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# **JOURNAL OF EDUCATIONAL AFFAIRS**

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STUDENTS' REPRESENTATIVE COUNCIL  
UNIVERSITY OF MALTA

**Volume 2**

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# JOURNAL OF EDUCATIONAL AFFAIRS

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## PLANNING IN EDUCATION

ECONOMISTS have long known that people are an important part of the wealth of nations. Measured by what labour contributes to output, the productive capacity of human beings is now vastly larger than all other forms of wealth taken together. A few years ago there was hardly a subject known as the economics of education; it is not surprising that today this is one of the most rapidly growing branches of economics.

It is quite obvious that the acquisition of useful skills and knowledge has an economic value; what is not obvious is that this acquisition is a form of capital which makes up the core of economic growth, and only comes about through well-planned investments. It is therefore gratifying that there seems to be widespread agreement in academic and governmental circles that public decisions regarding education should be made 'planfully' rather than *ad hoc*.

It is also widely agreed that such public decisions should take into account policies and needs in other sectors of society and vice-versa. However, there is no equally firm agreement on precisely what 'planning' is or should be, and no government has ever 'really' planned comprehensively. Certainly, at present there is nothing to compare with the 'theory of educational planning' propounded in European countries.

Balogh and Streeton, two eminent economists familiar in Malta, in their article *The Coefficient of Ignorance*\* claim that studies in investment in human beings in various countries have seemed to show that the returns to this type of 'investment' are substantially above the returns to physical investment. The conclusion is then drawn that expenditure on education and on other ways of improving knowledge and skills should be carried out by planners in other countries, and particularly in underdeveloped countries.

It is, therefore, humbly submitted that if any Development Plan is to be effective and realistic, it should include a long-term plan which must embrace a study of how and how far traditional educational patterns have contributed to the failure of social and economic progress. This plan should incorporate a study of what modifications of the educational structure are needed to accelerate dev-

elopment. On the basis of this study of obstacles a new structure can be planned which will ensure both the diversion of the best talent and an increase in the supply of the required skills so vital to our social, political and economic growth.

Complementary to this the need for a concrete idea of the size and composition of long-term development, based upon knowledge of the concrete endowments of the economy and a clear formulation of specific objectives and ideals. From these the future pattern of manpower distribution can be calculated, and the measures together with the timing needed for educational development can be indicated.

From the long-term plan the quantities and types of educated personnel in detailed categories can be derived. Since the requirements are bound to change frequently, the plan should be a 'rolling' plan, reviewed continually and at least annually, and adaptable to the new needs. Essentially it should provide the framework for any five-year or seven-year development plan and the annual budgets.

Reform, a well-planned reform is required immediately. The long gestation period of much education and training requires that we start now in order to reap the fruits of our efforts after fifteen, twenty and twenty-five years!!

## L-ISTUDENT FIS-SOĊJETA

mill-Professur Ġ. AQUILINA

IX-XEJRA fi żminijietna hi li l-edukazzjoni għandha timxi mal-ħuġġiet tas-soċjetà. Hawn bħal rivoluzzjoni mad-dinja kollha kontra l-edukazzjoni akkademika li ddr fuqha nfisha u tibqa' maqtugħa minn dak li s-soċjetà teħtieġ. Illum, id-dinja hija maħkuma kullimkien minn idejoloġiji politiċi u għalhekk wieħed ma jridx jibla' dak kollu li jaqra f'gazzetti u kotba ispirati minn idejoloġiji partiġġjani. Min-naħa l-oħra, lanqas wieħed ma jrid iwarrab dak kollu li jaqra, kotba jew rapporti ta' nies li l-gvernijiet jinqdew bihom biex jagħmlulhom rapport fuq it-tagħlim fil-pajjiż, għax, hafna drabi, dawn ikunu magħżulin mill-ewwel minn fost studjużi magħrufin għall-idejoloġija politika li taqbel ma' dik tal-gvern. Kull ma qed ngħid, mela, hu li għandna nistudjaw l-ideat ġodda jew qodma li minn żmien għal ieħor il-gvernijiet jinsistu fuqhom. Din l-insistenza fuq edukazzjoni marbuta mal-bżonnijiet tas-soċjetà qed inħossuha hawn Malta wkoll u l-aktar l-Università li qieghda gġarrab taqliba mingħajr programm. Taqliba tixbah lil taqliba ta' xi hadd qed iħossu ħażin għax f'daqqa jinqabad bejn l-isfiduċja ta' l-imghoddi u l-biża' ta' li ġej. Dan jiġri l-aktar meta l-pajjiż ikun nieqes minn nies ta' intellett għoli, nies formati fi studji u esperjenzi profondi. L-aktar forza qawwiya aktarx fanatika li għandna hawn Malta hija dik tal-partiti li mħabba fihom Malta għadha 'l bogħod mill-grad ta' maturità li poplu jilħqu biss meta jkun edukat biżżejjed biex jista' jgħarbel l-ideat tiegħu u ta' haddieħor u jagħżel bejn idea u oħra mingħajr il-ħakma tal-passjoni partiġġjana li ddallam il-moħħ. Biż-żmien għad nilħquh dan il-grad ta' maturità, imma s'issa, wara daqshekk sekli ta' kolonjalizmu, għadna daqsxejn 'il bogħod. F'Malta għandna iktar imħuħ sħan milli mħuħ formati. Fl-aħħar mill-aħħar, is-soċjetà Maltija għadha ssofri l-effetti ħżiena ta' snin kbar ta' kolonjalizmu meta l-ħakkiema hallewna lura. L-istudent universitarju li, bis-saħħa ta' l-intelliġenza tiegħu, u mhux għax imbuttat minn xi hadd, jidhol għall-kors fl-Università jista' jagħmel hafna biex imexxi s-soċjetà Maltija lejn maturità soċjali u edukattiva aktar milli kellna sa issa. Dan jista' jagħmlu b'diversi modi, imma l-aktar billi, wara li jkun eduka lilu nnifsu biżżejj-

