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Girls Opting for Science Streams in Benin: Self-Renunciation or Discrimination in the Educational System?

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Introduction

Discrimination on the basis of gender exists in every activity throughout the world. Social conflicts over equality between women and men increasingly typify our era. In sub-Saharan Africa in general, and in Benin in particular, the percentage of women engaged in the fields of physics, mathematics and new technologies is negligible. There is hardly a trace of women in areas of advanced specialisation. This is a global phenomenon to such an extent that many people follow *Dhavernas-Levy*, a philosopher at the Centre national de la recherche scientifique (CNRS) in Paris, in asking 'Does science have a sex?' This question leads to two further questions: what exactly is science, and what are the power relationships that exist within our society that maintain science as a male preserve?

In Benin, the absence of women in scientific fields reflects a real social problem that extends far beyond a question of principle. It is an important social and economic issue in a world where the pace of technological change is extremely rapid. Too many people are excluded from the process of taking major decisions about future objectives, most of all women. In successive educational policies, unequal access to scientific education, based on sex, has been criticised as being responsible for keeping women confined to inferior social levels, but the various educational systems adopted in recent decades have not been able to develop any real strategies for democratising knowledge and sharing control of science and technology with women.

One of the principal consequences of this failure is that there are whole scientific and technological areas completely controlled by men. In Benin today, for example, the fields of surgery, higher mathematics, chemistry and physics lie completely outside the control of women, even elite women. In the scientific fields where women are present, they are completely submerged by a tidal wave of men, and they find it very hard to have any counter-balancing part in decision-making.

This chapter presents a critical analysis of the impact that educational policies for the education of girls in Benin have had in steering female students into scientific subjects at secondary and university levels. To some extent, we will be drawn into making analytical reflections on the socio-anthropological factors that influence the selection of scientific subjects at school and university.

Historical Background: A Succession of Educational Systems

There have been three major stages of educational policy in Benin. The first was the educational policy from 1960 to 1975 based on the French colonial system. This policy excelled in producing discriminatory models of the backward-looking attitudes and passivity of Benin society under the colonial system. The result was that 95 percent of the educated elite that emerged from this policy were male. The 'New School' *(Ecole nouvelle)* policy followed from 1975 to 1990. This had the virtue of aiming to democratise access to knowledge by encouraging a huge increase in mass education, but it included no particular policy for promoting gender equity. The policy was based on the then-prevailing Marxist-Leninist ideology and focused on equality of opportunity for the children of the poor. The third stage of educational policy in Benin, in progress since the General Educational Assembly (*Etats généraux de l'Education)* in 1990, is based on the concept of Basic Quality Education *(l'Ecole de qualité fondamentale)*. This new policy is targeted specifically at resolving the problems of inequality between the sexes over access to primary education. One of the steps taken (in 1992) to encourage parents to send their female children to school was the exemption of girls from school fees in state nursery and primary schools. Neither the mass equality system promoted by 1975-1990 policy nor the current policy of encouraging the entry of girls into primary schools made any changes to promote gender balance in scientific streams. Recent statistics continue to show imbalances in the educational system in Benin, and girls continue to opt out of science streams in secondary education and at university.

Lack of appreciation of the consequences of gender imbalance in Benin has affected the economic development of the country. The table below gives an eloquent indication of the imbalances to be seen between the two sexes in the fields of economic and political decision-making in the country.

Indeed, Table 1 reveals some deterioration in the level of women's participation in the economic and political life of the country. This is a reflection of the persistence of sexist traditions in present-day African systems for managing human development. The differences are not only due to the dichotomy connected to the levels

of children in primary and junior secondary education, but can also be explained by the parameters of the educational system, which

Table 1: Gender in Economic and Political Professions

	Administrators and other senior officers		Technicians and the liberal professionals		Political power holders	
	Men %	Women%	Men%	Women%	Men%	Women%
Economic decision-making	94	6	83.2	16.8		
Representation in parliament					1990:96	1990:4.5
					1993:93	1993:6
					2000:94	2000:6

Source: Fieldwork.

leads to the choices of options made by the few girls who are ready to defy all kinds of constraints in order to make themselves useful to the nation at the end of their schooling. In sum, an analysis of the imbalances in the system due to sex can be grouped into two basic causes:

- the educational structure and all its component parts (pedagogy, parents and the extent of maternal control, teachers, educational policy, etc.)
- the intrinsic behaviour of the female individuals who abandon hard sciences, in spite of the equal biological potential of males and females, due to discriminatory models and presentations.

