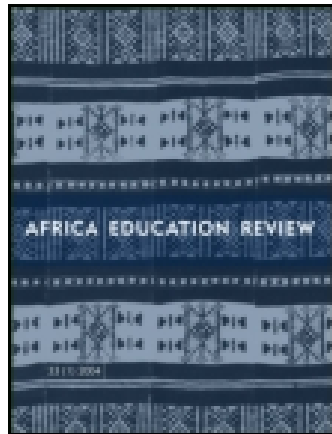


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The research output of female academics at a South African university: Progress with gender equity?

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Abstract

Two pressing demands directed to the South African academy in the post 1994 environment, have been those of gender equity and of increasing research output. The progression of women to the higher academic ranks is a problem, not only in South Africa, but worldwide. In view of the importance attached to research output for purposes of academic promotion, raising the research output of female academics is therefore important beyond the reason of being an end in itself. This paper is a case study at one university of the intersection between these two issues. The aim is to assess the improvement of the research output of female academic members of staff relative to their male counterparts, in the post 1994 period. The data used in the study indicate a steady increase in the research output of female academics relative to their male counterparts. However, a significant gender discrepancy in this regards still remains. In conclusion some suggestions are made with regard to how to an increase in the research output of female academics may be facilitated.

Introduction

Since the late 1960s, higher education worldwide has been undergoing a series of transformations. By the end of the twentieth century, the traditional university, characterised by its research and teaching functions, academic

autonomy, elitist ethos and substantial state financing, came under pressure from a combination of societal trends. These trends included the drive for equal educational opportunities, democratisation (massification), the neo-liberal economic revolution (global acceptances of the capitalist or free market system, managerialism, performativity, productivity), globalisation and globalism (Steger 2009, 98ff.), as well as the technological revolution (Steyn and Wolhuter 2008, 13-33).

The international boycotts against South Africa (c. 1960-1990) resulted in its universities remaining relatively isolated from the changes which affected universities elsewhere in the world (Wolhuter and Higgs, 2006). However, after the advent of the new socio-political dispensation in 1994 and South Africa's re-incorporation into the international mainstream, its entire academic environment was exposed to these changes, not gradually as elsewhere in the world, but intensely and rapidly (Adams 2006; Bundy 2005; Ntshoe 2004; Jansen 2004; Waghid, Berkhout, Taylor and De Klerk 2005; Webster and Mosoetsa, 2002).

Two pressing demands that South African academia had to cope with in the post 1994 environment, like universities elsewhere in the world, were those of gender equity and increasing research output (Bundy 2005; Coates, Goedgebuure, Van der Lee and Meek 2008; Galaz-Fontes, Padilla-Gonzales, Gil-Antón, Sevilla-Garcia, Arcos-Vega, Martinize-Stac, Martinez-Romo, Sánchez-De-Aparicio-y-Benitez, Jiménez-Lozd Barrera-Bustillos L and Barrera-Bustillos ME; Kruss 2008 and Locke 2009). This paper reports on a case study done at one South African university about the intersection between these two issues. The aim of the research project was to assess the improvement of the research output of female academics *vis-à-vis* that of their male counterparts, in the post 1994 period.

Firstly, the contextual background is portrayed, i.e. the world-wide transformation of higher education since the 1960s, the transformation of higher education in South Africa since the early 1990s, the demands for greater gender equity and increased research output in South African higher education institutions, and the position regarding all of these at the University of Zululand (UZ) (the locale of this case study). This is followed by an outline of the research method and presentation of the findings. A number of conclusions are then drawn from the findings, followed by some suggestions.

Contextual background

Since the late 1960s, higher education worldwide has been caught up in a maelstrom of societal developments. These developments include population

explosions in various parts of the world, advances in technology, communication and information, globalisation and globalism, multiculturalism, democratisation (massification), the demise of the nation state, economic liberalism (capitalism; rise of the free market system) and privatisation (Wolhuter 2007, *passim*).