jed, jipprova jeduka lill-poplu, u hekk johrog' sehmu minn kmieni għall-formazzjoni ta' soċjetà matura.

B'din il-kitba qasira, se nsejjjah l-attenzjoni ta' l-istudenti għall-analisi ta' prinċipju u ideoloġiku li semmejt fil-bidu, jigifieri li l-edukazzjoni fl-Università għandha tintrabat bilfors mal-bżonnijiet materjali tal-poplu. Bħala prinċipju ġenerali hekk għandu jkun. Min-naħa l-oħra, l-istudent li jixtieq isalva l-Università minn diżastru irid ikun jaf sa fejn jista' jaċċetta dan il-prinċipju u fejn għandu jibda jagħmel ir-riservi tiegħu u reżistenza. Biex jagħmel dan, irid ikollu qabel xejn idea ċara ta' x'inhì università. Dak li qal Cardinal Newman dwar in-natura ta' l-università bħala l-oghla skola fejn l-intellekt ta' studjuż jinsann ma' l-intellekt ta' studjuż iehor, fejn wiehed jista' jiftaħ u jwessa' toroq ta' tiftix fundamentali (*fundamental knowledge*), għadu veru daqs kemm kien veru fi żmien, u daqs kemm kien veru fis-sekli ta' qabel minn mindu bdew jinfethu l-universitajiet bħala akkademji ta' tiftix ta' għerf li minnhom haġġu l-akbar intelletti fl-istorja taċ-ċiviltà tad-dinja. Fi kliem iehor, waqt li jaċċettaw il-prinċipju tar-rabta ta' l-edukazzjoni mal-ħtiġijiet materjali tan-nazzjon, jeħtieġ li l-istudenti jagħmlu reżistenza qawwija għal kull attentat biex l-edukazzjoni fl-Università tkun utilitarja biss u ma joqogħdux jitgħammxu b'kull ma jgħidulna esperi barranin għax dawn mhux dejjem huma għorrief daqs kemm iġidulna, u lanqas ma huma dejjem nies li jirrapreżentaw l-idea ġenerali ta' x'inhì università u ta' kif għandha tkun l-edukazzjoni universitarja. Sfortunatament, anke fost studjużi li jridu jagħmlu karriera politika, issib min hu lest biex jissagrifika l-idea ta' università fis-sens storiku tagħha basta jaqdi l-ideoloġija politika tal-gvern.