Dysfunctional Aspects of Classical and Disaggregated Systems of Guidance

Children's decisions to follow certain streams of study are determined by many different parameters, including the system for providing guidance, the role of parents, the educational establishment, the teachers and the labour market. These different elements rarely work in isolation. They involve interactions that are both complementary and antagonistic.

A diagnostic analysis in this research of the system of guidance of pupils at school, when they move from junior to senior level, with regard to the parameters referred to above, suggests to us that there are several dysfunctional aspects:

- guidance methods
- parents and families
- schools
- teachers
- the labour market.

Guidance Methods

Various discussions with the managers of the Benin educational system show that the process for guiding pupils between the first cycle and the second cycle of the secondary level (the first time the student is faced with a choice of streams to follow at school) is set up according to mechanical considerations, which reveal some basic determining factors. In 90 percent of cases, the determining factor was provided by the notes and comments in school reports that influenced the choices made by the teachers' council.

The guidance given at school on the choice of subjects is a peculiarly complicated matter, since its main objective is to reconcile the development of individual ability with the needs of society. It should not simply depend on one or more specialists – however expert they may be – but should take into account various influences on the student. Also, since these influences are varied and subject to constant change, it is essential that before any decision is taken on choice of subjects for future study, these influences, including extra-curricular ones, should be fully considered. Among these extra-curricular influences, the one that seems to us to be absolutely basic and needs to be taken seriously into account, because of the preponderant role it has on subject choice, is the role of parents and families.

Parents and Families

Parents play a vital role in the choices their children make. The child's first contact with society is not at school, but in the family. Every family can be compared to a matrix whose form serves as a model for the child. In other words, it is the parents who, through the upbringing they give their children, provide guidance according to their own wishes and hopes. In Benin, the views of parents are rarely taken into account in the process that leads to the choice of stream to be followed by girls. Of the parents we interviewed, only 2 percent felt their views had been taken into account, despite the fact that 90 percent of parents expressed a preference about the future careers of their children. In most cases, parents who were illiterate were marginalised and listened very passively to the results that were determined by the iron rule of the notes in the school reports.

Schools

The main criterion in schools in Benin is formed by the collection of a dossier of notes based on examination results, to the exclusion of any acknowledgement of the innate abilities of pupils, which cannot be measured in this way. The role of the school in guiding the choices of pupils at the end of the first cycle of secondary level education should not be confined to setting out periodic school reports, on the basis of which the future of the pupils are decided. Otherwise, apart from a handful of the brightest pupils, who could tackle anything, the children are generally committed to a future that they can only work out slowly and with many hesitations,

after a series of successes and failures at school, and by the chance results of examinations and competitions. The role of the schools in helping children to make their choices at the end of the first cycle of secondary education ought to consist much more of concerted actions, first, among the teachers and then between the management of the school and the parents.

Teachers

The traditional system followed in Benin involves head teachers consulting the average marks recorded in school reports and assuming they are then capable of making valid decisions on the future courses of study for their pupils. This system is outmoded, as the reports do not always properly reflect pupils' aptitudes, and even less any sexually specific aptitudes. In those cases where the views of other teachers are taken into account, their views are generally based on the outlines laid down by the authorities, and these outlines do not take gender into account. Indeed, what they contain is really very limited, as regards any analysis of aptitudes that may be gender-based; they are confined to such static descriptions as 'inadequate', 'acceptable', 'satisfactory', 'good', 'very good', etc. This traditional system does not allow us to draw up a profile of the academic development of pupils, whether boys or girls, in the light of the constraints they experience in the school and community environments.

