

HIGHER EDUCATION

Transformation and Equity: Women and Higher Education in Sub-Saharan Africa

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Abstract: *This paper critically examines women's participation in higher education in Sub-Saharan Africa. Specifically it considers two dimensions of their participation: namely, the fields of study in which females are enrolled and the staff composition of higher education institutions. We argue from an equity perspective that, while the participation rate of women in higher education has increased, this has been in particular field of study (mainly humanities and social sciences). We further argue that there are still few women at senior levels in higher education institutions, given an overall increase in gross participation rates. This suggests a need for more proactive and positive strategies to effect greater equity in higher education.*

Introduction

This paper addresses the transformation in higher education in Sub-Saharan Africa. More specifically, using available data, we investigate female enrolments in an era of increased participation in higher education in a number of Sub-Saharan African nations. The first two sections of the paper provide the context — first in terms of the character of the transformations in HE and then through a history of its development in Sub-Saharan Africa (SSA). Following this we examine gross enrolment data and compare changing patterns of female access to higher education across selected global regions. Then, focusing on selected Sub-Saharan African countries, we explore how increased female access to HE has become evident in these heterogeneous national contexts. Based upon such analysis, we reflect critically upon the institutional transformation in HE and explore what this might mean for women within this sector in Sub-Saharan Africa.

Transformations in Higher Education - an overview

The late 20th century witnessed a series of profound transformations in higher education that are likely to continue well into this century. The global move to massification, a process that had its origins from the 1960s onwards, has been one of the most significant transformations of HE systems. Governments, in a variety of national contexts, have made public commitments to increased gross enrolments. This has been evident, for example, in England and Wales (Parry 1997) and in South Africa where calls have been made for a 40 per cent participation rate of the eligible HE cohort (Sayed 1998). Significantly for Sub-Saharan African countries HE has recently re-emerged as an important dimension in the development efforts of donor agencies (See for

example, UNESCO, 1998a; ACU, 2000; DFID, 2000; World Bank, 2000a; 2000b).

The massification of higher education systems has been associated with increasing access for those who have been absent or excluded traditionally. In most contexts, this has been realised by increasing female participation, alongside increasing access for minority groups, the disabled, mature and non-residential students. In the UK this has signalled a shift away from the traditional image of HE as an enclave of the young, male, residential, white, middle class and able students. The change from elite to mass higher education has inevitably produced changing student populations. Given the access of students from a broader social range, it would be reasonable to anticipate significant changes to institutional conditions in HE. More diverse student populations would be accommodated within more mixed student cohorts across the institution, by a more diverse staff, and by different curriculum possibilities. In this paper we examine how this massification has been manifest in Sub-Saharan Africa with particular reference to female students. In an analysis of the available data we trace increases in female enrolments and attempt to gauge the extent of the transformation. In particular we try to find evidence of the influence of massification on the institutional conditions within HE in Sub-Saharan Africa.

The demographic changes of massification interplay with other dimensions of change in the transforming HE sector. Significantly as the trend for increased enrolments has become established, there has been a parallel effort towards decentralised control of such institutions. Neave & van Vught (1994) argue that new forms of HE governance reflect a supervisory model in which the state sets frameworks and mainly plays a monitoring role, leaving decision-making to decentralised units at lower levels. Van Vught (1994: 43) argues that in the supervisory model the state “sees itself as supervisor ... steering from a distance and using broad terms of regulation.” The state in such a perspective fulfils primarily, as Neave (1988) argues, an evaluative role. The traditional British and US HE systems are perceived to be key representatives of such a model of HE governance. The moves towards greater decentralisation raises as Sayed (2001) notes questions about equity as the participation and inclusion of marginalised groups becomes an institutional responsibility rather than that of the state.

Another key influence upon the HE sector is the impact of information and communication technology (ICT) (Amoaka 1998). Although the great potential of ICT to enhance participation has been widely recognised (Bond, 1998; Mbeki, 1997), its transformational capacity has hardly been conceptualised for HE or the broader society, let alone realised. In Sub-Saharan Africa a key problem in responding to the global imperative to engage with ICT is access to the necessary infrastructure. It is worth noting, for example, that there is large overlap between the 75 per cent of the worlds’ population who have no telephone and the 3 billion who live on less than \$2 per day (Bond 1998). The uneven use of ICT presents another equity issue as it can widen the gap between the informationrich and informationpoor and further marginalise disadvantaged groups (African Women and Economic Development International Conference, 1998). At a broader level, the connection between the national capacity to engage in the knowledge economy and socio-economic advance has underlined the important contribution of universities and their graduates (ACU, 2000; Bourne, 2000). This paper does not address this issue directly though it is important to note that it is crucial to advance female participation in ICT.

