EDUCATIONAL EXPANSION AND THE PATTERN OF OCCUPATIONAL CHOICES OF UNIVERSITY STUDENTS IN TANZANIA

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Education in Tanzania has by and large been expanding according to official development plans. This is especially true of higher education. The uncontrolled and haphazard expansion of primary education by Tanganyika Parents Association (TAPA) as observed in Omari (1968) does not seem to be a serious problem any more. Lately however there has been a rapid rate of expansion of private secondary schools outside government plans (Development Plan, 1972). Currently there are two goals of planned educational expansion in Tanzania—one is the achievement of self-sufficiency in high level manpower by 1980 and the other is Universal Primary Education (UPE) by 1989 as stipulated in the National Development Plans (Development Plan 1969); the date for the attainment of Universal Primary Education has now been put at 1977 (NEC, 1974). The thrust and achievements so far have been more impressive in the first goal rather than the second where things have been constrained by lack of finance, materials, and manpower. The 1971 Manpower Report (Development Plan, 1971) already cautioned the government that in order to achieve Universal Primary Education (UPE) before 1989 there would have to be a great strain on the economy. The report recommended that new ways of reducing costs should be devised to obviate this impending economic strain. It was surprising that despite this warning the target date has been made 1977 for it is not self-evident that new ways have been devised. Since education expansion depends very much on the expansion of the teaching force, the purpose of this paper is to, first review recent educational expansion in Tanzania with some emphasis on teachers' education, and secondly to analyse occupational preferences of groups of potential teachers.

REVIEW OF EXPANSION IN THE PRIMARY AND SECONDARY EDUCATION SYSTEMS

The 1972 primary school enrolment in Standard (Grade) I reached 208,331 pupils as compared to a figure of 121,386 for 1961. This figure is estimated to represent 49 per cent of Standard One age group (age six to nine approximately). Total primary school enrolments have increased from 77,109 in 1969 to 1,003,596 in 1972 and reached 1,180,000 in 1973, which is

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estimated to be slightly above 50 per cent of total primary school age group estimated at about two million children in 1973. For the 1973/74 school year, 2,384 new classes are planned (each class has an average of 45 pupils), and preference will be given to the regions with classes/streams fewer than the national average for Primary I age group. Ironically while new classes are being constructed some areas do not utilise fully the existing primary school spaces. Thus the Sixteenth TANU Biennual Conference noted that schools have a capacity to accommodate 55 per cent of Primary 1 age group but that only 48.6 per cent of the capacity was being used. Thus UPE has two problems to deal with. First the under capacity utilisation and second getting to school the remaining almost half of school age children.

Expansion in secondary school education has been proceeding at a slower pace than in primary education (Ministry of Education 1974). The main reason for this slow expansion pace is that secondary education is tagged to manpower planned targets. In other words while primary education can be offered as a human right that every child is entitled to, secondary education is currently offered to meet national economic needs. Table 1 shows that the absolute number of pupils selected for secondary school education each year has been increasing slowly. However when these absolute figures are expressed as a percentage of the number of candidates sitting for Primary Seven Leaving Examination each year the trend is reversed due to the expansion of primary school population. By the very nature of the selection procedures whereby regions are allocated quotas by a special formula,[1] and urban areas given more pupils because of many spaces open for day pupils, there are tremendous regional variations in the quality and quantity of selected pupils. For instance, in 1972 the Coast Region had 14 per cent of its Primary Seven pupils selected while Shinyanga Region had only seven per cent of its primary school leavers selected for secondary education. The quota system for regions and districts based on the above formula is quantitative rather than qualitative. In some regions for instance, the lowest pass mark for a selected candidate was 85 per cent while in others it was 50 per cent, suggesting a wide range of abilities of secondary school pupils that teachers will have to handle. It seems that equity in the distribution of opportunities takes precedence over the pursuit of excellence of the selected sample. The repercussions of this policy are yet to be assessed.

Table 1. Standard Seven Pupils Selected for Secondary Education

Year	Number Selected	Percentage Selected
1971	7,530	10.9
1972	7,740	9.1
1973	7,955	8.9
1974	8,165	7.6

One of the purposes of instituting a selection formula for regional quotas was to stimulate local initiative in the construction of new classes since the

number selected depends on streams and not number of children enrolled. This formula was to help stimulate educational expansion in the educationally less developed regions and districts. Local initiative was expected to complement government contributions to these areas while the more developed areas would either depend primarily on local initiative or mark time in the spirit of relatively even national educational development. However this formula has had negative unexpected outcomes. The more developed areas have still moved much faster in educational expansion than the less developed areas due to high motivation of parents and the high value placed on educational achievements in these areas. Furthermore since selection depends on streams and not number of children in a class, regions and districts have reported many streams with very few pupils (10-12 in some cases) especially in those schools in the so-called ujamaa and development villages. This was unfair and uneconomical as compared to places with streams of 45 to 70 pupils each. The latest move in the selection process was to substitute number of pupils for the number of streams in the formula. This is likely to give a better selection procedure, for only when more new children are born can regions and districts increase the number of pupils selected. Malpractices in the form of forged names will not interfere with the formula very much and these are easy to check. With the policy of villagisation and UPE even educational development might be achieved but at the expense of excellence in secondary school education due to variability of abilities.