For example, boys at school can quickly become adept in mathematical exercises on probability, often based on drawing cards out of the hat or on games of chance, because, in our societies, it is the boys who have the most time to amuse themselves with such games. The same thing applies to exercises in the physical sciences, which largely concern objects in motion, and which are more readily understood by those who play football, traditionally boys.

Over and above the issue of selection procedures, there is a need for teachers to encourage a sense of motivation among their students. It is this that determines their own approach (both moral and pedagogical) to helping them discern pupils' aptitudes with a view to developing and strengthening them. However, according to Robert Brechon (1970), 'aptitude is not the essential qualification for a particular stream of studies or for a career; it is rather a treasure or a deposit that needs to be exploited'. The exploitation of this deposit requires a different person in the form of a careers guidance adviser, whose function is to provide the pupils with information about each area of study, the state of the labour market and the directions that need to be followed, including those that may be risky, for each stream of studies.

The Labour Market

In Benin, as in many developing countries, the state of the labour market has a big influence on any attempt to guide the direction of pupils' studies. Nevertheless, taking this factor into account – and it is clearly the most important one involved – can make it difficult, if not openly embarrassing, to promote initiatives to guide student choice. Many girls in Benin have learned the truth of the saying

that 'in today's world, it isn't enough to have good degrees; the main thing is to have a job'. This explains all the various short cuts that characterise the choice of curriculum to the detriment of hard subjects, which lead inevitably to long courses of study and carry the risk of having to repeat a year's schooling *('redoublement')*. However, as Brechon (1970) argues, '[i]f you take account only of the job opportunities, you sacrifice the individual not only to the community or to the state, but to the economy…You alienate people.' Unfortunately, the labour market remains the key indicator of family pressure concerning the choices made by girls.

Our diagnostic analysis of the process of making choices for stundets shows that the current arrangement is not only defective in the means of appraisal, according to gender, but is incoherent and lacks any interaction between those concerned —the pupils, the teachers, the administration, the parents, the community, etc. One cannot demonstrate this in a better way than by case studies, which allow us to follow the behaviour of girls when confronted with scientific subjects, such as mathematics.

Girls and Science Teaching in Benin: The Case of Mathematics

To understand girls' behaviour more clearly as regards scientific subjects, we decided to use a comparative analysis of national statistics of pupils of both sexes in scientific and literary streams. This was followed up by a survey of a sample of students and teachers in four colleges in the towns of Porto Novo and Cotonou.

The figures in Table 2 enable us to conclude that the science streams in Benin remain the preferred area for boys. This shows the weakness of the educational policies designed to promote gender equality in access to scientific courses. The statistics in the table lead to the following conclusions. In the first cycle of secondary education (from the 6th class to the 3rd), the division between the sexes follows the average of about one girl for every two boys over the five-year period. In the second cycle, the ratio widens to about one girl for every five boys in the science stream, as against one girl for every three boys in the literary streams. From this analysis, it is clear that the imbalance in the science streams is not simply the result of the imbalance linked to the overall number of children of both sexes who are at school. If this were the case, then the difference between the two sexes in the second scientific cycle would have been similar to the difference noted at the level of the first cycle. It follows, therefore, that a considerable number of girls who have completed the first cycle then turn to non-scientific streams.

To demonstrate this phenomenon more clearly, we analysed the specific case of mathematics, which provides the best indicator of the interest that girls show in scientific subjects in general. In practice, not many girls in our colleges and *lycées* opt for science courses, in which mathematics predominates, compared with the number of boys who do so. Those girls who do opt for mathematics do not often achieve good grades.