The central concern of this paper relates to the position of women in HE in SSA. The overview offered in this section has sketched the changing HE scene with respect to three inter-related transformations: massification, decentralisation and the rise of ICT. Our predominant focus is upon how women are placed with respect to the transformations in this sector. Our concern is with the issue of equality and justice with regards to the inclusion of groups that have been

marginalised in HE. There is much confusion about the notions of equity, redress and justice in educational policy texts which, to some extent, is reflected in differences in the understanding of their interpretation more generally.

Samoff (1996), writing about educational policy development in South Africa, argues that equity should be differentiated from equality. He proposes that, whereas the former refers to justice, the latter relates to the “principle of sameness”. Equity, according to Samoff (1996), includes the distribution of educational services so that all may be able to be equal. Equity in this approach can be perceived as a strategy to achieve equality. Equality, on the other hand, implies that in a democratic system no one should be treated differently. The distinction between equity and equality invoked by Samoff’s (1996) analysis of educational change in South Africa is similar to Rawls (1972) two principles of justice. The first Rawlsian principle invokes justice as the equal distribution of goods and services in society. The second principle allows for “deviation” from the principle of justice as “fair treatment” on the grounds of ensuring equality and on the basis that unequal distribution might be to the advantage of the least powerful in society. Both notions of justice, as Taylor et al (1997) point out, are underpinned by an individualist, neo-liberal philosophy which foregrounds equality of opportunity for individuals. Justice in this conception is a property possessed by individuals. In contrast, Gewirtz (1998) and Riddell et al (1998) forward a relational concept of justice in which justice is not only about the distribution of resources and goods but also implies a concern for the recognition of difference and mutuality, and changing the oppressive conditions in which individuals find themselves. Writers such as Fraser (1997), Gewirtz (1998), Taylor et al (1997), Young (1990), and Apple (1996) highlight the ways in which current policy initiatives construct a narrow view of justice. This view captured in the writings of Rawls (1972), and Nozick (1976) tends to present a charity-based assumption of equity and justice in which justice is distributed on the basis of the deficits of the needy in society, or in policy parlance, “targeting the most needy”. Such a conception of equity and justice tends to ignore the relational properties of justice and the ways in which the broader structural features of society produce unequal outcomes. This paper is premised on the argument that a concern with distributional justice in the educational context may obscure the need to restructure fundamentally the conditions of oppression. This notion of equity and justice echoes Rawls first principle of justice as sameness

After a brief account of the historical development of universities in Sub-Saharan Africa, we present the data on the changing HE populations. Following this we will return to the themes of this section in a review of the prospects for the engagement of women in the more localised decision-making processes at institutional levels within a decentralising HE sector and discuss their potential contribution to ICT developments.

Higher Education in Sub-Saharan Africa

Although countries in this Sub Saharan African region exhibit markedly differing histories and political dynamics, it is necessary to consider some of the possible frameworks and modalities that have provided the impetus for massification of HE systems in Sub-Saharan Africa from the 1960s (post-independence) onwards.

The initial expansion of the HE system in Sub-Saharan Africa was rooted in the trajectories of post-colonial development (Sack & Court 1991). As many countries achieved independence in the 1960s, HE institutions were established as symbols of the newly found nationhood and as the new engines for autonomous and autarchic development. The founding of these institutions symbolised the independence and unity of nation states after often protracted struggles against

divisive colonial rule. Ironically, however, these universities were characterised by the transplantation of European models of education (Court 1991, Amonoo-Neizer 1998). The post-colonial legacy has had other effects on HE including a strong tendency to conservatism (Unterhalter and Young, 1995). This has been produced in part by the combined effects of a lack of capacity to change and a concern to attain or sustain international educational legitimacy for courses and graduates. Of particular relevance to this paper, the influence of 'Western' educational forms has been cited as key to the establishment and reproduction of the sexual division of labour (Stromquist et al, 1998). The gendered order is described as so fundamental to HE that it persists even in South Africa where there is public and popular support for transformation (Unterhalter, 1998).

The growth of the HE systems was phenomenal in the early years, from six universities in 1960 to about 97 in 1997 (Amonoo-Neizer 1998). This growth was in response to four key pressures. First, there was an overwhelming emphasis on the production of the skilled human resources required to staff the newly independent governments after the withdrawal of colonial administrators. The priority in the production of these, mainly male, public administrators, was upon humanities and social sciences programmes. Second, great emphasis was placed on indigenising the teaching staff of higher education institutions. There was a concerted effort made to replace expatriates staff with African staff. Third, efforts were made at changing the curriculum away from the inherited European model with many universities focussing on indigenising the curriculum content. Finally, concerted effort was directed at improving the research output and productivity of the higher education system. A number of specialised research units were established and an intellectual community of African scholars was nurtured (Court 1991, Amonoo-Neizer 1998).