The summative effect of these developments has been the persistent erosion of the traditional view of the university. This view, which Schugurensky (1999) calls the “academic haven” (sometimes referred to as the “ivory tower” view), is characterised by research and teaching as the twin functions of the university, academic autonomy (freedom of research, teaching and learning), an elitist ethos and substantial state funding.

The socio-political drive for equal opportunities which became the dominant driving force behind education reform during the second half of the twentieth century worldwide (Cooper 1980, 1) also had an impact on higher education. The roots of this driving force are, amongst others, the insistence on democratisation, the recognition of human rights and the impact of human capital theory (Brezinka, as quoted by Engelbrecht and Nieuwenhuis 1988). The drive for equal opportunities necessitated moving away from an elitist to a more egalitarian model, not only with respect to access and equity but also regarding staffing in terms of gender (Lapidus 1982, 254), socio-economic origin, and social and ethnic background (World Bank 2002). Resultantly, gender equity has become internationally a dominant motive in higher education (see Bain and Cummings 2000; Farrell 1999, 152-157; Silova and Magno 2004; Welch, 1997). While significant strides have been made in recent decades regarding enrolment of female students at institutions of higher education and in the employment of female academics, the relatively small number of female academics progressing towards the higher academic ranks remains a cause for concern. Bain and Cummings (2000) analysed the data of the fourteen countries and one administrative region that formed part of the Carnegie International Investigation of the Academic Profession (the United States of America, Canada, Mexico, Chili, England, the Netherlands, Sweden, Germany, Russia, Israel, Japan, Hong Kong, South Korea and Australia) as well as those of several other countries and found this to be a consistent problem. A study of ten national higher education systems revealed that although women constituted one-third of all academics, only one in ten progressed to the rank of full professor (Bain and Cummings 2000: 493). This “glass ceiling” that females apparently encounter in their efforts to progress in their careers is, however, not limited to the academic profession. In corporate America, despite the fact that 40% of all managerial workers are women, only 5% of them were appointed to senior management levels (Bain and Cummings 2000: 493).

The neo-liberal economic revolution (global acceptance of the capitalist or free market system) also represents a societal development that has been affecting universities (see Higgs 2006). Academic autonomy is increasingly being eroded as business principles such as accountability, quality control, managerialism, performativity and profitability are applied in the running of universities, and as governments (as the main sources of funds for most universities) appropriate an ever greater say in the internal affairs of universities. Government funding tends to be tied to performance targets, amongst others research output. The curtailment of university autonomy has also been a common phenomenon in the history of universities in Africa during the post 1960s' decolonisation period, a trend characterised by governments taking steps to ensure that their wishes were carried out by harnessing universities to the achievement of their political objectives. To this end, governments, as the main sources of funds for most universities, assumed ever more say in the affairs of the universities (Wolhuter and Higgs 2006). This tends to impinge on the academic autonomy of institutions of higher education in that business principles such as accountability, quality control, managerialism, performativity and profitability are applied to their management (Higgs, Ntshoe, Potgieter, Van der Walt and Wolhuter 2010, 6). The problem of gender equity and concomitant research output at universities in general, but more specifically in South Africa, should be viewed against this culturo-historical background (see Bornstein 1988; Coombs 1985; Lapidus 1982:228, 254).

The project reported in this article revolved around the issue of gender equity in academic staffing in relationship to the research output of a particular South African university.

For some three decades, c. 1960-1990, South African universities were subjected to a boycott by the international higher education community as part of the international isolation of South Africa at that time (see Harricombe and Lancaster, 1995). The result was that South African universities were for a long time relatively unaffected by developments in universities elsewhere in the world. When South Africa re-joined the international community after 1994, its universities were resultantly significantly out of step with international trends.

According to Truscott (1994, 4), relations between people in South African society were characterised by inequality along the lines of class, race and gender. Gender inequality was another common feature of the South African higher education scene (see Bain and Cummings, 2000). At the Potchefstroom University (as the institution was known up to 2004) salary parity between male and female academics was, for example, only achieved in 1979. Until

1980, married female academics enjoyed the official status of temporary staff (Du Pisani 2006, 203).