Table 2: Gender in Science Options in Secondary Schools in Benin (1998 to 2002)

Years		1998	1999	2000	2001	2002
First Cycle						
(Grades 6 – 3)	M	89,965	99,457	108,461	118,433	135,814
	F	39,324	42,845	46,899	52,893	61,814
	T	129,289	142,302	155,360	171,326	196,628
Second Cycle (Literary)						
(Series A and B)	M	3,326	3,342	3,604	3,989	4,324
	F	1,215	1,138	1,194	1,304	1,450
	T	4,541	4,480	4,798	5,293	5,774
Second Cycle (Scientific)						
(Series C and D)	M	15,320	16,580	19,153	2 1,052 2	3,328
	F	3,411	3,834	4,405	4,818	5,619
	T	22,142	20,414	23,558	25,870	28,947

Source: Statistics in the Annual Reports (1998–2002) of the Ministry of National Education.

We carried out surveys by means of samples (pupils, teachers and parents) chosen from four colleges of general education (*collèges d'enseignement général)* at Cotonou (CEG Sègbèya and Ste Rita) and at Porto Novo (Lycée Behanzin and CEG Davié). The surveys were conducted by consulting the head teachers about the pupils on their reports from certain classes in the first and second cycles, by administering questionnaires to the pupils themselves that were designed to reveal the main difficulties encountered in mathematics, by talking with some of the mathematics teachers, so as better to understand the poor results shown by girls in this discipline, and finally by interviewing some of the parents in order to get their views on the direction their daughters were following as well as to estimate the importance of parental influence.

These enquiries enabled us to carry out analyses of the various results that were obtained and to understand the reasons that lay behind the poor results. Table 3 below shows the results from following up a group of students from the Sixth Class to the Third Class in the centres where the survey was conducted. It mainly gives information obtained from the head teachers on the reports on the same group of students over a period of four years at the various levels of the first cycle. This table gives the different results for girls and boys in mathematics.

In Table 3, although the percentage of boys obtaining at least an average mark in mathematics was usually higher than that for girls, we can say that the girls worked as well as the boys in the earlier years. We can see, therefore, that girls can work as well as boys, and even better than them, since in the Third Class of the group being

followed, 26.82 percent of boys obtained an average mark, while 28.27 percent of girls did so.

Table 3: Gender in Mathematics Among Students in 4 CEGS in Cotonou and Porto Novo

	Percentage by Sex with an Average Mark in Mathematics	
	Boys	Girls
6th Class	78	59.09
5th Class	44.73	32.51
4th Class	13.51	9.33
3rd Class	26.82	28.27

Source: Fieldwork.

These results demonstrate that, at the start, there is no proof of innate differences between the female and the male brain. It is therefore paradoxical to see how this initial equality of performance breaks down even further during the second cycle, as shown in the results of Table 4 below.

Table 4: Gender in Mathematics from the Second to the Final Class (Series C and D) in Cotonou and Porto Novo

	Percentage by Sex with an Average Mark in Mathematics	
	Boys	Girls
2nd Class (scientific)	45	29.09
1st Class (scientific)	28.73	8.51
Final Class (scientific)	13.51	3.33

Source: Fieldwork.

It is worth remarking that these performances are characteristic of urban centres, where the educational infrastructure and the availability of qualified teachers contribute to a reduction of inequality. Other comparable studies, which included colleges from rural areas, produced far worse results for girls, but still showed a better performance by girls during the first cycle than the second.

We note from Table 4 that the performance of girls are invariably worse than that of boys. In the course of the survey, we came across whole classes in which not a single girl achieved an average mark in mathematics during the first half year. When those involved were asked for the reasons for this poor performance, they gave many different answers and provided cause for some serious reflection. Thirty percent of the girls thought their poor performance was connected to the attitude of their teachers (the quality of the teaching, sexual harassment, getting behind because of strikes, etc.) Another 30 percent thought it was linked to lack of time, because the pressure of domestic responsibilities cut down the time available for

their homework. Only 10 percent of the girls accepted that their poor performance was due to their own idleness and that they could have done better.