In terms of total secondary school enrolment, the expansion has been very spectacular. In 1961 there were about 12,000 secondary school enrolees. In 1972 there were 40,000 enrolees. However, greater expansion has taken place in private secondary schools than in the public secondary schools. In 1965 the private secondary school pupils numbered about 1,000 and by 1972 there were 10,000 pupils. This expansion of the private sector has several implications warranting some comments. Theoretically it is a contradiction in socialist transformation to have private school co-existent with public schools. Only the rich bourgeois group can afford to send its children to private secondary schools where fees exceed 1,000 shillings per year per pupil.[2] The ordinary peasant in Tanzania cannot afford this amount and all preaching about equality of man and equal educational opportunities may sound like a mockery to the peasant. At the same time the educational philosophy emphasising the terminality of primary education and the notion that primary school graduates should go back to the land is being defeated by the operation of private secondary schools. The pupils who failed to get into free public schools but got into private secondary schools demonstrate to the other "failures" that secondary education is important, only that not everybody can afford to pay for it. Furthermore many of the private secondary schools are built with the help of the money or the labour of the poor peasant (e.g. peoples' institutions such as TAPA, BAKWATA, Churches,

and Co-operative Unions donate money), but only the rich people can afford to send their children into these schools because of high school fees charged. After graduation these children from private schools compete unfairly (due to their class status) for jobs with peasants' sons. Finally the expansion of private secondary schools is likely to lead to some poaching of teachers from public institutions thus inflating the already serious attrition rate of secondary school teachers. Thus manpower planning has to reckon with this problem of attrition rate. In fact the number of Tanzanian graduate teachers teaching in private schools is expanding (Table 2). In effect the 1972 Manpower Report (Development Plan 1972) warns that any more major programmes in secondary education must take into account these private schools since they form 25 per cent of secondary school enrolment (p. 13). Poaching will be even greater if private secondary schools will be asked to localise their teaching staff. According to 1973 figures only 29 per cent of graduate teachers in private secondary schools were citizens as compared to about 60 per cent in public secondary schools (Table 2). Ultimately, the salaries, fringe benefits, and security in private schools will determine the attrition rate. In fact there is a great recruitment drive by heads of private schools and it seems that they are succeeding more among the non-graduates.

TEACHER TRAINING

Nyerere (1964), while introducing the first Five Year Development Plan (1964-1969), observed that about 1,000 teachers were employed in secondary and teacher training schools, 20 per cent (i.e., 200) of these were Tanzanians and 20 per cent (i.e. 40) of these Tanzanians held University degrees. About 1,200 additional graduate teachers were then required to carry out the secondary school educational goals of the plan. It is self-evident that Tanganyika was desperate for teachers at independence. The situation was even worse in science teaching where most graduate science and mathematics teachers were expatriates. It was not until the University of Dar es Salaam in collaboration with the Government Ministry of Education instituted a crash programme for production of teachers that the goals of self-sufficiency in the teaching force became tenable. There is however still a shortage of graduate teachers. For instance about 40 per cent of the graduate teaching staff are non-citizens (Table 2), and the situation is worse in private schools. Recent reports show that Tanzania is still recruiting expatriate teachers for Secondary School and Teacher Training Colleges for instance the Daily News of 8/10/75 reported that 160 teachers from India, Sweden, Denmark and Britain had been recruited.

It seems that the University crash programme for the production of teachers for the arts is almost over, for the annual output is either stabilising or declining (Table 3). Of the 60 per cent Tanzanian citizen graduate teachers the majority are teachers of the arts subjects. However for science subjects the output is slowly increasing (Table 3), although the rate is also a low one.

Table 2. Composition of Secondary School Teachers by Qualification and Citizenship

Year	Public Secondary School Teachers				Private Secondary School Teachers				Total Public and Private Secondary School Teachers				
	Total	Citizens (%)	% of graduate citizens among graduates	% of non-graduate citizens among non-graduates	Total	Citizens (%)	% of citizen graduates among graduates	% of non-graduate citizens among non-graduate teachers	Total	Graduates	% Graduate	Graduate citizen teachers	% Graduate citizen teachers
1962	810	17.2	2.8	68.4									
1963	786	18.8	3.1	70.8									
1964	858	16.3	5.6	70.7									
1965	1,064	26.6	8.5	74.8	72	12.5		64.3	1,136	832	73.2	66	7.9
1966	1,071	28.0	8.9	77.0	216	36.6	6.3	66.7	1,257	900	71.6	77	8.6
1967	1,228	31.3	15.5	78.9	287	38.0	16.5	64.3	1,515	927	61.2	145	15.6
1968	1,336	37.1	20.1	76.8	416	32.0	18.3	54.1	1,752	1,193	68.1	235	19.7
1969	1,497	47.0	26.9	86.3	480	30.8	13.6	62.0	1,977	1,259	63.7	298	23.7
1970	1,650	56.5	42.8	85.3	472	32.8	15.4	63.0	2,122	1,416	66.7	524	37.0
1971	1,708	63.2	51.4	87.3	499	38.5	19.4	75.1	2,201	1,471	66.8	652	44.3
1972	1,747	75.0	60.3	94.3	508	47.8	29.4	78.1	2,255	1,311	58.1	693	52.8
1973	1,668	82.3	64.3	96.3	519	51.8	29.0	89.9	2,187	1,174	53.8	689	59.7

Source: Manpower Report to the President, 1973.

Meena (1974) indicated that the situation of shortages for secondary school teachers seems to be under control although ironically the attrition rate for graduates is not precisely known and expatriates are still being recruited to fill secondary school teaching vacancies. Available estimates show that the 1972 decentralisation policy transferred 32 graduate and 53 non-graduate education personnel, the majority of them being teachers,[3] to ministries other than education.