Traditionally, South African education, including South African higher education, had all the characteristics of inequality mentioned above, including gender inequality. In contrast, the post 1994 education dispensation was built upon the principle of equality, democratisation and multiculturalism (see Wolhuter 1999, 366). Furthermore, the entire education system was expected to contribute to the socio-economic reconstruction and development of the country (see Wolhuter 1999). Application of these principles implied that equity considerations became important in the recruitment of staff and students, amongst others, in terms of gender (Fourie 1999). The issue of gender inequality in South African society has featured prominently in the post 1994 era (see Bhoola 1996; Flood 1998; Gouws 2010, 8; Kadalie 1995; Kethusegile 2000; Tshoedi 1998). In contrast with the attention given to racial equality in the political programme and in education research agendas, gender issues and gender inequality have not featured to the same extent (see Wolhuter, 1994). The same applies in the case of Higher Education research (see Deacon, Osman and Buchler 2009; Wolhuter, 1997). After comparing the agenda of Comparative Education research in South Africa with that of educationists abroad, Wolhuter (1994) noticed that while gender issues in education were afforded top priority in research abroad, it was totally absent from the research agenda of comparative educationists in South Africa.

The same applied in the case of higher education research (Wolhuter 1997). Indicative of the problem is the fact that research such as those of Olivier (2005) on job-related stress in the South African academic profession, Olivier, De Jager, Grootboom and Tokota (2005) research on the work wellness of academics in higher education institutions in South Africa, and Schulze's (2006) on factors influencing job satisfaction of academics in higher education in South Africa deal only with aggregate figures and not with data broken down or analysed in terms of gender. In addition to this, the few published research papers on gender equity in higher education in South Africa arrived at contradicting conclusions. For instance, based on their application of the questionnaire of the Carnegie International Investigation of the Academic Profession (see Altbach, ed. 1996) to a sample of South African academic professionals, Higgs, Higgs and Wolhuter (2004) concluded that a surprising measure of gender equality existed in the South African academic profession. Research by Mabokela and Mawila (2004) and Mickelson, Nkomo and Smith (2001), on the other hand, arrived at a different conclusion. Based on semi-structured interviews with 20

Black women academics at five institutions of higher education in South Africa, they inferred that the following forms of gender inequality were still plaguing the system: the lack of mentorship available to women academics; the persistent existence of broader societal norms and values that influence male and female relationships to the detriment of female academics; organisational practices and policies which were still male-dominated and which marginalised “women’s ways of knowing and doing” and how all of these impact on interethnic and interracial relationships and interactions on campus.

In Mickelson *et al.*’s (2001) historico-comparative study of South Africa and Israel, it emerged that in both countries disparities existed in the educational attainment of males and females and in the income for similarly qualified members of both genders among all racial groups. Boshoff’s (2005) analysis of data regarding the representation of women in the academic profession in South Africa revealed that while the percentage of women academics increased significantly in the years before this study, women were still under-represented in the upper academic ranks. This confirmed Zulu’s (2003) findings. Schulze’s (2005) investigation into the job satisfaction of black female academics at a South African university revealed that her respondents thought that if they could increase their research output, their levels of job satisfaction would also increase. The respondents indicated that the two pressing problems that prevented them from attaining this goal were a lack of time and of research expertise.

Universities in South Africa have traditionally been conceptualised as teaching and training institutions, with research occupying a subordinate role (see Sutherland & Wolhuter 2002, 79). The profile of South African institutions of higher learning was traditionally moulded on the perceived need to train human resources for a developing economy (Jansen 2009, 3). Writing in the mid-twentieth century, Smith (1956, 16), who became famous for his pioneering research on the coelacanth, states the following:

Research at South African universities has occupied a subordinate, and in some ways uneasy, position. University staffs are normally appointed and paid for teaching, and while research is officially recognised, anyone who devotes more than normal time to such work runs the risk of being regarded as not giving proper attention to the teaching for which he (*sic*) is being paid.