The analyses above show that, to start with, girls have as much aptitude for mathematics as boys. In the classes of the first cycle (see Table 3), the differences between them are not significant. When talking to the girls, the boys and their teachers, it was wholly accepted that girls were no less gifted at mathematics than boys and had the same aptitude for study as boys. In order to establish clearly what were the reasons for their poor performance later on, we have to observe closely all the activities of the girl students within the circle of the family and in the town, as well as at school.

The Family

Within the family circle, the girl suffers from the traditional concepts that parents have of girls. It can be seen all too frequently that her domestic duties get in the way of her homework. Domestic duties compete for her time with study and revision at home. The moment she gets back home, she starts on domestic tasks, and as she gets tired, she gives less and less time to her school homework, particularly to mathematics, which needs great concentration.

In some families, when times are hard, girls are neglected, and preference is given to the boys. The family income sometimes cannot support keeping all children at school. Priority is then given to the needs of the boy(s). And for some parents, the main duty of girls is to get a husband and produce children. This confirms the analysis of Claude Salvy and Judith Paley (1969) that parents tend to 'put the professional career of boys before that of girls…For girls, you still hear all too often the good old cry, You'll get married'.

Relationships with Boys

Academic problems are not the only kind of problems that reduce girls' motivation to pursue scientific subjects. At school, most boys prefer to work without girls, because they don't think the girls are prepared to put forth enough effort, particularly in mathematics, a subject where plenty of concentration and steady willingness to work is regarded as essential. Even when the girls are ready to work, the timetable for group studies disadvantages them, since the girl also has to include domestic duties among the work she has to do.

Attitude of Teachers

A different problem can sometimes lead to poor academic performance among girls. This is the attitude of some mathematics and physics teachers, who benefit from their positions to divert girls from their school work by practices that have little to do with education, such as threatening girls with poor reports, if they do not provide them with sexual favours, regarding the role of a teacher as simply a means of making a living, without attaching any particular importance to it, showing little interest in how well pupils do or in ways and means that could encourage pupils to

do better work and underestimating the special problems girls face because of gender inequality. Teachers cannot play their full role unless they seek to be aware of the conditions that would help pupils to show interest in their studies as well as those conditions that reduce pupils' motivation.

The Academic Programme

In a work devoted to the cultural aspects of science, Pierre Thuillier (1988) notes that 'vocabulary that gives preference to males enjoys a wide circulation throughout university libraries, in textbooks and in works of popularisation'. The language of textbooks promotes the myth of mathematics as a 'hard' subject, in contrast to perceptions of sweetness and light that are supposed to characterise symbols of femininity.

The Choice of Science Subjects and the Problematic of Gender: Reflections on a Policy of Equity

The well-known theme of 'innate differences' still makes its way into public discussions (even some women hide behind this argument) and into some popular scientific reviews. However, as Catherine Vidal, a neurobiologist and laboratory head at the Pasteur Institute points out, 'there is no scientific proof that can show any innate differences between male and female brains'. Some tests do show differences such as a greater aptitude of boys for spatial coordination, but one can still argue that these are acquired differences. Perhaps, for example, they are due to playing more outdoor games. Sometimes the arguments about hormones are put forward, but no one has ever been able to prove that these make boys more clever and girls more stupid.

How, then, can one explain the results at the end of the 3rd Class that indicate only slight differences between girls and boys in mathematics, and the later results that show such a striking difference? This is the question posed by Christian Baudelot and Roger Establet (1991), after a fascinating survey of schools. There is no simple answer, they argue, since so many factors are involved, many of them subtle ones, that promote inequalities. An analysis of academic results of girls and boys shows that they have the same results in mathematics as long as they have not yet opted for a particular branch of study. When girls opt for the science stream, the figures show that they perform well here and that many girls are wrongly guided towards a literary stream after a purely mechanical judgment of their aptitudes. It does seem that girls have a less clear vision of what the goal of their studies should be. They claim more often than boys to have chosen the direction of their studies according to their personal preferences and not on the grounds of their professional future. They show themselves to be less certain of themselves when they are confronted with mathematics. Where they are of equal ability in the Third Class, a girl will hesitate before choosing to follow a science stream, while a boy has less fear of being able to cope with the difficulties, because of the need for him to justify what is regarded in our societies as his male bravado. The boy can redo an academic year