Kieku t-tagħlim fl-Università kellu jkun utilitarju biss, ma kien ikun hemm ebda differenza bejn università u politekniku. Dawk li huma lesti biex jaċċettaw edukazzjoni utilitarja biss iridu jkun lesti wkoll biex jabbandunaw l-idea ta' università kif uritnieha mingħand il-Granmastru Pinto, minn żvilupp żgħir għal żviluppi akbar u li sata' jkun wisq aħjar, fi tradizzjoni storika ta' università bħala post fejn l-istudenti jirċievu formazzjoni intellettwali li tftiħhom moħħhom għall-valuri ċivili u morali u, fl-istess ħin, tqabbadhom it-triq tar-riċerka (*research*). Mela l-istudent li għandu għal qalbu din l-università, jekk ma jridx jaraha tmut wara ż-żmien ta' l-agonija li għaddejja minnu, jeħtieġ li jinsisti għall-għaqda taż-żewġ funzjonijiet tagħha bħala l-akkademja ta' (i) l-oghla tagħlim u (ii) riċerka anki jekk din ir-riċerka ma tkunx marbuta mill-ewwel ma' riżultati prattiċi immedjati. L-Università tagħna kienet, u għadha, l-aqwa ak-

kademja ta' l-oghla tagħlim fil-gzira, imma għadha ma għamlitx enfasi biżżejjed fuq ir-riċerka min-naħa ta' dawk li jgħallmu għalkemm din hija *obligazzjoni kontrattwali fil-letter of appointment*. F'universitajiet Amerikani min ma jipubblikax xogħlijiet ta' valur fuq is-sugġett tiegħu (jekk ma jagħmilx hekk l-istudju jhallih fejn sabu), l-awtoritajiet iparpruh 'il barra – *Publish or Perish* – jingħad f'universitajiet Amerikani. Hawn Malta la darba wiehed ikun lahaq ha l-pożizzjoni tiegħu fl-Università li hi, fl-istess hin, impieg għal għomru, u jaf li s-salarju ha jibqa' diehel xorta waħda jekk jaħdem il-*bare minimum* ta' l-impieg daqs dak li jiddedika ruħu għar-*research*, u jipproduċi, m'għandu xejn x' iħajru jew inigġzu biex jagħmel ir-*research* fis-sugġett li jgħallem. Biżżejjed wiehed jagħti daqqa t'għajn lejn lista ta' għalliema ta' l-Università fl-imghoddi li x'uħud minnhom imlew katedri għal snin twal – għomor ta' bniedem – u madanakollu ma hallew xejn warajhom li jfakkar li xi darba kienu għalliema fl-Università. Dawk li jinteressahom dan l-argument imisshom jaqraw il-ktieb *List of Publications by Members of the Teaching Staff of the University* (1966) tal-Professor P.P. Saydon.

Din ma hix sitwazzjoni li wiehed jista' jagħlaq għajnejh għaliha u lanqas jiskot fuqha. Nistaqsu: Għandu d-dritt l-istudent u l-obbligu li jinteressa ruħu f'din il-problema? Għala le? Mhux l-Università u l-prestigju tagħha jitilfu meta mingħand min ighallmul-istudent ma jieħu xejn aktar mill-*bare minimum* fil-klassi? Dan huwa argument li forsi qatt ma gie trattat minn dan il-pont ogġettivament għaliex l-istudent kien meqjus bħala soġġett passiv – jieħu dak li jjuh u jagħlaq haqqu anke jekk l-ikel ikun hobż mimghud (*rebashed material*).

Qed ngħixu fi żmien ta' reviżjoni ta' ideat qodma. L-istudent mhux biss għandu dritt li jidhlo f'dan il-proċess ta' reviżjoni, imma għandu wkoll jagħti l-kontribut tiegħu biex issehh mill-aktar fis-reviżjoni ta' mentalità li hi hafna drabi wisq aktar burokratika milli akkademika.

Bhal issa qed jiġini punt iehor – dan hu l-aħjar użu li jista' jsir mill-istamperija ta' l-Università għall-qadi ta' xogħol ta' riċerka qabel kull xogħol li mhux ta' natura akkademika. L-istudent hu kuntent bil-kotba ta' valur akkademiku li herġin mill-istamperija ta' l-Università? Herġin kotba biżżejjed li jzommu l-istima għall-Università tagħna fl-opinjoni pubblika?

Qabel nagħlaq irrid inċara punt. Min jaqra din il-kitba bl-ebda mod m'għandu jifhem li m'hemmx x'uħud mill-għalliema ta' l-Università li qed jagħmlu, u li ilhom jagħmlu, studji ta' riċerka u li huma



tasew *dedicated scholars*. Lil dawn naqalghulhom il-kappell, imma jibqa' l-fatt li l-Università ta' Malta, minnha nfisha, kif inhi organizzata burokratikament (u kif burokratikament!) mhix mitfugħa fuq *ir-research work* (kull Fakultà u kull Dipartiment għandu l-għalqa tiegħu x'jaħdem) u li dak li jinxtehet għar-*research work* hafna drabi jgarrab sens ta' frustazzjoni għax iħoss li l-atmosfera hi indifferenti u hafna drabi negattiva, biex ma ngħidx li hafna drabi jaħbtu aħjar dawk li jixterdu u jaħdmu anqas.

