

MAKING ENDS MEET . . .

And improving instruction too

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There are currently in operation in Ethiopia 43 Junior and Senior Comprehensive Schools carrying on studies not normally included in the so-called "academic stream" but coming under the headings of Business Education, Home Economics or Industrial Arts, commonly grouped together as Practical Arts Courses.

It is a mark of a practical arts stream course that such subjects contain a substantial amount of time spent on actually using tools, equipment and machines, rather than merely theorizing or just talking about them. To put a typing class or an electricity class or any other course that involves extensive use of laboratory equipment "on the line" it takes four basic ingredients. The four basic requirements are as follows:

1. Since the nature of the work being done is quite different from that of "academic" courses, it usually necessitates a specially designed building or room. Such a room lends itself to the instruction and activities of the class rather than hinders or distracts from the class.
2. It requires the special equipment, tools and machines that are customarily associated with the skill area.
3. Each class and subject area is a specialty and requires a teacher particularly trained and proficient in that particular subject area or skill. Such training requires principally four kinds of education which are, general education, professional education (pedagogy), theory in the subject area and finally an acceptable amount of skill in actually "doing."
4. The last basic ingredient to execute such a program is materials, often referred to as consumable supplies, for the student to use as he practices and learns with the various tools, machines and equipment.

In summary then, the four basic ingredients are (1) suitable rooms, (2) special equipment, (3) properly trained teachers and (4) consumable supplies.

Suitable rooms have by and large been supplied for the various areas comprising the "practical" streams in the comprehensive schools. Most of these schools are equipped with the special tools, machines and equipment, if not at the ultimate level desired, at least adequate for a beginning or start in the area. Although studies show that 33 percent of the teachers are only 12th grade graduates themselves, such a program as the Technical Teacher Education diploma program at Haile Sellassie I University has graduated 160 teachers in the 3 areas of Industrial Arts, Home-Economics and Business Education. This contributes to the fact that 52 percent of the 250 teaching in these 3 areas have at least a 2 year post secondary diploma while only 24 percent have a degree*. Therefore, the mechanics of sup-

* As reported in the Sector Review 1972.

plying adequately trained teachers has been started and the number and quality should improve in time.

It is the fourth basic ingredient, consumable supplies that seems to be a major factor in curtailing the effectiveness of the existing programs. Some comprehensive schools have actually closed their shops and stopped all related classes due to lack of funds for these materials. In other words, the building is there, the equipment and tools are there, the teacher is there, but money for consumable supplies, even in most meager amounts is simply not available.

Although some schools actually closed their practical arts programs due to this lack of funds for consumable supplies, many, if not most of the others, are severely hampered, and the program suffers for this reason. The common level of instruction to which most teachers succumb is to teach theory only. In the United States one of the most common complaints about Industrial Arts is that the class as taught is too heavy on the practical or the manipulative aspects and too weak on the theory that should accompany the skill development. In Ethiopia it is the reverse. In many, if not most classes, it is 100% theory and no practical experiences, because the involvement of students in the practical aspects involves consuming materials and supplies. This then poses a major problem. All the time, effort and particularly money spent on the other three basic necessities is of no value without the fourth ingredient, consumable supplies.

Realizing the problem, and in brainstorming with ideas to overcome the problem, the most logical question was, "How do developed countries handle the problem?" The answer is simple and universal. The student is required to pay a "fee" to cover these operating costs. A fee is established in a sufficient amount to cover the costs of materials that are wasted while the student "practices" and in many areas covers the costs for a suitable "project" which he takes home. In affluent countries this system has worked well. In Ethiopia it is out of the question.

In 1970 Haile Sellassie I University, together with USAID (Utah Contract) discussed the problem and the idea occurred that if a student, while in class, could produce a product that was *salable* at a small profit then any money spent for expendable materials could be recovered and the small profit could help or entirely pay for the materials used in practice. This premise promoted many questions. Is a student skillful enough to make an item that is salable? Who is going to conceive of this salable item, improve it, develop it and finally actually sell and collect the money. Who handles the money? How can the student get materials to practice on until he develops his skill to a high enough degree that he can do good enough work so the product will be salable? There were many questions.