a second time without feeling that this is any problem for him, since he does not experience as much pressure from the community as a girl, who is faced with the problem of early marriage. Aware of having to take up their responsibilities of motherhood at an early age, girls prudently refrain from engaging in scientific 'adventure' and are more concerned to become useful as soon as possible in their active life. It is this difference, linked to the early start of motherhood, that explains why girls choose the streams that need less training, such as management assistant, office worker, middle-ranking technician, nurse, midwife, teacher, etc.

It is generally true in Benin that girls are naturally excused for not doing well. They join in general discussions less, and they readily resign themselves to self-effacement, but this should not justify the tendency of girls to give up the idea of scientific training. The main lesson of our study is the necessity of overcoming these prejudices in order to develop educational policies that bring together all the aspects we have been reviewing (which have nothing to do with innate characteristics) and that are indispensable for carrying out any process of guidance that would promote sexual equality.

The Role of Teachers

Schools, which should by their nature be neutral, give a highly gender-biased image of mathematics, but teachers are mostly unconscious of this. Many Anglo-American researchers have been trying for several years to determine the factors, normally hidden and invisible, that bring on the biases. With the help of tools such as hidden cameras, they have found that both men and women teachers have a tendency to exploit rivalries between girls and boys in the way they run their classes, and that they expect each group to conform to sexual stereotypes. The science teacher thus gives more of his time to boys. The textbooks, along with the problems to be solved, normally talk of matters of masculine interest. The girls are not asked many questions, and when they are questioned, they are often interrupted. The teachers tend to congratulate the girls on their good behaviour or the neatness of their work, but the boys for the accuracy of their reasoning. Marie Duru Bellat (1995) calls these biases the 'hidden curriculum'. The results of our enquiries confirm the reported biases. The prejudices of the teachers merit being corrected. Teaching involves communicating knowledge by means of given activities, and this communication should not be distorted by discrimination of any kind, and even less by any prejudice emanating from those who are conducting these activities.

In addition, children who come from disadvantaged socio-economic conditions do not usually get any special attention from the teacher, whereas children from middle-class backgrounds benefit from the support and encouragement of their parents at home, which in turn encourages the admiration and motivation of their teachers. The worst of all these situations is when prejudice takes the form of sexual discrimination. Some teachers start from the position that their girl students want to make as little effort as possible. This was very clear among some who took part in our study; girls were regarded as a weaker sex who should be spared such

hard subjects as physics and mathematics. None of the teachers involved in the review admitted to such prejudices, but these prejudices are subtle and not easy to detect. They are propagated mainly through internalised socio-traditional practices, and the most effective way of eliminating them would be through re-training sessions on how to promote gender-sensitive discussions in such a way as to ensure equity between the sexes. At the same time, it should be noted that the teaching body faces material problems. The huge numbers of children, the low numbers of teachers and the lack of infrastructure in the schools are serious factors that are outside their control and that sap the energy that could be devoted to a system of pedagogy that respects the equality of the sexes.

The Role of Parents

Do girls unconsciously conform to the expectations of their future employers or more to those of their parents? When asked about their preferences for their children's future, 70 percent of parents said that they would like their sons to take up a scientific career, but only 45 percent said the same for their daughters (*Revue Monde Diplomatique* 1997). Parental decisions greatly influence the direction that daughters take at school. Many boys decide to join a mathematical stream, even when they have only a slight aptitude for mathematics, while this was almost a hypothetical choice for girls. According to Catherine Marie (1992, 1996), young men are systematically propelled by those around them to take up scientific courses and stick to them, even to the point of repeating a year, if necessary, in order to achieve their goals. Girls do not enjoy such support and tend to underestimate their abilities in science when they have to decide which stream to follow.