Table 3. Number of Tanzanians Graduating asTeachers from the University of Dar es Salaam by Year, Degree and Sex†

Year	ARTS (B.A.—Ed)			SCIENCE (B.Sc.—Ed)			TOTAL
	Male	Female	Total	Male	Female	Total	Science and Arts
1967	16	9	25	0	0	0	25
1968	27	5	32	6	1	7	39
1969	52	16	68	16	1	17	85
1970	160	26	186	58	14	72	258
1971	89	27	116	70	9	79	194
1972	69	42	111	68	20	88	199
1973	72	15	87	55	12	67	154
1974	80	15	95	72	13	85	180
1975*	69	12	81	56	14	70	151
1976†	80	14	94	106	9	115	209

Source: University of Dar es Salaam, Admission Office Files.

(i) Student Admission, 1961–1969.

(ii) Student Number File, Vol. 11

*Based on 1975/76 intake which was affected by the Indirect University Entry policy as given elsewhere in this issue of *Utafiti*.

†Figures for this year are estimates based on the 1973/74 academic year enrolment as of August 31st 1973.

Enrolment into teacher training colleges has been expanding since 1961 (Table 4). However in 1970 there was a change of policy whereby enrolment of primary school leavers into teachers colleges was increased. The main reason given for the change of policy was a financial and not a pedagogical one. It is argued that it is too expensive to train and maintain a secondary school leaver trained as a teacher. However it seems that there was also political pressure to give some professional training to two groups of primary school leavers. First to those who voluntarily joined National Youth Service for two years, and second to those primary school leavers showing good work habits and promoting political consciousness in the rural areas. In terms of the pedagogical costs of the decision, it would be premature to

make precise comments on this issue. However, the cognitive and academic gap between primary school leavers who "failed" and were enrolled into Colleges of National Education and that of these who are attending primary school may be so small that these teachers might stunt the cognitive potential and growth of their pupils. This same reasoning was used in deciding to replace Grade A teachers in secondary schools by graduates and diploma holders (Table 5). It is rather ironical that the number of primary school leaver teachers (Grade C) should be increased in primary schools. A solution might be found in determining the optimum ratio of Grade C to Grade A teachers in a primary school. Conceivably Grade C teachers can act as supporting staff for Grade A teachers rather than replacing them. Since the primary school years are cognitively the most formative, it would seem that they can best be handled by Grade A teachers. The dangers of irreversible mental and emotional damage cannot be overlooked if these children are taught exclusively by Grade C teachers or their peers for that matter. These

Table 4. Teacher Training Enrolment

Year	GRADE A				GRADE C			
	First year	Second year	Total	No. of females in the total	First year	Second year	Total	No. of females in the total
1961	92	47	139	41	780	481	1,261	464
1962	86	90	176	62	753	717	1,470	525
1963	183	85	269	105	700	733	1,433	501
1964	239	182	421	150	891	705	1,596	572
1965	493	279	772	156	625	850	1,475	510
1966	706	476	1,182	258	643	619	1,262	451
1967	818	694	1,512	414	359	633	992	376
1968	1,086	787	1,873	488	150	350	500	342
1969	1,189	814	2,003	617	312	144	456	390
1970	761	1,179	1,940	660	961	866	1,822	850
1971	676	831	1,507	526	899	1,812	2,711	1,210
1972	850	809	1,659	548	1,213	1,767	2,980	1,379
1973	957	923	1,880	708	—	—	—	—
Education Officer Grade III								
1965	17		17	4				
1966	41	16	57	18				
1967	51	35	86	31				
1968	86	58	144	44				
1969	102	86	188	45				
1970	102	102	204	41				
1971	155	102	257	76				
1972	167	125	212	103				
1973	253	76	329	98				

Source: Annual Manpower Report to the President, 1972.

Table 5. Secondary School Teachers by Qualification and Citizenship

	CITIZEN					NON CITIZENS					
Year	Graduate*	Diploma	Grade A	Others	Total	Graduate	Diploma	Grade A	Others	Total	Total
1962	18	47	61	13	139	615	33	15	8	671	810
1963	19	50	55	24	148	585	28	20	5	632	856
1964	33	39	108	46	226	552	42	9	29	632	856
1965	66	30	160	27	283	708	43	11	19	781	1,064
1966	69	28	164	29	300	705	37	18	11	771	1,071
1967	119	66	162	37	384	650	45	10	16	721	1,228
1968	188	93	164	50	495	748	60	19	14	841	1,336
1969	256	203	188	56	703	694	45	7	19	765	1,497
1970	478	245	159	51	933	639	42	5	31	717	1,650
1971	589	346	102	42	1,079	558	40	7	24	629	1,708
1972	600	542	88	81	1,311	395	27	1	13	436	1,747
1973	599	594	105	75	1,373	265	17	4	9	295	—

*Note that there is a problem of reconciliation of figures on this column and those on column 13 of table 2. It seems to be a problem related to sources of statistical data or definition of "graduate" teacher but this is not stated in the source: *Manpower Report*, 1973.

pedagogical considerations might not be held in revolutionary conditions like those stipulated under the UPE directive but as long term strategy they might be very compelling. Indeed unconventional methods of training Grade C teachers for implementation of UPE should be sought but the actual operation of these teachers in a school will need more thorough planning and consideration.

It will be seen that in Table 5 the column for "others" represents mostly untrained teachers. Tanzania has a reputation for having a very high proportion of trained teachers in her teaching force but this repute might not be held any more in primary schools. Recent policy directives require application of unconventional methods of training teachers.