However, during the 1970s and later, a growing cynicism and scepticism replaced the initial optimism about HE development. Fuelled by low levels of economic development, the perception grew that universities were not making a significant contribution towards eradicating poverty or solving the problems of Africa. Faced by financial constraints, governments questioned the value of investment in higher education and donor agencies began to focus on primary education instead. Allied with government policy, donor agencies tended to direct higher education supply towards outreach, community activities, and problem-solving research. In this context, certain governments and HE institutions tried to create a more relevant, development-centred system, the 'development university' (Wandira 1978). Julius Nyerere who championed the need for HE to work in support of the nation, expressed the notion of the 'Development University'.

Whilst significant progress had been made in higher education in Sub-Saharan Africa, it was clear by the 1980s that the system was in crisis. This was manifest in diminishing resources, endemic strife at universities, persistent government intervention into the affairs of HE institutions, unnecessarily high unit costs, administrative and financial inefficiency, and a concern about the failure of HE institutions to meet national needs. The continuing contemporary crisis has been further affected by the introduction of market forces. In the developed world, the higher education system has become increasingly subject to what is referred to as market ideology with a growing emphasis placed on revenue generation, cost-effectiveness and business rigour (Neave, 2000). In the context of Sub-Saharan Africa too, the impact of market forces is evident in the outsourcing to private agencies of non-academic activities such as hostel and catering facilities; the call for increased business investments in higher education; the growth of private universities and colleges (for example, the New Africa University located in Zimbabwe and Midrand Campus in South Africa) and twinning arrangement between universities in the North and private colleges,

companies and universities in Sub-Saharan Africa. The low private investment, however, provides some indication that there are limits in the extent to which HE provision will be left totally to the market even if this were desirable. As Gill & Gill (2000) argue, in the developing world there is a need to balance public and private investment in higher education, a point acknowledged by the World Bank (World Bank 2000b).

A further dimension of the impact of the market on HE development in SSA is the increasing competition from HE providers in developing countries. Taylor et al (1997) highlight the case of Malaysia where about 50 per cent of higher education students study abroad principally through twinning arrangements. Institutions from the North are marketing their education services in less developed/developing countries which inevitably has some impact upon the progress of higher education in the nations of the developing world. There is likely to be some influence on the student intake in the local institutions and on the capacities of the national institutions to respond to them. This impact has yet to be fully analysed and although beyond the scope of this paper it needs to be borne in mind as we consider the changing female participation patterns in Sub-Saharan Africa (see Sayed 2001 for an account of the growth of the private higher education sector in South Africa).

The recent history of HE in SSA has been heavily influenced by the donor agency agenda. Over several years there has been a sustained emphasis on basic education and gender (generally used to mean girls). Given the poor access and retention rates in basic education, especially for girls in SSA, this emphasis has not been highly contested. More recently, however, the importance of a sector-wide view together with a recognition that sustained development needs local capacity building has attracted greater attention to the HE sector (THES, 2000). It is in the context of an increased interest in HE within a globalizing market that our focus in this paper on the participation of women is particularly pertinent.