# THE IDEA OF A UNIVERSITY, MALTA, 1975

by R.J. BECK

WHEN John Milton came to consider what should be the subject of the great work that he intended to leave to aftertimes, so written that they would not willingly let it die, he rejected a nationalistic poem on King Arthur in favour of the more universal topic of the Fall of Man – *Paradise Lost*. Many of my more illustrious predecessors on this rostrum have chosen to relate the invariably fascinating story of how their particular subject was born and flourished in this country and this University. But the history of English as a university subject in Malta is for the most part dull; and when it is not dull – as at the time of the so-called Language Question – it is politically controversial. I have therefore decided to follow the example of Milton rather than that of my distinguished colleagues and talk, not about the growth of English in this University, but about my idea of what a university should be, and do; first in general terms and then with particular reference to the here and the now. And I hope that what I have to say will prove of interest and value to you all, teachers, administrators, and students, however much you may disagree with me at times – as it is only just and right that you should.

I am not by any means the first to have considered the Idea of a University. In 1854 that eminent but undervalued Victorian, John Henry, later Cardinal Newman, was appointed Rector of the new Catholic University of Dublin. He wrote and lectured a great deal on the subject, publishing his collected thoughts under the title which I have gratefully borrowed for this oration. Here is a brief extract from his book which has great relevance to my present purpose:

The University is the place in which the intellect may safely range and speculate, sure to find its equal in some antagonist activity, and its judge in the tribunal of truth. It is a place where inquiry is pushed forward, and discoveries verified

and perfected, and rashness rendered innocuous, and terror exposed, by the collision of mind with mind, and knowledge with knowledge. It is the place where the professor becomes eloquent, displaying his science in its most complete and most winning form, pouring it forth with the zeal of enthusiasm, and lighting up his own love of it in the breasts of his hearers. It is a place which wins the admiration of the young by its celebrity, kindles the affections of the middle-aged by its beauty, and rivets the fidelity of the old by its associations. It is a seat of wisdom, a light of the world, an Alma Mater of the rising generation. It is this and a great deal more, and demands a somewhat better head and hand than mine to describe it well . . . I am asked – continues Newman – what is the end of university education, and of the liberal knowledge which I conceive it to impart: I answer, that what I have already said has been sufficient to show that it has a very tangible, real, and sufficient end, though the end cannot be divided from that knowledge itself. Knowledge is capable of being its own end. Such is the constitution of the human mind that any kind of knowledge, if it be really such, is its own reward. What the worth of such an acquirement is, compared with other objects which we seek – wealth or power or honour or the conveniences and comforts of life – I do not profess here to discuss; but I would maintain that it is an object in its own nature so really and undeniably good, as to be the compensation of a great deal of thought in the compassing, and a great deal of trouble in the attaining . . .

A University training is the great ordinary means to a great but ordinary end; it aims at raising the intellectual tone of society, at cultivating the public mind, at purifying the national taste, at supplying true principles to popular enthusiasm and fixed aims to popular aspiration, at giving enlargement and sobriety to the ideas of the age, and at refining the intercourse of private life. It is the education which gives a man a conscious view of his own opinions and judgments, a truth in developing them, an eloquence in expressing them, and a force in urging them. It teaches him to see things as they are, to go right to the point, to disentangle a skein of thought, to detect what is sophistical, and to discard what is irrelevant. It prepares him to

fill any post with credit, and to master any subject with facility.

You will appreciate immediately that much of what Newman said 120 years ago with Ireland in mind still has validity for Malta in 1975. A University is a place where the young mind is trained by contact with minds of equal and superior intellectual calibre, by disputation with your tutors and argument with your contemporaries. And two things you must learn: first, to dispute as vehemently as you please, but without acrimony or descending to personalities; secondly, the thoughts, arguments, and convictions must be your own. There is far too much plagiarism in this University – paragraphs copied verbatim into essays from second-rate books that you pray your tutor has not read; lecture-notes taken down as though they were dictation, learnt by heart on the very threshold of the examination hall, and faithfully but often irrelevantly regurgitated in answer to a slightly different question.