CAREER CHOICES AND ASPIRATIONS OF TEACHERS IN TRAINING

Teaching, notwithstanding its importance, has never been the most popular profession in the world (Waller, 1965). The Manpower Report in Tanzania (Development Plan, 1972), takes this fact into account when it points out that "whether we like it or not we must accept the fact that the teaching profession, not only in Tanzania but generally throughout the world, as yet does not enjoy parity of esteem or of salary with many other professions". This might be considered a stereotype view but some earlier studies within Tanzania tend to confirm this position. Klingelhofer (1967) asked 2,096 boys and 1,050 girls in Tanzania secondary schools and 300 primary school pupils to rank various occupations on the basis of their liking them. The full list of the occupations is in Beatie and Klitze (1967).[4] The results of that study were revealing to manpower planners. The most popular occupations were medicine and engineering which when combined monopolised 48.7 per cent of boys' first choices. Law was the next, polling 7.8 per cent of first choices, and farmer and accountant polled 6.9 and 5.2 per cent respectively, and secondary school teaching was trailing at 5.2 per cent of first choices and 6 per cent of second choices. A similar pattern of occupational choices was observed in the analysis of the female and primary school samples. For the primary school sample the results should be taken as tentative since interests at adolescent level are often likely to be temporary. They change as adolescents gain experience and knowledge whereby they discover new vocations and at times rediscover their own interests and abilities (Elkind, 1971). In any case the occupational preferences of the secondary school sample were clearly at variance with national manpower targets. For instance, the 1964/69 Five Year Development Plan (Development Plan, 1969) projected that during the plan there would be produced 350 engineers, 335 doctors and 700 graduate teachers. According to these figures the ideal situation would have been where teaching was the most popular profession.

The Klingelhofer results are similar to those independently obtained

elsewhere in Africa. Foster (1965) asked Ghana Secondary School pupils to rank various occupations according to both perceived potential prestige and monetary rewards. The results showed that doctor, lawyer, engineer, university lecturer, business, chieftainship, and authorship still dominated the top of their preferences and secondary school teaching invariably came after the above choices had been entered. In fact in Ghana medicine and law are regarded as the "great professions" because of the prestige and monetary rewards they bring in a capitalist bourgeois society. Similar results were obtained in a French-speaking country. Cliget and Foster (1966) asked Ivory Coast secondary school pupils to rank 25 occupations according to prestige and income. Results showed preferences in the following order: engineering, university professor, doctor, lawyer and then secondary school teacher.

Most of the above cited studies were done about a decade ago. In Tanzania several changes have been taking place politically, socially, ideologically and educationally. Consequently Klingelhofer's results need to be re-examined in a new perspective, using up-to-date data. Furthermore Klingelhofer asked Standard Seven and Eleven pupils to rank given occupations. It would be instructive to actually analyse the Form Six actual occupational choices at graduation and to ask University students to indicate their own occupational choices. Furthermore in 1967 there were fewer Dar es Salaam University faculties (e.g. no Engineering, Agriculture, Hydrology). The question is whether broadening occupational opportunities within Tanzania has changed students' patterns of occupational choices.

The remaining part of the present study analyses two questions, namely:

1. What were the pattern of career choices of University education students at Form 6?
2. What has been their pattern of career choices since Form 4 and what careers do they intend to ultimately join?

ANALYSIS OF DEGREE CHOICES OF UNIVERSITY EDUCATION STUDENTS

Before sitting for Form Six examinations all candidates are supplied with University materials which include a current University of Dar es Salaam Prospectus, University Entry Qualifications by Faculty and courses, general University requirements, and an application form. In the application form the student is given 14 types of degree courses being offered at the University of Dar es Salaam or other East African Universities. They are B.Sc. Hydrology; B.Sc. Education; B.Sc. General; B.Sc. Agriculture B.Sc. Forestry; B.Sc. Engineering; B.Sc. Engineering Survey; B.Sc. Veterinary; Bachelor of Commerce; B.A. General, B.A. Education; B.A. Architecture; Bachelor of Laws, and Doctor of Medicine. A candidate is asked to choose five courses according to order of preference. This same order is then transferred onto an admission card for each candidate. Such cards are stored at the University Admissions Office. This section of the study is focussed on

the degree preferences of 1973/74 First Year education students as presented in their Admissions Cards. Only those students whose cards were duly completed were analysed. Altogether there were 102 cards for arts students and 115 cards for science students, giving a total sample of 217 subjects. Not more than ten cards were incomplete. Their distribution by age and degree is shown in Table 6. The youngest student was born in 1954 and the oldest was born in 1934 giving an age range of 20 years.

Table 6. First Year Education Students (1973/74), by Age, Degree, Sex and Total

Year of Birth	Number of Subjects by Year of Birth, Degree and Sex						
	B.A. (Ed.)			B.Sc. (Ed.)			
	Male	Female	Total	Male	Female	Total	Total
Before 1950	33	0	33	18	0	18	51
1950	20	1	21	33	0	33	54
1951	16	3	19	20	3	23	42
1952	13	7	20	30	3	33	53
1953	5	4	9	5	2	7	16
1954	0	0	0	1	0	1	1
Total	87	15	102	97	8	115	217

Table 7. Pattern of Degree Choices of Education Students (Arts), the Number* of Students in Each Degree Category, and Order of Choice (N = 102)

Courses	Order of Choices and Frequencies				
	1	2	3	4	5
B.A. (Education)	54(54)	29(28)	4 (3)	1 (1)	0 (0)
B.A. (General)	23(22)	47(46)	12(11)	4(3)	0 (0)
LL.B.	18(18)	11(10)	23(22)	14(13)	0 (0)
B. Com.	7 (6)	3 (2)	21(20)	16(15)	2 (1)
B.A. (Arch. Stu.)	0 (0)	1 (1)	1 (1)	5 (4)	2 (1)
B.Sc. (Education)	0 (0)	3 (2)	5 (4)	2 (1)	1 (1)
B.Sc. (General)	0 (0)	0 (0)	0 (0)	3 (2)	1 (1)
B.Sc. (Agric.)	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)
B.Sc. (Eng. Survey)	0 (0)	0 (0)	1 (1)	0 (0)	1 (1)

*Percentages are given in parentheses.