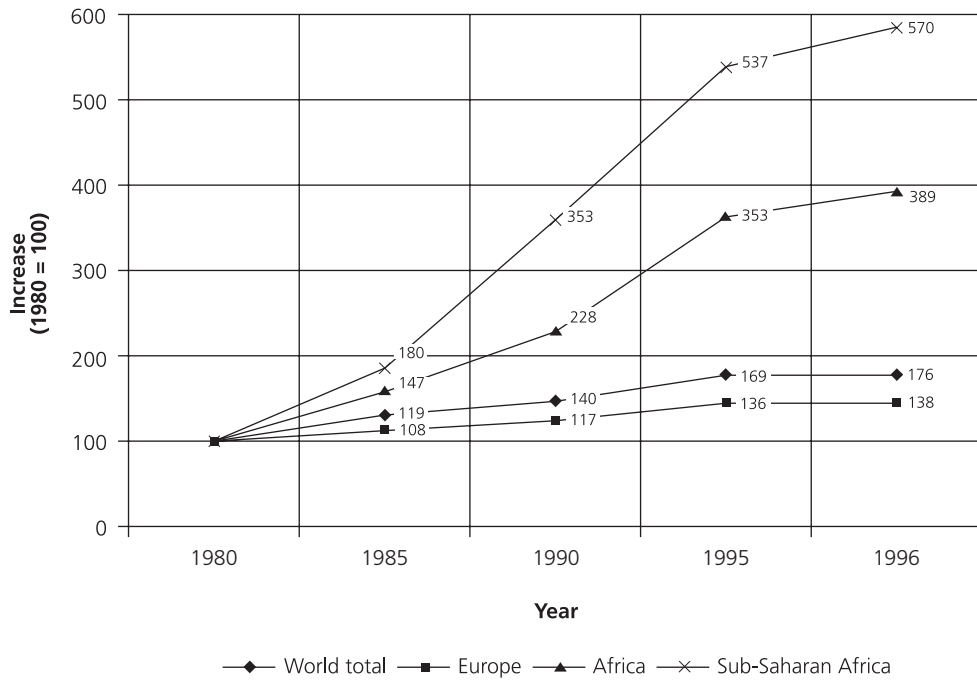
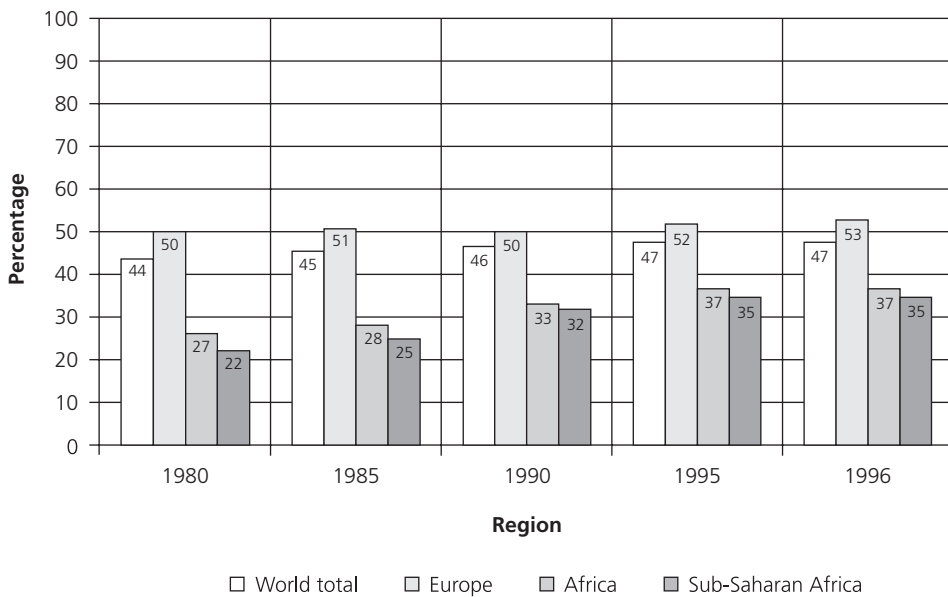
In the context of this paper it is important to note the specific and particular character of South African higher education. Compared to the rest of SSA, South Africa has a large and diverse university sector (36 universities and technikons). Further, female participation in South African higher education is marked by distorted racial legacy of the apartheid system. For example, the majority of female staff in South African higher education institutions are white.

Female access to higher education in Sub-Saharan Africa

Having provided the broad contextual setting in the previous two sections, we now turn to examine the available data on gender differentiated access to higher education in several global regions. We follow this with a more specific focus on five Sub-Saharan Africa countries. This data will provide a comparative view of changes over time in female access to higher education.

In Figure 1 we examine patterns of female enrolments in Higher Education in a comparison of broad global regions, the world, Europe, Africa and Sub-Saharan Africa.

This graph illustrates the rates of increase for female enrolment beginning with 1980 as the base index. Across the years surveyed Africa and Sub-Saharan Africa record considerable change whilst the World and Europe remain fairly flat. The graph suggests that the rate of increase for female enrolment has been substantially higher for Africa and Sub-Saharan Africa than Europe and the world. However, despite the relatively flat line representing the increase in female enrolments across the world, it should be acknowledged that this represents nearly a doubling of female enrolments between 1980 and 1996. Viewed against this the increase in Africa and Sub-Saharan Africa is phenomenal. The greatest rate of increase for both Africa and Sub-Saharan Africa occurs from 1990 onwards, a period when many countries in African began re-prioritise HE after

Figure 1. Rates of female enrolment in higher education (1980 = 100) (UNESCO 1998b).**Figure 2.** Percentage third level female enrolments (UNESCO 1998b).

a decade of focus on basic primary education.

Figure 2 qualifies the data in Figure 1 with broad comparisons between female enrolments in selected regions. So, although the rate of increase in female enrolments has been relatively small in Europe, it is important to note that since 1980, at least half the enrolments in HE in Europe have been female.