This originality of mind and independence of thought is the greatest gift a university has to offer. Once you have it, you can turn your hand to anything – or, in Newman's words, 'fill any post with credit and master any subject with facility.' There is a slowly-dawning realisation in the modern university that many of its graduates will take up non-specialist posts; and it must prepare them to fill such posts more efficiently than non-graduates, in addition to providing for the vocational, professional, and specialist students about whom I shall have something to say later. The actual subject you are reading here is of secondary importance, for a university's first task is to teach you *how* to think, not what to think. This is the great difference between school and university, and the transition of attitude sometimes proves difficult. The gap between sixth form ending and university beginning should be narrowed as far as possible: certainly nothing should be done to widen it. One more step towards encouraging this vital independence of mind in the Maltese student I should clearly like to see – some measure of residential tertiary education. Not merely does it stimulate the mind; it teaches tolerance of the views of others, improves the civic sense, and builds up something that we have not yet developed here sufficiently to satisfy me, at least – a sense of institutional loyalty. I know that practical economics, the smallness of the island and the easy accessibility of the Univer-

sity, even the strong beneficial influence of Maltese family life are against me here; but I am not convinced that a hostel for Gozitan students and summer-course students is beyond the bounds of economic possibility. As for this all-important sense of belonging, I do say, in all humility, that I – and some of my colleagues here today whom I could name – feel a pride in, a loyalty to, and a deep and lasting love for their own old university that I do not see to the same extent among the rising generation. I have lived in Malta long enough – over 15 years now – to know you capable of fervent loyalties – to country, party, village, society or football-club; let some of it rub off on what Newman calls in the extract your Alma Mater – there is room in my heart for thee.

Of course, you cannot do everything for yourselves, and no-one expects you to. I am sure my academic colleagues were impressed by Newman's acumen when he described the university as 'the place where the professor becomes eloquent, displaying his science in its most complete and most winning form, pouring it forth with the zeal of enthusiasm, and lighting up his own love of it in the breasts of his hearers.' The annual reports of external examiners, scholars of international repute who moderate all aspects of our degree examinations – these reports speak for themselves. We have nothing to be ashamed of here. Our very smallness is an advantage. The troubles in jumbo-universities abroad are in many cases caused by the lack of contact and thus of understanding between the teacher and the taught. Let us therefore rejoice that we can still manage to hold tutorials at almost every level in almost every subject; for this is where a student's individual problems can receive attention – and an academic stitch in time saves many more than nine later. From these closer contacts we come to know each other better; and, once again in all humility I can say that in the area of staff student relations this is the best university I know.

This quality of teaching and level of degree performance is not achieved by a professor's thinking a professorial chair is something to sit in and have a prolonged siesta. Newman rightly describes a university as 'a place where inquiry is pushed forward and discoveries verified and perfected', and any academic teacher worthy of the name must constantly strive to keep abreast of new

developments in his subject and to preserve academic contacts abroad and make new ones by attending conferences and visiting libraries. Our geographical position and the fact that we are a country with only one university make these overseas contacts even more vital; we must maintain our position as a small though prominent member of the international community. I must here pay tribute to the dedication of some of our researchers, who battle on in the face of great difficulties, and also to the University Library, which provides a Wellington-boot service on a shoestring budget. And since, as Dogberry says, comparisons are odorous let me here mention the other members of the Administration who smooth our path and yours, even to those kind gentlemen who now subtract our monthly contributions to P.A.Y.E. on behalf of the Inland Revenue.

From Newman's Idea of a University we have evolved a picture different in many ways from his, a picture of a modern university resting on three pillars – teaching and learning, research and administration. Nor we can fully accept in this day and age Newman's contention that 'knowledge is its own end'. For many of the Faculties in a modern university – the majority in number if not the largest in student numbers – knowledge must be a means to an end as well. Many of you are here to master the material of a profession: to save lives and ease pain; to design houses and build bridges; to defend the innocent and prosecute the guilty. And even in the non-professional Faculties a new need is being felt and a new catchword going round – 'relevance'. The end-product – that is the graduates – of a university must bear some relation, both qualitatively and quantitatively, to the manpower needs of the country whose taxpayers have given them their university education. A university's research, too, should be directed towards a relevant end – to give a simple example from my own subject, we should encourage M.A. theses with titles like, 'The Problems of Teaching the English Language in a Maltese Context'. This relevance is in its own way an ideal as difficult of realisation as any of Newman's; for the changes in manpower demand that may take place while the student is in a university-pipeline at least three years in length are many and varied.