Table 7 gives the pattern of degree choices of the arts students and the level at which education degree was preferred. Among the 102 arts students, 54 per cent of them (N=102) had education as their first choice and 28 per cent had indicated education as a second choice.[5] The number of students

making education their third or fourth or fifth choice was negligible. It seems that the students were consistent in their interests. Once one has indicated a non-education degree as first choice education was not given as a second choice. Something else was chosen. It seems that those with B.A. (Ed.) as their first choice had B.A. General as their second choice since that was the second most popular degree course followed by Law and then Bachelor of Commerce for this sample of students. The most significant finding is the data showing that the majority of potential teachers in the arts and social sciences are not a disgruntled group who chose teaching as a last alternative. They voluntarily chose education. The mass media rhetoric tending to portray the teachers as a disappointed, unmotivated lot should be examined with care. The proportion of students preferring teaching rather than doing anything else is high enough to suggest that the teaching force is composed of volunteers interested in their occupation and possibly well-motivated too. Comparable data for previous years was not available but it is unlikely that such a figure is a 1973/74 phenomena only. If any thing it might reflect an upward trend favouring the teaching profession. In a more recent study (Omari et. al., 1975) involving about 700 primary school pupils (Primary Seven) and 200 secondary schools pupils (Form 4) teaching in both samples was given as the second choice, the first being a large category of other higher professions indicating that even in a free choice type of situation teaching is fairly well placed. However the differential salaries for the arts and science teachers (Chiwanga, *Daily News*, 2/5/74) might change the whole picture. It might lower the motivation of practising arts teachers and the proportion of Form 6 leavers favouring teaching the arts.

The same analysis was performed on information for the science students (Table 8). It seems that science students have different feelings about education. Only 24 per cent (N=115) gave education as their first choice, and only eight per cent had it as a second choice. The majority of them wanted to join Engineering and failing there they would rather get into B.Sc. General than Education. This is reflected in the relatively larger percentage of subjects making B.Sc. General their second, third and fourth choices. Nevertheless the students do not often make Education their last alternative. Other popular choices were Medicine, followed by B.Sc. Agriculture and B.Sc. Survey.

For the science students (Table 8) education seems to be an unpopular occupation, for more than 75 per cent of the potential science teachers would not have been teachers if their personal preferences had been honoured, and very few had education as their second and third choices. It may be argued that the establishment of the Faculty of Engineering in 1973/74 was a novelty to the students, thus attracting the majority of them. The perceived future opportunities open to Engineering students may be greater than those in the teaching profession. However if that was the case Education would have been made a "good" second choice. In this case very few had it as the second

choice suggesting that they were clear as to what they wanted to join. Furthermore, forestry which was established at the same time was not an attractive novelty.

Table 8. Pattern of Degree Choices for Education Students (Science) and the Number* of Students in Each Degree Category and Order of Choice (N = 115)

Courses	Order of Choices and Frequencies				
	1	2	3	4	5
B.Sc. Education	28(24)	8 (7)	16(14)	9 (7)	1 (1)
B.Sc. Engineering	37(32)	18(15)	7 (6)	6 (5)	1 (1)
B.Sc. General	6 (5)	30(26)	28(24)	22(19)	3 (2)
B.Sc. Survey	10 (8)	27(23)	13(11)	9 (7)	1 (1)
B.Sc. Agriculture	12(10)	9 (7)	10 (8)	19(17)	0 (0)
B. Veterinary Sc.	2 (2)	7 (6)	10 (8)	13(11)	0 (0)
B.Sc. Foresty	0 (0)	3 (2)	1 (1)	0 (0)	0 (0)
B.A. Arch. Stud.	3 (2)	2 (2)	12(10)	12(10)	0 (0)
Medicine	15(13)	4 (4)	3 (2)	4 (4)	0 (0)
B. Com.	1 (1)	2 (2)	5 (4)	9 (7)	0 (0)
LL.B.	0 (0)	0 (0)	0 (0)	0 (0)	1 (1)
B.A. General	0 (0)	0 (0)	0 (0)	3 (2)	0 (0)
B.A. Education	0 (0)	2 (2)	2 (2)	0 (0)	0 (0)
B.A. and Econom.	0 (0)	0 (0)	0 (0)	3 (2)	0 (0)
Pharmacy	0 (0)	1 (1)	0 (0)	0 (0)	0 (0)
Biochemistry	0 (0)	0 (0)	1 (0)	0 (0)	0 (0)

*The percentages are given in parentheses.