To help answer these questions HSIU and USAID jointly set up a fund for the Technical Teacher Education department to experiment with this "Production Project" concept. The plan was to have the teacher in a specific subject area, in conference and consultation with the students of his class, explore the possibilities of a product (project) that was within the capabilities of the student and would have a high possibility of selling, hopefully at a small profit. The main purpose of course is not to make money but to give the students experiences using materials without drawing from the regular budget. Since the money used from this special budget was to be returned upon sale of the product, it was called a revolving fund. Idealistically it should not be depleted since the money would be returned, and it might even increase as a small profit was realized.

During the academic year 1970-71 the head of the department talked with his faculty about the concept but met with considerable opposition. This was an extra load on the faculty. The student was already carrying an average load of 19 hours and there was no extra time for "production". Who was going to conceive and work out the myriad of details on a project that would sell? What if the object broke, who was to fix it? Many questions arose. Most faculty were unimpressed and either made a frugal attempt or none at all. During that year, the special budget was reduced by approximately 3000. In other words over 3000 was expended for materials, but when the products were sold, the money returned was 3000 short of breaking even. The concept had failed. The main reason for its failure was the lack of sufficient time or motivation by the staff to identify and overcome the problems.

Early in the 1971-72 academic year, the new Head of the department, explained the whole concept to his staff and asked them to work it into their program. In addition, a staff member was given the responsibility to be a Marketing Coordinator. This position made him available to assist individual instructors in determining what items were in demand that could conceivably be built by inexperienced students. He was to purchase all materials, contact potential customers, arrange final sales, keep the accounts and in general coordinate the whole program. After an appropriate time had lapsed and little progress had been made, the chairman went to each staff member and in effect ordered them to produce a "production Project" even though it might distract from the regular classes.

The first area to come up with a project was Woodworking. Under the direction of the instructor in charge, and in consultation with the marketing analyst they were convinced that (a) there was a need and therefore potential sales for inexpensive ironing boards, (b) that the production of the project was within the abilities of his students and (c) that the knowledge and skills developed in the process were educationally sound and within the parameters of good, constructive, wood laboratory experiences and skill building.

The class, under the capable and innovative instructor, went about designing, modifying and improving their model, analyzing each part and each step in production, trying to (a) make a sturdy, durable ironing board (b) simplifying and organizing each step in keeping with mass production techniques and (c) orientating students to the particular problems and programs that are common to all mass produced items. As planned, the project was to be made on the principles of mass production and assembly rather than each students making a complete ironing board.

Each student was basically assigned one position and one job. It was decided that the first "run" would be 25 units. It was estimated the run would take 2 hours. In other words, once production started, the entire 25 ironing boards would be completed from the first cut with the saw to the final touch of the finishing in 2 hours.

Finally all was in readiness and the "hours of production" arrived. Each person went to his assigned work station and executed his predetermined task. At the conclusion of two hours, most work was done. Although minor adjustments had to be made during production, the run ran smoothly. The 25 ironing boards were made.

Besides doing all the purchasing and other errands necessary to get ready for the run, the marketing analyst had been advertising within the University community.

Several customers and interested people observed the students during the production period. Sales were brisk. In a very short time all 25 ironing boards were sold. The total costs for producing the 25 ironing boards was 215. A selling price was established at 19.95. Therefore the 25 ironing boards sold for 495.75 with a profit of 180. The original 218 which was borrowed from the special revolving fund was returned to the fund. The 180 profit was spent to build a paint spray booth which was badly needed in the woodshop.

So the production project was a financial success. But what about the student? Since the purpose of this department is to train students in the processes of woodworking and to educate him in general, what contribution did this experiment make? First, he was made aware of one of the major problems he will encounter when he secures a teaching position, that is the lack of adequate budget for expendable materials. He was made aware of at least one method to overcome the problems. He was personally involved in a mass production experience, including the basic concepts, special problems and increased benefits of this method with which he was unfamiliar as opposed to the method of one man making a complete project. But these were all fringe benefits. The fundamental learnings came in his exposure to woodworking machines, tools and processes. Through this project he had a wide variety of experiences and opportunities to develop skills in the area of woodworking. Therefore, the experience was educationally sound.

