.

It is in Chapter 4 that Rossouw clearly demonstrates his ability to move deftly between the academic arena with its concerns for research and teaching, and the more practical demands of the business world. He submits that critical and rigorous interaction, dialogue, and constructive engagement between academics in the field, irrespective of their differences in theoretical and methodological orientation, play an important role in developing business ethics and broadening perspectives, as does engagement across disciplines. Such interaction, desirable at both national and international levels, should, however, not fall into the trap of "unhealthy incestuous relations" (2004:67). More tricky is

interaction between academics and business practitioners. Clearly, for business ethics to develop, it must consider the relevance and applicability of its teaching and research to the practical business environment that it purports to study. Thus, while the interaction is important, it may be infrequent, unsatisfactory, or even hostile, and some fear that such interaction may mean co-optation of business ethics as a servant of business, with a resultant loss of “critical edge” (2004:69). As a way forward, Rossouw succinctly analyses the possible difficulties in such interactions, and provides practical guidelines for improving relations between business and academia. Academics would do well to draw on his insights and experience in this area.

The final chapter, on institutionalisation, clearly shows that, without the latter, the field cannot survive. This is a critical issue. Institutionalisation of business ethics presents some difficulties, and Rossouw, who is no stranger to the academic environment, is well able to outline these. The challenge is complex, given the multidisciplinary nature of business ethics, the normative-descriptive divide, and the disagreement about its purpose. Rossouw proposes two solutions: institutionalise business ethics in all the disciplines in which it is studied (economics, management, philosophy, etc.) or “formulate general and generic guidelines for institutionalization that apply to business ethics both as it is being done within and across existing disciplinary boundaries” (2004:76). The latter is his preferred choice. He argues that business ethics cannot become institutionalised unless it becomes “visible” in the academic environment, is given credibility as a legitimate area of enquiry, and is “heard” by those it intends to speak to.

Overall, Rossouw has provided a succinct, thorough, and well-researched text. Arguments are clearly articulated, and chapters developed logically and systematically. The style is very much academic, and would not appeal to a more popular audience, as do some of Rossouw’s publications. However, such an audience is not the target for this book. While one might wish that Rossouw had perhaps given a little more

discussion to the foundations of his particular conception of ethics, and some consideration to the rationale for accepting business ethics as a field rather than a sub-field of applied ethics, one may also note that such issues were perhaps too far outside the parameters of this particular text. Rossouw achieved what he set out to do, and has indeed made a valuable contribution to literature in the field, and to the further development of business ethics as an academic field, especially in the African context.