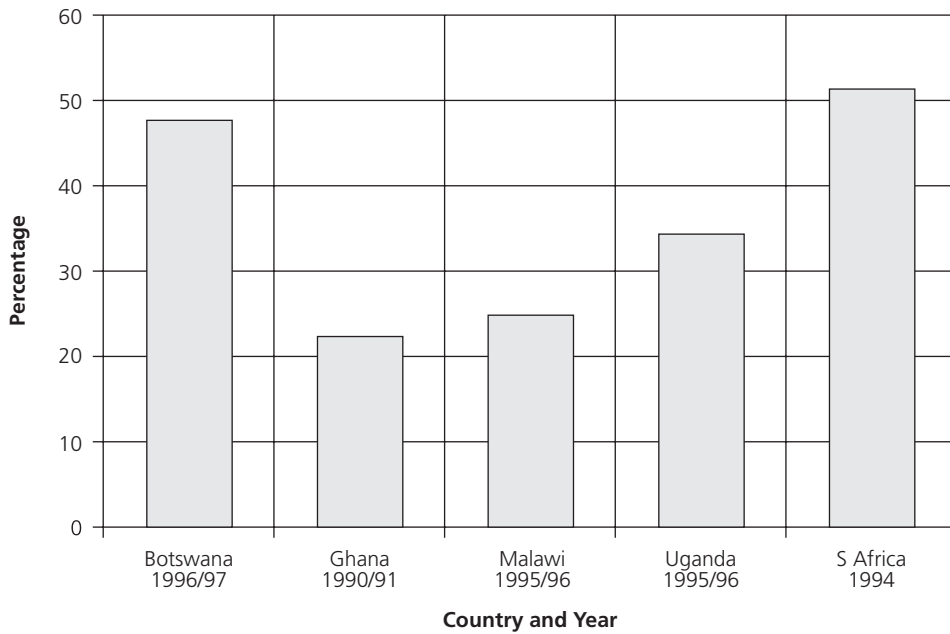
Further to this, female enrolments in HE remain lower than male enrolments across all regions except Europe. This is particularly the case in Africa and Sub-Saharan Africa with female enrolments only passing one third by 1996. So, whilst female enrolments have increased in percentage points, this increase has not been huge in terms of gross number of enrolments. Even the substantial percentage increases represented in Figure 1 need to be offset by the low base of female enrolments especially in a sector which constitutes only 2 per cent of all educational enrolments in Sub-Saharan Africa. In absolute terms HE accounts for only 2 017 thousands of the 101 126 thousands enrolled in education in all sectors.

The pattern of enrolments across sectors shows marked differences between Europe and Sub-Saharan Africa. If the European pattern is to be emulated in Sub-Saharan Africa and Africa then there are obvious market opportunities. However even ignoring financial and capacity constraints aspects of the African context the possibilities for increasing access for females is further constrained by the low numbers of females graduating from secondary education who are eligible for higher education (see Kelly 1991, Jackson 1990). The subject location of female students adds a further dimension to this constraint that goes beyond the issue of HE access (Petrides, 1998; Unterhalter, 1999). We address this later in the paper with reference to science-related HE programmes. In overview this data shows Sub-Saharan Africa to have the highest rates of increase in female enrolments but from a low base and the lowest percentage female participation, within a comparatively small third level sector.

Table I. Enrolments by level of education in 1996 (UNESCO: 1998b).

	<i>1st level</i>	<i>2nd level</i>	<i>3rd level</i>	<i>Total</i>
Africa %	72.8/	23.9/	3.2/	100/
Number (thousands)	96 061	32 222	4327	134 610
Sub-Saharan Africa %	78.1/	19.9/	2.0/	100/
Number (thousands)	79 001	20 145	2 017	101 162
World %	58.7/	33.9/	7.5/	100/
Number (thousands)	661 750	381 890	84 261	1 127 901
Europe %	34.3/	50.3/	15.4/	100
Number (thousands)	47 619	69 853	21 339	138 812

As suggested earlier, different historical and political factors within Sub-Saharan African countries provide significant internal differences that tend to be concealed by regionally aggregated data. In the Sub-Saharan Africa region, data from the world's poorest countries is aggregated with that from the regionally anomalous South Africa. The heterogeneity of the Sub-Saharan Africa national contexts demands careful treatment of the regional data and further exploration at the national levels which is provided in Figure 3 which shows a comparison of four Sub-Saharan Africa countries with South Africa.

Figure 3. Female third level enrolment by country in Africa (%) (UNESCO, 1998b).

There are comparatively high female participation rates in higher education in both South Africa and Botswana but at the same time this region includes countries in which female enrolments are still below the one third mark (See Figure 3). Although the Botswana and South Africa data may be explained in part by their relative wealth, this is a reminder of the importance of the contextual and historical specificities that qualify regional generalisations. In South Africa for example, high female participation in higher education (51 per cent) masks tremendous disparities in race, with more white than black females enrolling in higher education (Sayed 1998).

With respect to Sub-Saharan Africa, the data presented so far has indicated a general increase in higher education enrolment rates together with an increased representation of women in these student populations.

Social justice and indicators of transformation

The regional position described here by data on Sub-Saharan Africa includes contexts in which levels of female participation appear to reflect almost equitable access to higher education. It would seem that the appearance of near equal enrolments by gender in some countries, if sustained, represents an important preliminary effort for gender equity (though perhaps not in terms of race, social-class and disability). Distributional notions of social justice, that is, the fair distribution of resources to individuals in society (Rawls, 1972; Young, 1990) underpin such first order claims for equal female access to higher education. Although clearly important for efforts to social justice, such data reveals nothing of the quality of female experiences once within the institution. The issue about female participation is not only a question of student access. Gender equity cannot be attained through a limited concern with distribution i.e. numbers only, as this assumes the neutral and decontextualised organisational development and culture of these institutions (Morley, 1997;

Powney and Weiner, 1992). Concern with gender equity must bring the institutional structures and conditions to account alongside issues of distribution.