One of the concepts fostered during this entire program which has not been previously presented in this paper is the idea of entrepreneurship, that is the idea of owning one's own business. Although the students in this department are committed to becoming teachers, it is their students, as they teach in the comprehensive schools of Ethiopia, that are the potential entrepreneurs. It is this writer's feeling that in the past it has been primarily the 'Feriengi' that looked at a community, saw a need, set up a business, supplied the product or service and made the profit. Increasingly the Ethiopian is trying to find his place in this type of business. Where does he receive any training? Isn't this just as important to him as learning about the stars, or to name all the capitals of the world and other "academic" facts? The processes, the problems, the pitfalls, the headaches, the challenge, the joys, the benefits, and yes, the profits of a business is something that is usually not discussed in any way with a student at the secondary level or below.

In conclusion, the Production Project can offer the following benefits in addition to making financial ends meet: (a) Enable the school to carry on an expensive shop program yet stay within the existing available budget. (b) Expose the student to a wider variety of experiences and learnings than normal in the various areas encompassed by the comprehensive stream. (c) Present, expose and otherwise orientate the student to the concept of entrepreneurship which is seldom done now. (d) Prepare a pool of Ethiopian youth that may go into teaching, start a business of their own or become good employees, and otherwise make happy, contributing members of society.

So it may be truthfully said that the Production Project assists in making the budget cover the necessary expenses and improves the quantity and quality of instruction.

SUPERSTITIOUS AND TRADITIONAL CUSTOMS RELATING TO HEALTH & DISEASE IN ETHIOPIA

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INTRODUCTION:

Human resources, their number and quality, are surely the greatest source of wealth of any nation in the world, and because so many of these in Ethiopia are reduced in numbers and quality at their beginnings by the practice of superstitious beliefs and traditional customs, I want to concentrate on these as they affect the mother and baby, and in particular, the rural mother and her baby.

Before I embark on the subject of the title I want to assure my Ethiopian friends and colleagues that their country has by no means the monopoly in this respect. In our so-called developed western countries many superstitions and customs linger with regard to health and disease, although of course, to nothing like the same extent, and legislation prevents most of them from being put into practice.

The Mother

Human life begins with the pregnant mother. In Ethiopia there is little done for her that is out of the ordinary other than that she is protected from the sight of anything hideous and repulsive, as a deformed person or animal. This is based on the superstition that the baby will resemble that which has left the strongest impression on the mother's mind. (This belief is held by many women in all part of the world). She will avoid the sight of blood believing this will induce premature birth.

The nutritional needs of the pregnant women's diet is extremely low in first-class protein foods; these are meat, milk, eggs, cheese and fish. There is no increase in these foods during pregnancy resulting in the mother losing a considerable amount of her strength in making the new baby, (this she has to do from her own tissues and bones if the nutritional requirements are not adequate), and the baby not being nearly as robust as he should be.

In addition to this great lack of first-class protein in the foods, many thousands of pregnant mothers keep the long Church fasts which exclude from the diet all animal protein foods, (these are they which contain first-class protein). The Church gives dispensation to pregnant mothers, but the majority of mothers will not accept the dispensation, little realising the ills they bring upon themselves and the next generation of Ethiopians. Even if some do accept, the fact remains that there are not these foods available in rural areas during fast periods either for the pregnant mother or the growing child.

1. First-class protein foods contain 30 amino-acids; these repair and replace worn out tissues.

Pregnancy is no excuse for idleness, normal, daily activities are carried on as usual, the woman carrying water, (mostly uphill), grinding and pounding until labour ("met") commences. When all these factors are considered, plus the early marriage age of females, (10-15) years and pregnancy sometimes intervening between 12 or 14 years of age, one cannot wonder at the new-born baby being weakly and anaemic, an easy prey to infections of all kinds which it encounters when born into this germ-laden world of ours.

The Baby

The arrival of the baby is awaited with practically no preparation since this may bring disappointment. Whereas this very lack of preparation is one of the important factors causing the very high infant mortality in the first month of life.² 90 in every thousand live born. A baby of a country mother is born in the darkest place in the home and on the floor. Only a piece of cloth or towel can be found to wrap him in when he arrives from his sterile warm, even-temperated, uterine home into the cold, germ-laden, outer world. The cloth or towel can in no way be attached to his baby surface, when he is moved or he moves, the cloth slips off leaving his back and shoulders exposed. This is where his lungs are near the exterior. He gets chilled, broncho-pneumonia develops, and if he is not taken in time for proper treatment he hardly ever recovers. Again, the lack of separate sleeping arrangements takes its toll of little lives in that babies have to sleep with mothers and other members of the family, many of whom could be suffering from diverse infectious diseases.