Amidst many sceptical opinions about the possibility of the university as purely a research institution (e.g. see Feldman, 1987, 275) Barnett (1992), contends that research has, nevertheless, become the fulcrum of the contemporary academic community. The status of research at South African universities

has changed as a result of a new subsidy-formula, introduced in 1984, which links government grants to research output. Measured against the international norm, the research output of South African academics is low (Wolhuter, Higgs and Higgs 2006, 11-12). In the research (referred to above) based on the questionnaire of the Carnegie International Investigation into the Academic Profession, South African academics' average response to the question as to how many articles respondents had published in an academic book or journal during the three year period before the survey, was 3.65; the comparable figure for Japan was 6.7 (Arimoto 1996, 164) and for the Netherlands 7.1 (Geerts, Massen and Van der Vught 1996, 515). By 2004, the research output of the historically Black South African universities was still lower than that of the historically White universities (Gilmour, 2001; Wolhuter, Naidoo, Sutherland and Peckham, 2003/4).

Against this background, a project was launched at a historically Black university in South Africa to establish the degree to which gender equity had taken place in terms of research output.

Research method

In order to establish the degree to which gender equity had taken place in terms of research output at UZ, the following were calculated:

- (1) the research output (measured in South African Post Secondary Education (SAPSE) units) aggregate, per faculty and per gender,
- (2) the academic staff numbers, per faculty per gender, and ,
- (3) the average research output per person per faculty and per gender per year.

These data were determined for each of three time periods.

- (1) the ten year period 1985 to 1994 under the old constitution,
- (2) the ten year period 1995 to 2004 under the new constitution, and
- (3) the next six year period 2005 to 2010

The post 1994 data were divided into two periods (as indicated above) to allow for the likelihood that the effects of gender equity promoted in the new constitution were likely to experience a time lag before their effects (hopefully) became apparent.

Results

The total research output of academic staff in SAPSE units per person per year is presented in Table 1. Compared to the pre-1994 period with a the research output of 0.101 units per person per year, the output in the 16 year post-1994 period more than doubled to about 0.225 units per person per year. This overall improvement conceals the fact that the output of females increased more than that of males as will be illustrated in the next table.

Table 1: Total output of SAPSE papers per person per year

PERIOD	ITEM	TOTALS
Ten Years 1985-1994	SAPSE Units	268.05
	Staff Numbers	266
	Units per person per year	0.101
Ten Years 1995-2004	SAPSE Units	509.24
	Staff Numbers	225
	Units per person per year	0.226
Six Years 2005-2010	SAPSE Units	338.77
	Staff Numbers	252
	Units per person per year	0.224

The research output of academic staff in SAPSE units per person per year is presented in Table 2 by faculty and gender. This Table illustrates that gender ratios in staff numbers and in research output deviate from equity across the board with some faculties being significantly worse than others. However, it is the overall institutional gender equity that is of greater initial concern.

The “Totals” column in Table 2 shows that during the pre-1994 period the research output of males was 0.123 units per person per year. This output increased significantly to 0.294 units per person per year in the ten years following 1994 but then eased back to 0.269 units per person per year during the following six years. During the pre-1994 period the research output of females was 0.046 units per person per year. As with their male counterparts, this output increased significantly to 0.118 units per person per year in the ten years following 1994 but, unlike their male counterparts, females maintained this progress and improved their output further to 0.151 units per person per year during the following six years.

The overall result of these trends is that in the ten year pre-1994 period, females produced one SAPSE unit for every 2.7 produced by their male counterparts. Despite the constitutional changes in favour of gender equity, the ten year post-1994 period showed only marginal improvement with females producing one SAPSE unit for every 2.5 produced by their male counterparts. However, the following six year period (2005 – 2010) showed a dramatic improvement in research output equity with females now producing one SAPSE unit for every 1.8 produced by their male counterparts. It would seem that, despite the existence of a time lag, gender equity policies are finally starting to yield results. Unfortunately there is still a long way to go since, despite the recent significant gains, the research output of female academics is still barely half of that of their male counterparts.