A more relational understanding of social justice incorporates the distributional issues with a focus upon the conditions and processes of education (Lynch, 1995). The latter includes both formal procedures for admission, appointment and promotion as well as the more informal networks within institutions and across the HE sector. Many academic explorations of these informal aspects of university organisation suggest that networks within the subject discipline are key to staff recruitment and promotion prospects (Becher, 1990; Heward, Taylor and Vickers, 1997). In the decentralising higher education sector in Sub-Saharan Africa, this is an important factor to consider as it influences the processes of institutional change. In her historical account of women's careers in higher education in the UK, Heward (1996.) highlights the power of senior academics in controlling access to positions and the career development of junior aspirants. Further research, she suggests, should examine the interaction of structure and process.

There is a shared recognition among feminist academics that although increasing female representation is crucial, the review of organisational structures and practices must be a concomitant focus for change (see for example Spender and Sarah, 1980; Franzway et al 1989; Humm, 1996; Kettle, 1996). This presents a much greater challenge for reform in the expanding HE sector, especially in institutions that are struggling for legitimisation in the global arena and competing for students with high status Northern institutions. The tension between emulating traditional institutional processes and hierarchies while addressing social justice agenda, is not reserved to the level of policy or vision but sets up pressure within HE institutions in which senior academics continually strive to maintain their territory and power base (Becher, 1990). Experience in the UK, after more than two decades of equal opportunities policies, shows hard-won but disappointingly marginal changes to patterns of educational access (Dunne, 1996).

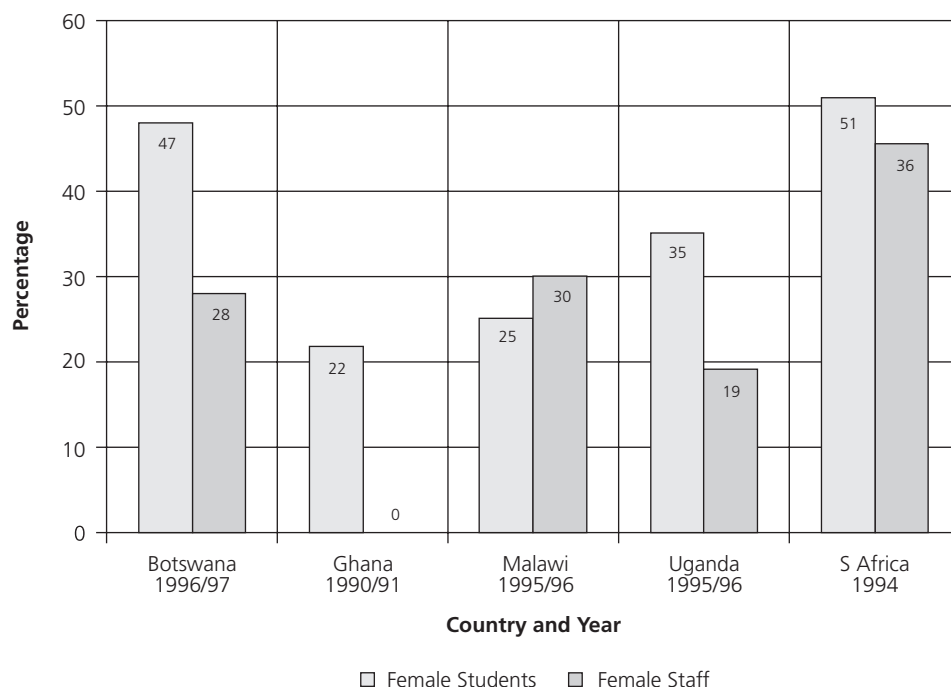
In our efforts here to trace attempts to address female participation in HE we have selected two indicators for further exploration. Female staffing levels and the disciplinary location of female students are chosen as relevant to two key higher education responsibilities, the education of students and development of theory and research.

The latter is extremely important to the participation of women in the indigenisation of knowledge production, as implied in an earlier section. We now turn to an exploration of indicators at the national level. Figure 4 below, provides a picture of the relationship between patterns of female student enrolment and female representation among staff in higher education in selected Sub-Saharan countries. The graph indicates that across all the countries surveyed, with the exception of Malawi, there are proportionally far fewer female staff in higher education than female students. The difference in proportions of females among the staff compared to the students being 15 per cent and more. This same pattern has also been recorded in UK universities in the early 1990s (Heward, 1996).

It seems then that whilst higher education institutions may be admitting more female students, the participation of females as academics remains restricted. Further to this as Marope (1994) notes in reference to Botswana with its very high comparable rates of female student enrolment, the majority of female staff at the University of Botswana was at the lecturer level with males being dominant at the higher levels. She argues that this translated into females being excluded from the higher echelons of university decision-making bodies, making it difficult for females to change the male-dominated culture and modus operandi of the university. In such contexts, it is unlikely that any significant change to the courses and services offered has taken place.