I would not have you think that as an Arts man I am entirely out of sympathy with Newman's contention that knowledge is its own

end: we all know the glow of satisfaction that comes from learning something for its own sake and not for 'the wealth or power or honour' it can bring. 'Oh what a wealth of profit and delight is promised to the studious artisan'. Where we in 1975 must part company with Newman is in his view of the nature of a university's student population. It is easier to regard knowledge as an end in itself when the spectre of Social Assistance is not sitting at the university exit. Because university education was not free nor open to all in Newman's day, the people who could benefit from it naturally took a different view of it. Since 1971 University education in Malta *has* been free, but it is still not open to all. The eldest boy in a large family, however intellectually able, may be forced by economic conditions to find a job immediately to help out the family finances in these days of rising prices. We – and I mean all of us, with institutional unity and determination – must work together to have a Grants System introduced. By the application of a graded scale of payments, no Maltese boy or girl who possesses the academic potential and paper qualifications necessary to enter university – and on these qualifications I would insist to my last breath – no boy or girl, I say, who would benefit from a university education must be denied the chance of receiving it. Thus and only thus will *my* Idea of a University for contemporary Malta be realised – equality of academic opportunity for the suitably qualified, irrespective of class, colour, creed, or economic circumstances.

## DEVELOPMENTS IN TRAINING OF DENTAL PERSONNEL

by GEORGE E. CAMILLERI

THE training of dental surgeons at the Royal University of Malta is closely based on the British system and with minor modifications has proved suitable to local requirements. The first course started in 1933 under the aegis of the Faculty of Medicine and Surgery. In 1951 the Faculty of Dental Surgery was established and the duration of the course increased from two to four years, leading to a Bachelor's degree in Dental Surgery. This professional course attempts to give an academic and clinical training hopefully including the intangible characteristics of a university education. The format of the course has evolved over the years without any drastic modifications. Although the number of dental surgeons is not enough, the type of dental surgeon has proved adequate to the nation's need.

The dental surgeon, in order to function efficiently, requires a trained auxiliaries, together forming the dental health team. The number and type of auxiliaries vary considerably in different countries, being influenced by the needs of the individual countries as well as the policies of the Government Health authorities and the professional associations. The dental health team consists of the dental surgeon and some or all of the auxiliary personnel such as the chairside assistant (also known in Malta as the dental nurse), the dental laboratory technician (or mechanic), the dental hygienist and the school dental nurses (also known as the New Zealand nurses, where they were first introduced and have been used with success for over 50 years). The latter two types, the dental hygienist and the school dental nurse are permitted to perform certain clinical procedures on patients under the supervision of a dental surgeon and are classified as Operating Dental Auxiliaries.

### DEVELOPMENTS IN THE TRAINING OF DENTAL PERSONNEL

The main function of the dental technician is the fabrication of appliances according to the prescription and under the supervision of the dental surgeon. He does not have direct contact with the



patient and is classified as a non-operating auxiliary. The training of the dental technician in Malta is on the apprenticeship basis although a few have successfully followed formal courses in the United Kingdom. It is unfortunate that, by tradition, the dental technician attends a Polytechnic or similar institute rather than the dental school itself for his training. Possibly, the attempt to keep the dental surgeon and dental technician apart as well as the unwillingness of Universities to participate in non-professional courses may have been the basis for this dichotomy in teaching. This has led to a number of problems and many dental schools have started courses for the training of dental technicians within the school itself. In this way, the training takes place in its proper milieu which is the Dental School and where the trainee technician is in contact with the dental students. In Malta, both the Government and the University have appraised the problem and an expert from the University of Manchester Dental School studied the local situation and submitted a report outlining the feasibility and requirements of such a scheme. The report although still largely applicable has now been overtaken by time and a fresh look at the problem is required before any active steps are taken. Formal training of dental technicians does not exist in Malta.

The chairside assistant is essential to the proper functioning of the dental surgeon. She is a non-operating auxiliary but when trained and efficient is an inestimable help in improving the efficiency of the whole dental health team. The great majority of dental surgeons in Malta have chairside assistants who have usually been trained by the dental surgeons themselves, a time-wasting and sometimes exasperating experience. There is a correspondence course, officially sponsored by the British Dental Association which a few Maltese girls have successfully followed. This is an unsatisfactory alternative to a formal training programme which is as yet unavailable in Malta.