To facilitate comparisons, some of the data from Table 2 has been presented as percentages in Table 3.

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Table 2: SAPSE Publications of University of Zululand—absolute numbers

PERIOD	FACULTIES	ARTS & THEOLOGY		SCIENCE		LAW & COMMERCE		EDUCATION		TOTALS		RATIO OF TOTALS
		Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	
Ten Years 1985-1994	UNITS											Female: Male
	SAPSE Units	24.50	100.50	9.75	97.75	0	31.05	2.00	2.50	36.25	231.80	1 : 6.4 ^(a)
	Staff Numbers	42	79	10	44	3	29	23	36	78	188	1 : 2.4 ^(b)
Ten Years 1995-2004	Units per person per yr.	0.058	0.127	0.098	0.222	0.000	0.107	0.009	0.007	0.046	0.123	1 : 2.7 ^(a)
	SAPSE Units	68.69	166.78	22.83	203.89	0	23.67	11.33	12.05	102.85	406.39	1 : 4.0 ^(a)
	Staff Numbers	36	48	23	45	5	23	23	22	87	138	1 : 1.6 ^(b)
Six Years 2005-2010	Units per person per yr.	0.191	0.347	0.099	0.453	0.000	0.103	0.049	0.055	0.118	0.294	1 : 2.5 ^(a)
	SAPSE Units	50.18	110.78	21.64	120.82	6.18	16.17	10.17	2.83	88.17	250.60	1 : 2.8 ^(a)
	Staff Numbers	30	47	32	56	15	30	20	22	97	155	1 : 1.6 ^(b)
	Units per person per yr.	0.279	0.393	0.113	0.360	0.069	0.090	0.085	0.021	0.151	0.269	1 : 1.8 ^(a)

(Male and female academic staff numbers were taken as officially recorded at the end of each period i.e. 1994, 2004 and 2010 respectively).

For the final ratios (c) = (a) / (b)

Table 3: SAPSE Publications of University of Zululand – percentages

PERIOD	FACULTIES UNITS	ARTS & THEOLOGY		SCIENCE		LAW & COMMERCE		EDUCATION		TOTALS	
		Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Ten Years 1955-1994	SAPSE Units	19.6	80.4	9.1	90.9	0	100	44.4	55.6	13.5	86.5
	Staff Numbers	34.7	65.3	18.5	81.5	9.4	90.6	39.0	61.0	29.3	70.7
Ten Years 1955-2004	SAPSE Units	29.2	70.8	10.1	89.9	0	100	48.5	51.5	20.2	79.8
	Staff Numbers	42.9	57.1	33.8	66.2	17.9	82.1	51.1	48.9	38.7	61.3
Six Years 2005-2010	SAPSE Units	31.2	68.8	15.2	84.8	27.7	72.3	78.2	21.8	26.0	74.0
	Staff Numbers	39.0	61.0	36.4	63.6	33.3	66.7	47.6	52.4	38.5	61.6

A possible explanation for the fact that the research output of female staff is still lagging behind that of their male counterparts may lie in the fact that the improved gender ratios of UNIZUL members of staff have largely been achieved by the recruitment of females who were relatively under-qualified compared to their male counterparts. This discrepancy is reflected in the Table 4.

Table 4: Qualifications of academic staff at the University of Zululand

	Ten Years 1985 - 1994		Ten Years 1995 - 2004		Six Years 2005 - 2010	
	Female	Male	Female	Male	Female	Male
Total Number of Staff	78	188	87	138	97	155
Number of Staff with PhDs	9	54	13	63	29	61
% of Staff with PhDs	12	29	15	45	30	39
SAPSE units per person per year	0.046	0.123	0.118	0.294	0.151	0.269

The research output of females increases steadily as the percentage of females with Ph Ds increases over the entire 26 year period. The research output of males increases with an increase in Ph Ds from the first to the second 10 year period and then decreases in line with a decrease in the percentage of male staff with Ph Ds for the following six year period. The implication is that research output is closely tied to the percentage of staff with Ph Ds. If equity is to be obtained in the research output of females, then it is necessary not only to achieve gender equity in staff numbers but attention should also be paid to increasing the percentage of female staff with PH Ds.