The data suggest that the positive possibilities of engaging more women in decision-making

Figure 4. Female students and staff by selected countries in Sub-Saharan Africa (%) (UNESCO 1998b).



as a result of changes in the HE sector is limited. This results not only from the low proportions of female faculty but also from the institutional conditions such as the culture of the institution.

In the face of the widespread general increases in female enrolments, we now look at the students' departmental location within the institutions. Table II reports the data for the selected Sub-Saharan African countries. For each country the date of the data collection and gross numbers are included. Underneath this there are two columns, the first, left hand column shows the percentage of females in the cohorts in each of seven disciplinary areas, the second column shows the proportion of the whole female group enrolled in that particular discipline in each country. At the bottom of the table the percentage of female participation in higher education is included.

The importance of organising the data in this way will be seen by taking the example of Home Economics. Table II shows that Botswana, Ghana and South Africa all include Home Economics. Reference to the left hand column for each country with this data show predictably high proportions of females within the cohorts of students studying this subject. The range is from 96.8 per cent in Botswana to 66.7 per cent in Ghana. Such high levels of female participation in a notoriously gendered subject are not surprising. Reference to the second column, however, indicates that the high proportions of females in the cohort is balanced by extremely low proportions of the enrolled females opting for this subject. In Ghana, for example, this is the least popular subject of the enrolled females. Both columns contain important data for tracing the disciplinary affiliations of the increasing female student populations.

Looking at Table II there is a clear tendency for high female representation in the arts disciplines. In three countries Social and Behavioural Sciences claims the largest proportion of the female students together with high proportions of females in the cohorts. In the remaining two countries Humanities and Religion take this top position. With the exception of Malawi in all countries these two subjects are placed in first and second position in terms of highest proportions of female enrolments across higher education. Together they account for between 32.4 per cent - 52.5 per cent of all female higher education students. Taking the minor subject of Home Economics out of the data also places these two arts subjects with the highest and second highest proportions of females in their cohorts. On both counts then, these subjects attract high proportions of the female students in higher education.

Table II. Female enrolment in selected Sub-Saharan African countries by fields of study.

	<i>Botswana (1996/7)</i>		<i>Ghana (1990/1)</i>		<i>Malawi (1993/4)</i>		<i>Uganda (1995/6)</i>		<i>South Africa (1994)</i>	
Total Female (n)	2069		1791		527		3745		109 952	
	% F in cohort	% of all F	% F in cohort	% of all F	% F in cohort	% of all F	% F in cohort	% of all F	% F in cohort	% of all F
Humanities and religion	56.2	24.9 *	31.0	40.4*	40.4	10.4	36.2	14.1	63.8	20.2
Social and behaviour science	55.0	21.7	26.9	12.1	21.7	22.0*	43.1	20.2 *	57.7	25.7 *
Business Administration	48.9	10.9	22.7	8.1	15.1†	18.2	30.2†	13.8	42.7†	13.0
Home Economics	96.8	2.9	66.7	1.0#	—	—	—	—	96.1	0.6
Natural Sciences	28.4†	13.3	15.2†	8.1	20.9†	12.7	23.0†	5.6	45.1†	5.5
Maths and computing	25.4†	0.8 #	10.7†	1.2	—	—	16.7†	1.0#	30.5†	4.1
Engineering	13.4†	1.6	3.0†	1.1	1.6†	0.4#	13.9†	1.6	8.9†	0.4#
Total % F	44.1	100	22.4	100	21.1	100	32.4	100	51.5	100

KEY:

Indicates the lowest female participation

* Indicates the highest female participation

† Indicates female participation below the higher education average

Without diminishing the local and national significance of increasing numbers of female arts graduates, a look at the other end of the subject stereotype, shows the predictable minimal proportions of females in the sciencebased subjects. Natural Sciences, Maths and Computing and Engineering consistently have female cohorts well below their national HE average. These subjects claim the lowest proportions of female students, with the Natural Sciences claiming larger proportions of female students than Maths and Computing and Engineering together. The

proportions of HE female students enrolled in these latter two subjects together ranges from 0.4 per cent - 4.5 per cent. Taking South Africa out of the data would see this range diminish to 0.4 per cent - 2.6 per cent. Female access to any key science/technology based jobs in all of these countries looks desperately limited in the immediate future.

The data here also indicates something of the worldwide difficulty in attracting students, especially females to these disciplines. Taking Botswana for example, just over one quarter of the cohort in Maths and Computing are female, but this is less than one percent of the female students. This suggests that altogether very few students take this subject at HE level in the country. Both Maths and Computing and Engineering remain consistently unattractive to female students across all these Sub-Saharan Africa countries.