It is now generally agreed that the major diseases that affect the teeth and their supporting structures, dental caries and periodontal disease, are largely preventable diseases by the procedure of preventing dental plaque formation. The role of preventive dentistry both at the individual and community level is therefore assuming larger proportions of the teaching programme of the dental student as well as in the allocation of resources by health authorities. It has also brought to the forefront another member of the dental health team, the dental hygienist. The main functions of the dental hygienist are the removal of plaque and calculus, the cleaning and

polishing of teeth, individual and group instruction in oral hygiene and dental health education, and the topical application of fluorides or other prophylactic solution or fissure sealants. The first dental hygienist course was started in the U.S.A. in 1913 and such courses now exist in most developed countries.

The present course of dental surgery admits six students each course with a new course starting every second year, so that the total number of dental students at any one time is usually twelve. The cost of training a dental student is high, possibly the most expensive in the University. A range of suitably qualified teachers is required to teach the various aspects of dental surgery whilst the size of the population and the capital expenditure involved does not permit any dramatic increases in the dental student population. Training of auxiliaries and dental surgeons together using the same staff and facilities has the advantage of applied teaching of the team concept as well as better utilisation of available resources.

A scheme has been proposed to train dental auxiliaries, chair-side assistants and dental hygienists within the Department of Dental Surgery. Although a final decision has not yet been reached, it is likely that initially a combined training programme of chair-side assistants and dental hygienists will be followed. This would have the advantage of flexibility and possibly produce an auxiliary of greater value to the general dental practitioner. The Government and University authorities have supported this training scheme with the University providing facilities and staff, whilst the students auxiliaries having the same status as pupil or student nurses at St. Luke's Hospital. It is proposed that the course of study will lead to certification by the Department of Health and formal registration with the Medical Council. Legislation will have to be enacted to establish a register for dental hygienists as well as defining their duties in the Maltese Islands.

The increase in the number of students (dental students and student auxiliaries) will allow for a measure of increase in the departmental staffing but the chief gain will be the possibility of training the future dental surgeon and his auxiliaries together. This will enable the dental student to learn how to work with and appreciate the value of assistance during the various operative procedures. It is also of value that the dental auxiliary, for some of her training period, works alongside the dental surgery. In this way she will appreciate more the requirements of the dental surgeon as well as appreciate her role in the dental health team concept.

In Malta, there is presently a national effort to modernise and

rehabilitate the training and education of the technician grade. In dental surgery, the professional and technical personnel are in practice very closely so related that extension of this symbiosis during their training period is a logical but adventurous step. Its outcome is awaited with interest and may offer guidelines to similar programmes elsewhere.

## IS-SEHEM ATTIV TA' L-ISKEJJEL FL-IŻVILUPP NAZZJONALI

minn ARTHUR G. CLARE

QABEL ma niddiskutu liema valuri għandna nistennew li jingħataw mill-iskejjel ta' tagħna fl-isforzi ta' tagħhom biex jgħinu l-iżvilupp nazzjonali, ikun aħjar kieku nikkalkulaw x'se tkun il-ħajja f'Malta fil-gejjieni qarib. Dan jeħtieġ nagħmluh biex norbtu l-idejali li l-iskejjel għandhom jilħqu mal-ħtiġijiet probabbli tan-nazzjon fil-mixja tal-progress. Se nippruvaw inkunu rejalistiċi kemm jista' jkun fl-istampa tal-qagħda gejjiena.

Minħabba li l-għan ta' generazzjoni wara oħra hu li ttejjeb il-livelli ta' l-għixien, nistennew li l-ħajja fil-futur tkun komda kemm jista' jkun u iżjed sinjura. Opportunitajiet u proċessi godda jkunu haġa waħda mill-ħajja ta' kuljum. M'hix haġa diffiċli timmagina pjan mibni fuq it-teknoloġija u fuq teknika ekonomiċi u manigerjali godda, qagħda li se titlob aktar ftehim u taħriġ fil-forza nazzjonali tax-xogħol. Idejat li llum huma godda se jsiru haġa komuni. Fost l-oħrajn, il-partecipazzjoni tal-ħaddiem fl-industrija tkun xterdet wisq aktar. Għalhekk tikber il-ħtieġa ta' responsabbiltà akbar, iżjed dixxiplina u facilità li l-ħaddiema jieħdu deċiżjonijiet. Se jibda jinħass iżjed li x-xogħol, il-produzzjoni u l-*management* huma esperjenza maqsuma bejn gruppi, mezz għal għan soċjali aktar milli għan individwali. Bis-saħħa ta' teknoloġija għdida, il-produttività se tkun żdiedet, b'mod li l-ħaddiema jkollhom il-benefiċċju mhux biss ta' salarji aħjar iżda wkoll ta' ħin itwal ta' mistrieħ. Aktarx li se jkun hemm kuxjenza akbar li n-nazzjon jiffunzjona bħala entità u li ħafna jiddependi mill-attitudni tal-partijiet lejn l-entità kollha. Is-soċjetà se tkun resqet eqreb lejn l-idejal ta' ko-operazzjoni u aktarx ikun hemm inqas tensjoni soċjali. Ir-responsabbiltà tkun kibret u l-jeddijiet u d-dmirijiet ikunu ġew definiti aħjar. Tagħlim politiku u legali se jkun xtered bħalma jkun kiber l-interess fl-affarijiet interni u estemi tan-nazzjon. Tkun żviluppat aktar il-kultura nazzjonali, forsi skond linji li għadna ma noħolmuhomx, iżda aktarx ikunu linji li jinkludu lin-nazzjon kollu. Jekk naċċettaw din id-dehra, l-iżvilupp nazzjonali se jkun mexxa skond ħtiġijiet