These results are consistent with Klingelhofer's data cited earlier. In light of the great emphasis placed on science education in the Tanzanian school system the government might need to find ways of consciously, purposely, and academically guiding secondary school science students into the teaching profession. The task might be that of improving teaching conditions in the schools. More importantly, provision of good laboratories, books, and the creation of attractive and prestigious institutes of science and technology where teaching might be academically challenging may be crucial factors. The institutes could conceivably follow the pattern of the Mzumbe Institute of Development Management and Administration and The Institute of Financial Management for arts subjects. The science institutes would probably cater for brains and talents from scientific subjects and might attract potential scientists from the secondary schools. Indeed Tanzania has not overtly shown interest in honouring scientific talents. In countries putting emphasis on education related to science and technology such overt signs might be necessary incentives. This becomes even more serious in a country like Tanzania where attitudes towards mathematics and the general mathematical abilities of secondary school pupils are observed to be poor (Mmari,

1973). The issue is not one of physical expansion of facilities as currently conceived (e.g., number of science streams being expanded). More important is the creation of scientific-oriented individuals. There might be a task of resolving a contradiction between the encouragement of individual academic excellence in the sciences and the furtherance of equality but that contradiction is not a necessary one. Students showing scientific promise should receive special academic incentives by getting them into prestigious institutes and technical colleges where qualified and motivated science teachers can also work together. Such institutes should possibly be of university calibre. Higher salaries for science graduate teachers might not create an atmosphere for nurturing scientific minds. Indeed in countries where institutes of technology exist, secondary school pupils like science subjects and work hard on them (Foster 1965). Concomitantly these institutes could help to strengthen the teaching of science subjects through research and teaching. Manifestations of scientific thinking and positive altitude towards hard sciences might not depend on material incentives as currently conceived by the government and the Ministry of National Education in particular. Though too early to assess the effects of the differential salaries for arts and science teachers designed to combat the shortage of science teachers, the side effects of the decision might outweigh the intended outcomes and it is not clear yet if they will be achieved. Wober (1974) advances a notion that occupational choices might not depend primarily on material incentives and status but on perceived and actual complexity of the task that matches the complex thinking involved in scientific pursuits. Pursuing this argument it would follow that science teaching has to be made interesting to scientifically minded students by making it match current scientific achievements.

Distributions of Candidates in Different Faculties

Table 9 gives the distribution of candidates in different faculties of the University. Ordinarily students are distributed into faculties according to their first choices first, then their second and third choices. It seems that engineering is attracting the majority of the talented science candidates. Likewise law and medicine are more attractive than other occupations. Education does not seem to be very much worse off in attracting brilliant candidates when compared to other course such as B.A. General, B.Sc. General and B.Sc. Agriculture. However it seems as if in the science, agriculture and engineering will drastically reduce the number of brilliant students joining the teaching profession. Choice of a career might depend on the perceived cognitive complexity of the job and as such talented students might choose more complex occupations than the less talented ones.

The 1972 Manpower Report takes pride in the large number of Form 6 passes since there was a surplus over University entrants required by manpower plans. But the report did not analyse the quality of the passes and their distributions by occupations. Educators need to be concerned about

Table 9. Distribution of Candidates by Faculty and Level of Passes at Form 6 Examination as per 1973/74 Admissions

Degree	Combinations of Levels of Passes											
	AAA	AA	A	AAB	ABB	AB	BBB	B	Other combinations No.		Total %	
B.A. Education	0	1	5	0	0	0	0	1	11	95	84	113
B.A. General	0	1	0	0	0	0	0	2	12	190	93	205
B.Sc. Educa.	0	0	0	0	0	0	0	0	11	121	92	132
B.Sc. General	0	0	0	0	0	0	0	4	4	67	89	75
B.Sc. Eng.	2	1	3	0	0	0	5	12	15	24	39	62
B.Sc. Agricul.	0	1	2	0	0	0	0	1	8	70	85	82
Doctor of Med.	0	0	3	0	0	0	2	4	7	33	67	49
LL.B. (Law)	0	0	4	0	0	0	0	0	10	16	53	30
Total	2	4	17	0	0	0	0	24	78	628	84	748

*The minimum requirement for admission for a degree course is two passes at principal level. A Candidate of Form 6 sits for an examination in three academic subjects, and a General Paper as a subsidiary subject offered to all candidates. A principal pass is defined as getting a letter grade A,B,C,D, or E whose numerical equivalents are not rigidly fixed. Recent policy directives add to the two principal passes two more requirements (a) Employers report (b) Report from the Party (TANU) local branch.

the quality of the passes rather than the quantity of University qualifying entrants. Economists and political scientists tend to fall victims of this number trap. Normally about 50 per cent of Form 6 leavers enter University and this presents the danger of some faculties getting the best candidates while some strategic occupations should have received those candidates. Further analysis indicated that students with higher Form 6 performances now studying Education did not make Education their first choice. They were choosing Medicine, Law, Engineering and B.Sc. General. For the total sample the pattern or results gives a bimodal distribution difficulty to explain. It is not clear why higher combinations of passes were so few and unevenly placed on the performance continuum. There may be a need for another look at the setting and marking procedures for Form 6 examinations.

The Ministry of National Education (*Annual Report*, 1967) commented to the effect that the Form 6 examination results were not satisfactory, particularly in science subjects. The situation, which still persists, was attributed to lack of experienced teachers since expatriates were being replaced by new graduates from the University of Dar es Salaam. However it is always difficult to attribute poor performance of students to a single factor such as the quality of teaching. The cause might be multidimensional. The factors might include low entry academic potential of students and teachers, lack of teaching aids such as books and laboratory equipment, moral and academic laxity on the part of teachers and pupils, and lack of inspection and co-ordination of educational innovations. All these factors might have been operative in Tanzania. The last factor is sometimes overlooked but it is serious in a situation like that of Tanzania where educational innovations have been taking place in bits (at best sectorally) as if education was composed of independent building blocks. Indeed one cannot change one sector of the educational system (e.g. primary) without effecting all other types and tiers of the education system. There have to be co-ordinated and coherent strategies for educational changes. Considering the total educational system would lead one to suggest that if indeed education students, especially in science are not the best candidates, then the output of teachers is not likely to be the best and secondary school product will in turn be affected and the vicious circle continues.