The impact of the family has a complex influence on the choice of streams. The cases we studied are very varied, and choices are based on various arguments, such as opportunities in the labour market, the security of the family, the differences in jobs among members of the same family and the model provided by one of the parents. Only 22 percent of the girls covered by our research in science classes (C and D) had parents whose careers had any connections with science and technology. Forty percent of the girls had parents following occupations with only a little connection with science and technology. In general, the survey showed that girls' ambitions to carry on their studies to university and post-university levels had a correlation with the level of education and the socio-economic levels of their parents. Only 35 percent of girls with working-class or lower-middle-class parents expected to finish their education at the topmost class in school. Nevertheless, the choice of scientific courses was not entirely governed by the presence in the family of a relation who was an engineer, doctor, mathematician, etc. A significant proportion of girls (20 percent) had no one in their family who had a scientific profession, but it should be added that in most of these cases, their families were engaged in business and their socioeconomic level ensured a good background for their children to be successful at school. Although our research confirms the influence of the family unit in determining whether daughters decided to follow a science stream, the com-

plex means by which this decision was taken obliges us to add that the process is the result of an integration of several lines of influence, rather than simply the parental model.

Some parents require their children to choose the science stream, following the pattern of a parent. One said:

> The choice of stream is an awkward problem for us parents who are concerned over the future of our children. I could see that my daughter was interested in literature. But nowadays, everyone agrees that the world has moved on and that everything depends on science. Everyone has got to take into account that to be able to have a good career, you have got to study scientific subjects. That is why, in spite of her potential for literature, I made her choose the D Series.

In this case, the girl was not interested in the science stream, even though her father was a doctor.

Many families dream of having different specialties among their children. Thus, some girls chose the science streams because their parents do *not* want them to take up the same career as themselves or because one of their brothers chose the literary stream. This means that, even if children have the same aptitudes, they are not allowed to develop in the same way. The need to protect the family by having within it a diversity of professions can also influence family decisions.

Some girls choose to follow science streams when their mother, or some other relation, is in a scientific profession. In theory, this is what one might generally expect to happen, but it is not very common, and sometimes it operates against the choice of science streams. Many girls who opt for literary streams do so in imitation of members of the family who are lawyers, magistrates, writers or teachers, in spite of their own scientific talents. Some parents, it must be said, are not interested in the process by which their children opt for one stream or another. For them, the main point is to choose options that will allow their children to find jobs quickly, so that they can become independent and stop being a burden on the parents. These parents do not encourage their children to opt for subjects that call for a long period of study, whether scientific or not.

Finally, some girls say their choice was not influenced by any outside pressure whatsoever, but was freely based on the results of their own performance. Paradoxically, it often happens that girls who have followed science streams at school choose to study law, languages or economics (to keep up some mathematical facility) at university. This point also covers some girls who start off by being tempted to follow a parent, but who later become disillusioned and change subjects either before the baccalaureate or at university.

These various examples explain the numerous exceptions to the rule of following the parental model, and the danger it presents for the possibility of increasing a scientific feminine elite in Benin.

Conclusion

In Benin, the constitution states that '[w]omen are equal in law to men from every point of view, whether political, economic, cultural, social or in the family'. It is disturbing, therefore, that such key development sectors as science and technology should be so imbalanced in this respect. In concentrating attention on the problem of girls opting for science streams, this study has attempted to throw light on some of the confusion that is engendered by gender preconceptions. Among these preconceptions are to be found the question of innate differences between the sexes and the influence of parental example. By means of this modest study, based on a precise sample, we have shown that it is necessary to overcome the prejudice resulting from natural assumptions, as all the parameters that explain the imbalance that we have noted have their origins in social factors and assumptions. The principle of the parental example, which many optimists put forward as a way of overcoming the imbalance between the sexes in the scientific streams, can nevertheless be ineffective, as family pressure may be guided by a variety of arguments and opportunity costs. The concerns thus expressed form the boundary of a study that did not set out to analyse questions of opportunity-cost relating to the choice of the science streams. The result might have thrown up other lines of interest, if the research had covered rural areas and if it had been extended to cover universities.

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