These results seem to form part of a national trend that might be explained as follows. The application of the questionnaire of the Carnegie International Investigation of the Academic Profession to a sample of the South African academic profession (referred to above) indicated that the average age of male and female South African respondents at that time were 43.6 and 43.2 years respectively (Wolhuter, Higgs and Higgs 2007). Male and female respondents had, however, been employed in higher education for an average of 13.8 and 9.8 years respectively. South African higher education institutions distinguish between the following academic ranks: junior lecturer, lecturer, senior lecturer, associate professor and (full) professor. The questionnaire accorded

the numbers 1 to 5 to these ranks respectively and added another category, namely for respondents in management positions. The average male response was 3.9 (somewhere between senior lecturer and associate professor), while the average female response was 2.8 (somewhere between lecturer and senior lecturer) (Wolhuter *et al.* 2007).

The above-mentioned data show that the South African academic profession displays a relatively young profile. The proportion of female academic members of staff is comparatively high. In the other countries in which the survey was conducted the percentage of male faculty ranged from 60% in Brazil to over 90% in Korea and Japan (Altbach and Lewis 1996).

In the other countries in which the survey was conducted, the average ages of faculty were as follows: Mexico: 39.2 (Antón 1996); Netherlands: 42.3 (Geerts *et al.* 1996); Korea: 44.8 (Lee 1996); Australia: 45 (Sheehan and Welch 1996); England: 47 (Fulton 1996); and United States of America: 48 (Haas 1996), while in Japan and Russia the average academic was over 50 years of age (Arimoto 1996). Read together with female academics' concentration in the lower academic ranks (which is also evident in the results of the research by Boshoff (2005), referred to above) and their smaller average number of years spent in the academic profession, the South African results point to the effect of affirmative action policies with regard to the recruitment and appointment of academic members of staff in recent years.

Conclusion

The data used in this study indicate a steady increase in the research output of female academic members of staff at UZ in the periods in question. This increase was mainly achieved as a result of an increase in the percentage of females employed. The increase may not, necessarily, be solely attributable to an increase in the "per person" research output of female academics, which still lags behind that of their male counterparts.

From the results we may conclude that some headway has been made in wiping out the gender disparities in terms of research output, however, the bulk of research output continues to be produced by male members of the academic staff. This suggests that attempts to empower women researchers may not be entirely adequate. More needs to be done to support their research activities.

Alternatively, a different approach may be required to afford them their rightful place alongside their male counterparts. Focusing on support to assist female

academics to obtain doctorates might well prove to be a profitable strategy, as it may help to ameliorate the problem alluded to above. On the one hand it will contribute to raising the research output of female academic members of staff. On the other hand, given the importance of a reputable publication record for promotion in the academic profession, it will also elevate female academics through the “glass ceiling” in the academic profession – a problem not only limited to South Africa. The comparative study by Wolhuter *et al.* (2003/2004) furthermore suggests that the New Zealand experience of training their academic and research members of staff in research management *per se*, may, in South Africa’s case, be a model that is worth emulating.

Recommendations

It is clear that in order to achieve gender equity in research output, it is not only necessary to employ more female academic members of staff. It is also necessary to attempt to employ more highly qualified female academic members of staff. Alternatively, some higher education institutions may consider it a profitable exercise to invest in staff development programmes that are aimed at assisting academic members of staff with the attainment of doctoral degrees.

Attempts to appoint and promote more female academics in the higher academic ranks (senior lecturer, associate professor and full professor) will depend on their increased research output. Promotion through these higher academic ranks depends to a large degree on the quantity as well as the quality of research output. The increase in the research output of female academic members of staff is therefore not a goal in itself, but rather a *conditio sine qua non* for the equalisation of gender representivity in the higher academic ranks.

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