It is evident that the increased female enrolments in HE are not ICT related. There remain dismally low prospects for female participation in this key dimension of HE transformation. The implications of this go much further, holding significance not only for the possibilities and processes of HE transformation but also for the local labour markets, national economic development within the global landscape; female economic independence and concomitant social positioning; the quality of earlier schooling; availability of training opportunities and the development of science and technology itself (Harding, 1995; IDRC, 1995; Mitter, 1995. Rathgeber, 1995, 1998; Sutton, 1998; UNESCO, 1997, 1998).

In Table II we included Business Administration as a subject discipline. We had anticipated that this relatively new subject might provide some insight into developments in higher education. Patterns of enrolment are difficult to discern. However, in the two countries with high female enrolment, South Africa and Botswana, the percentage of females in these cohorts are relatively high at 42.7 per cent and 48.9 per cent respectively. The range in the other countries from 15.1 per cent - 30.2 per cent is much lower. Business Administration accounts for between 8.1 - 18.2 per cent of all higher education female students and is in third or fourth place behind the arts subjects. Clearly this would be an interesting subject to investigate with more detailed country-specific data used to develop a more adequate analysis.

Other qualitative aspects of the female experience of HE, have not been addressed in this paper. For example, an exploration of how the experience of female students in the arts subject where they dominate, is different from female students in the science subjects is one such aspect. Research evidence from the UK suggests that although females may dominate numerically, male arts students are treated as special cases with something valuable to add, whereas, the women in science tended to feel under pressure to prove themselves among male science students (Thomas, 1990: 170). These differing conditions must have an important bearing upon student choice and retention in higher education.

Concluding Comments

This paper has provided an exploration of the position of women within HE in Sub-Saharan Africa. We have located our discussion both within the current debates about transformation in higher education and in reference to the history of its development within Sub-Saharan Africa. Using available data we attempted to trace the inclusion of women in each of these dimensions and to explore the extent of female participation and influence in the development of HE in SSA.

With respect to the changing HE populations we identify increased female enrolments as an aspect of massification within the sector and have provided comparisons between Africa and other global regions. At a superficial level there have been important developments in increased female access to higher education, although percentage increases have been based on small

absolute numbers. Despite the significant increases in female higher education enrolments, the change from elite to mass education at higher levels is far from the reality in Sub-Saharan Africa.

In a policy context of a broad commitment to increased female enrolments in HE, a key question raised by this paper is the extent to which increased female enrolments have impacted upon the HE sector. More specifically this concerns the institutional response to these new student intakes. In terms of social justice such questions are fundamental as they extend the terrain of concern, beyond the still important issue of numbers, to a focus upon gender relations within the institution.

Using female staff representation as an indicator of more responsive and equitable HE institutions, we have demonstrated that increased female student enrolments have not been matched by corresponding increases in female staff appointments or retention. Where appointments of females staff has occurred, research suggests this has been mainly at the lower level and involved casual contract and part-time labour (Kelly 1991; Marope, 1994; Schueller 1995 and Neal 1996). Such institutional locations find female academics unable to take up opportunities for decision-making offered through decentralisation. Increasing female enrolment coupled with low numbers of female staff raises questions about the extent of the institutional transformation implied by massification. Low female staff representation and participation in the decision-making processes indicates no significant move towards greater gender equity. It is similarly suggestive of a limited 'transformation' with minimal institutional response to new student groups who might expect limited change to the form and content of the curriculum on offer.

Explorations of a second indicator, female enrolment across subject domains, appear to substantiate the above suggestions. We highlight the fact that increased female access has not been associated with widened access. Females have been mainly enrolled for programmes in the arts and humanities with limited numbers enrolled for the sciences and engineering. Reform and revitalisation must address the needs of the diverse student groups and provide more flexible programmes in terms of access, curriculum, and delivery. A key challenge for equity in higher education is thus the need to diversify female enrolments across all the revitalised fields and the need to increase female staff employment.

Our analyses have focused on the constraints and difficulties with regards to females participation and inclusion in higher education. However, it is important to bear in mind that this problem extends beyond that sector. Research in South Africa (Sayed & Jansen 2001) suggests that the problems are due to the secondary schooling with too few students in Sub Saharan Africa complete secondary with mathematics and science. Thus, the problem of female access and inclusion is related to the question of supply from the school sector. If girls are not being prepared for mathematics and science in the secondary school sector, then higher education institutions will find it difficult to increase enrolment of both student and staff in these areas. None the less, higher education institutions, as is the case in some South African institutions, can play a more proactive role in dealing with this problem.

The paper has examined the issue of female participation in HE in relation to what field of study women are enrolled and the composition of staff. There is a need to engage in debate about these aspects. Such debate included consideration of proactive strategies of, for example, accelerating appointment and promotion of women in HE. While it is beyond the scope of this paper, the experience of such programmes in South Africa bear careful consideration.

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