Career Preferences by Age and Sex

Analysis of the students' career choices by age groups (Table 6) indicated that in Arts more of the older students, (those born before or in 1950 and 1951) wanted to become teachers as compared to the younger students. For instance, 55 and 56 per cent of the 1950, 1951 male age groups respectively, chose education as their preferred first career as compared to only 36 and 20 per cent of the 1952 and 1953 male age groups. The trend was the same for the female students. For the male sample, those born before 1950 (that is older than 24 years of age), the majority of whom were mature age

entrants, more than 85 per cent had education as their first choice. At least for arts students it would seem that the older students see teaching as a responsible job that demands the mature attitudes obtaining at their age. Alternatively older students perceive their career opportunities elsewhere as diminishing so the best alternative available remains education. Concomitantly they are realistic in assessments of national needs and occupational choices. The picture for science students is different. Slightly more younger students chose education as the preferred career than older students. Possibly the older ones see brighter opportunities in factories and industries than younger ones but this is definitely an extreme form of speculation.

When preferences for education as a career are analysed by sex it seems that for arts students both sexes equally like education as a career (56 per cent males and 53 per cent females had education as their first choice). This data suggests that teaching at secondary school level for arts subjects is not perceived as a feminine occupation as in the western cultures (Lee, 1973). For science students the results were different. About 43 per cent of the females wanted teaching as their first choice as compared to only 23 per cent of the boys. Speculatively, boys perceived and preferred the more masculine careers such as engineering, survey and architecture while girls reading science especially biology and chemistry where they have made significant inroads, perceive teaching as their best possible alternative, especially those looking forward to marriage for teaching is never a hinderance to family life.

Educational Level and Choice to Become a Teacher

When a random sample of 112 university first year education students (1973/74) were asked to indicate the pattern of their career choices at different educational levels (Forms 4 and 6), teaching seemed to fall low in the hierarchy of career preferences (Table 10). At Form 4 only 17 subjects out of 112 made teaching their first career choice. Forty-six subjects did not choose education at all. At Form 6 level only 10 said they had education as their preferred career; forty-five of them did not choose education at all. However the majority of the students at both levels who chose education at all had education as their second choice. It must be remembered that these responses represent retrospective guesses. Some of the students might not have made the responses they think they had made. What is crucial, however, is their current feelings about their historical positions regarding their current career realities. But when the subjects were asked about their perceived final career, over 85 per cent of them thought that they will end up as teachers. This might mean that the subjects have changed their orientations but it is more likely that they are being realistic about future occupational mobility. Data on voluntary resignations of graduate teachers are not easily available but the rate is likely to be insignificant in a society where the private sector is very small and diminishing and trends

in Tables 2 and 5 are alarming, at least for citizen graduates. However official transfers from teaching to other jobs may be high. Private secondary schools are attractive but such a choice might not be politically and ideologically sound so a majority of teachers might refrain from crossing over. How much they like teaching and how much work they are prepared to put in for professional excellence will ultimately determine the quality of the secondary school products.

Table 10. The Frequency and Level at which Teaching was Chosen as a Career at Form 4 and 6

N = 112 (18 Females, 94 Males)

Educational Level	1st Choice	2nd Choice	3rd Choice	4th Choice	Not Choosing Teaching
	Levels of Choices				
Form 4	17	25	13	11	46
Form 6	10	35	9	13	45

It should be observed that this analysis of retrospective guesses give a pattern of career preferences at variance with that obtained from the admission cards. This might suggest that either their occupational interests are not stable yet, or they did not like to risk too much in the admission cards for they might not have obtained a University place if they said otherwise.

DISCUSSION

It seems that the expansion of the educational programmes and facilities is not accompanied by similar changes in interests and aspirations among those entrusted with the responsibility of teaching in the secondary schools. There has been expansion in the enrolment of both secondary school and teacher training students. However the potential teachers do not often voluntarily choose teaching as their preferred career, especially in the sciences. Thus it seems that the system of tied bursaries for students joining the University will have to be maintained for some time. Students will be directed to study subjects, including education, according to the dictates of national manpower requirements rather than their own individual career preferences.

For the arts students the government might soon be able to relax the enforcement of tied bursaries regulation since very soon there might be enough candidates voluntarily opting to take teaching as a career. For science students the system of tied bursaries is likely to operate for a long time to come since less than 25 per cent of potential science teachers

voluntarily want secondary school teaching as a career. But even with the system of tied bursaries teaching is likely to receive poor science students since the talented ones might opt to join parastatals where they get sponsorship to study subjects of their liking abroad or even at the University of Dar es Salaam. Furthermore departments in the Faculties of Engineering, Agriculture, Medicine, Forestry and Hydrology are likely to be better competitors in the enticement and recruitment of brilliant science students. On the other hand brilliant students do not often opt for teaching as a career. This was also observed in West Africa where Cliget and Foster (1966) observed that secondary school teaching was mainly attractive to children of unschooled parents, or the less talented, or less acculturated individuals. Consequently the teaching of science is likely to suffer from either mediocrity, or ill-motivation of practising teachers. There might be an urgent need for the development of academic incentives for scientific fields (e.g., priority bursaries to brilliant individuals opting for science teaching). The truth of the matter is that ultimately it is the hard-working intelligent teacher who produces brilliant pupils. Similarly brilliant students make good teachers. Differential salaries for arts and science teachers might just divide the teaching force into antagonistic groups without attracting science students to the teaching profession since other scientific pursuits are still better rewarded than science teaching.