Sometimes a new razor is procured shortly before the birth of a baby and this is used for cutting the cord, which, in many instances, is not tied and receives no further attention. Many a baby must lose his life from bleeding from his umbilical cord, and, even if he doesn't because the bleeding has stopped before he "point of no return", he will start life with some degree of anaemia.³

Other contributing factors to the early, infant mortality rate is the treatment of the cord with mud and cow-dung or rancid butter plasters, the crushing of the cord between two stones which all bring the risk of introducing the tetanus bacillus resulting in the fatal disease of tetanus neonatorum.

All care after childbirth is given to the mother on the assumption that if she is kept alive and well she will bring more babies into the world, very little care is given to the baby which she has, with so great effort, just brought into the world.

When the placenta ("Engideh Lig") is buried in a hole in the ground the mother is shown her baby, not before. The neighbours who have helped the mother in childbirth then force buter down the baby's throat in the belief that this will give him a soft voice. The new-born baby's digestive organs are not designed to cope with anything but colostrum, the sweet, sticky substance, full of vitamins and anti-bodies which is in the mother's breasts when the baby is born, or later, mother's milk. Some hours after the butter has been administered the baby will be screaming with the pain of indigestion. By this time the mother has reco-

2. Ethiopian Medical Journal, Volume 4, No. 1, October 1965 "Infant Mortality and Fertility in Five Towns of Ethiopia", p 13.

3. Anaemia:- a deficiency in haemoglobin (iron) content of the blood.

vered from the exertions of her labour and will put the baby to the breast to stop him crying. Being full of the butter he will have no inclination to suck for his mother's milk. The milk will become less and may dry up altogether as butter and porridge is given. Then artificial food is given to the baby from a bottle and teat of most doubtful cleanliness and of a formula which does not resemble the percentage components of his mother's milk in the slightest. Dysenteric germs are introduced through the milk and water not being boiled and the means not sterile. Gastroenteritis must claim a high proportion of the 152 babies who die in the first year of life of the 1,000 live born.⁴

The uvula, (intil) as the Ethiopians call this tag of tissue hanging above and between the tonsils at the back of the throat, is removed within three days after birth since it is supposed to obstruct the food passages and starve the child to death. If for some reasons it is not done within a few days after birth, then it is done when the first upper respiratory infection attacks the baby. The very worst time it could be done I have never yet seen a baby recover from this operation when performed during infection. As it is, it is done in the crudest manner with an instrument which is never sterile and possibly not even clean; it is this last factor which causes the deaths of so many babies as an infected clot of blood will travel from the throat to the big veins of the brain. To those in the medical profession, Ethiopians and "Ferengis" alike, this is one of the most grievous of all traditional customs practised on the young. A Tooth or teeth appearing in the gums before the baby reaches the age of six months are thought to be premature and considered evil, or if a baby is not thriving as it should in both these instances the scandalous operation of "Geg" will be performed in which the roots of the booth or teeth are dug out by the traditional medicine man. For this he uses a kind of a screwdriver, never sterile and possibly not even clean. The majority of babies having this operation performed on them will die the same day of pain, shock and blood loss. If any of them recover their health is impaired to such an extent that they then become susceptible to any infection which may be in their environment. Canine teeth are extracted between 6-10 months of age with somewhat lesser consequences on the health.

Many babies are not taken out into the light or sunshine for two to three months, some stay indoors as long as six months: thus depriving them of the cheapest source of Vitamin D. If this is lacking in the diet also, the baby's bones will be soft so that when he walks his legs will be bowed and his ribs deformed at their junction with the sternum.⁵ If a baby has to be brought out into the light of day before custom dictates, the woman (never the mother) who brings him out will carry a knife under him to "cut the grave" as they say. They have broken a custom and something dreadful may happen to the baby if an appropriate counter superstitious measure was not taken.

No solids are given to the child until he begins to walk, solids being objected to on the grounds that the stools will be offensive to the mother.

Though the following survey is not wholly pertinent to the subject, yet I include it as it reveals something of the socio-economic reasons for the high infant mortality.

4. *Ibid*; page 13

5. The flat breast-bone to which the seven upper pairs of ribs are attached,