On the other hand income seems to be attractive to young people aspiring for a job. Some studies have focussed on students' perceptions of the function of education and tried to relate these perceptions to future occupations. Cliget and Foster (1966) asked Ivory Coast Secondary School students to mention according to order of importance to themselves the three main reasons why they were in school. The students characteristically mentioned the following reasons: (a) obtain an interesting position in future; (b) acquire a good income after graduation; (c) to exert power and leadership in future jobs. It seems that the above three functions of education can be reduced to a single one in bourgeois societies and that is high income. As Foster (1965) commented, "whatever the putative benefits of education, there is little doubt that people are more likely to be impressed by its tangible rewards". This is a characteristically bourgeois and egoistic view of the nature of human motives. On the whole one may wonder if individuals can value education as an end by itself. This is a possibility in countries where there is a small elite group monopolising power and wealth. Such a group can afford to have education as a luxury. The alternative view that seems to be fascinating to the Tanzanian leadership is that individuals should value the tangible rewards of education but that the rewards should be primarily those accruing to the collective or nation rather than the individual. This being the case, the apparently universally accepted egoistic tendency, that is, to see education as a means of individual rather than societal elevation, should be consciously suppressed through well-designed educative

processes. This might be a difficult task but might be consistent with socialism. Emphasis on more money might be a contradiction. Reward systems have to be structured differently so as to capitalise on moral rather than material incentives. Tanzania can learn a lot from Cuba in this respect (Lago, 1972).

The aspirations of people in school and their perceptions of their potential role in a given society are in part related to what the society has been either promising or offering them. If the students are constantly told that they are leaders and the brains of the nation tomorrow they will surely want more academic preparations hence academic ambitions, and they will want to enter occupations promising fast advancement into most paying or crucial (to them or the country) occupational positions. This might even be so in a place where private business or employment agencies cannot offer independent avenues for social and occupational mobility. In such places education may become the most available route for vertical mobility. In such conditions, for education to be perceived as a means of national rather than individual elevation there may be a need for both ideological and material incentives that will convince individuals or groups of individuals that occupations falling within national priorities are both crucial and advantageous to them and the nation. More importantly there should be deliberate guidance efforts to direct individuals to the national manpower priorities. The process of guidance should make students capable of making realistic choices especially in the setting of career goals. It should make them able to work purposefully towards the achievement of goals; to help them feel confident about themselves, and make them convinced about the supremacy of societal goals over egoistic choices (Cote 1972, Durojaiye, 1972, Klingelhofer 1967). That is to say students should be made able to evaluate their abilities in relationship with national occupational realities. They should not choose courses for which they have limited academic potential and should appreciate national aspirations.

This process of guidance might reduce the problem of forcing individuals into occupations they never chose. The 1972 Manpower Report observed that of the 350 University graduates in 1972, only 48 per cent were placed in one of their five occupational choices. Thus 52 per cent of graduates were placed in occupations in which they never indicated any interest. The report recommends that for better results the students should be placed in places they would like to work. However this is impossible unless there is proper educational and occupational guidance prior to training of individuals. The Ministry of Education and various employment agencies may have to cooperate in the development of comprehensive guidance procedures for the country. Dependency on indirect methods such as tied bursaries might not help students internalise and appreciate the societal goals and priorities. To guide is to work on the political cognitions of students rather than

slotting them into occupations before they have cognitively reconciled individual interests with societal priorities. Guidance services will be greatly needed in the new system of diversified secondary education where each pupil is expected to belong to one occupational bias i.e., agricultural, commercial, technical, and domestic science. In a recent study (Omari, 1975) it was observed that among about 2,000 primary 6 and 7 pupils asked to indicate their preferences for the given biases only about 74 pupils showed interest in the commercial stream as compared to 364 for agriculture, 283 for domestic science and 373 for technical education. This low interest in commercial subjects might reflect either ignorance about what commercial opportunities are in Tanzania or actual negative attitudes towards commercial subjects. However the co-operatives will definitely need people with commercial subjects and guidance processes could help orientate pupils towards such opportunities and their importance. For the diversification process to work well there is need for structurisation of the kinds of jobs and future educational opportunities available in each bias. This will facilitate better manpower planning and such information would help students make better occupational choices. Indeed Tanzania has lagged behind in the development of guidance and counselling services. However, maybe a country undergoing rapid social political and economic transformations cannot afford the risk of letting her students float in a vacuum without political and educational guidance aimed at occupational choices and their stabilisation.

FOOTNOTES

1. Selection Formula: $A = \frac{B \times D}{C}$

   Where A = Regional Quota
   B = of Std. 7 streams in the Region
   C = of Std. 7 streams in Tanzania Mainland
   D = Form 1 vacancies in Tanzania Mainland

2. Source: Ministry of National Education, Personnel Administration.
3. The exact official school fees for private secondary schools are: Boarding, 2,000 shillings and day, 1,300 shillings per year. Given in *Tanzania Educational Journal, Vol. 10*, (1975), p. 27.
4. The list of occupations to be ranked included: accountant, airline steward, barber, carpenter, office clerk, doctor, dressmaker, engineer, factory supervisor, factory worker, housewife, labourer, lawyer, modern farmer, motor mechanic, nurse, officer-defence forces, policeman/woman, primary schoolteacher, politician, radio announcer, secondary schoolteacher, secretary, shop salesman, traditional farmer and university teacher.
5. No candidate indicated the same degree course as his first and second choice. Possibly first choices were inflated by mature age entrants the majority of whom are teachers, thus already choosing teaching automatically.

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