ekonomiċi, soċjali politiċi u kulturali. Nistgħu issa ngħaddu għall-preżent u naraw liema idejali se jgħinuna biex immexxu 'l quddiem l-iżvilupp imsemmi, jew aħjar naraw liema fatturi se jiddeterminaw ir-rata ta' l-iżvilupp. Kulhadd jaqbel li s-sehem ta' l-iskejjel fl-iżvilupp tan-nazzjon hu ta' importanza mill-akbar. Jistgħu jgħinu jew ifixklu l-progress. Mela l-funzjoni ekonomiku, soċjali u kulturali tagħhom trid tkun waħda: dik li jgħinu lill-generazzjonijiet biex jibnu fuq ix-xogħol ta' l-oħrajn. It-taħriġ u l-valuri li jagħtu jridu jkunu relevanti għall-ħajja kif qiegħda llum. Huwa l-mekkanizmu li minnu l-materja prima tas-soċjetà tingħata sura u tkun ipperfezzjonata. Ma nkunux qegħdin nesageraw jekk ngħidu li s-suċċess ta' l-iżvilupp jista' jinbena jew jaqa' skond il-ħila li jkollhom l-iskejjel li jikko-ordinaw is-sehem tagħhom mad-domandi nazzjonali.

L-ewwel dmir tagħhom hu li jgħagħlu lill-istudenti jagħzlu bejn fantasija u rejaltà. Jigifieri ma jaħsbux biss fil-ħwejjeġ astratti u sbieħ tal-ħajja, iżda wkoll fil-ħwejjeġ li jistgħu jmissuhom b'idejhom fl-irgħulija. L-iskejjel is-soltu jgħegħlu t-ftal jħarsu lejn dawn l-affarijiet bħala xogħol iebes, lejaltà, tmexxija, kompetizzjoni u entuzjazmu, iżda l-istudenti li jhallu l-iskola jsibu li sħabhom tax-xogħol mhux biss jista' jkollhom valuri differenti iżda saħansitra jistmerru l-kwalitajiet mixtieqa mill-iskola. Għal integrazzjoni aħjar fil-ħajja adulta, l-istudenti, għalhekk, iridu jsiru iżjed konxji tal-valuri kontra xulxin li jistgħu jsibu barra mill-iskola. Barra minn dan, iridu jsibu lil min iġhallimhom x'hemm jistenniehom fil-fabbriki jew fl-uffiċċji. Iridu jkunu jafu kif jagħmluha man-nies, kif ikunu indipendenti u x'inhuma l-esigenzi li se jiltaqgħu magħhom. Tagħlim ieħor irid jinkludi tagħrif dwar in-nuqqasijiet tas-soċjetà u dwar rimedji possibli. Dan jolqot il-kunfidenza tagħhom fihom infushom li trid tinbena sewwa, għaliex aktarx li din hi waħda mill-ħtiġijiet tal-ħajja tax-xogħol. Iżda l-aktar importanti, iridu jirrealizzaw li ix-xogħol hu biċċa serja. Hu impenn soċjali li jitlob it-twarrib tax-xejriet egoistiċi, forma ta' għajjnuna soċjali aktar milli persunali.

Sehem ieħor importanti ta' l-iskejjel hu li jgħallmu lill-istudenti kif jużaw aħjar il-ħin ħieles tagħhom, kif jagħmlu xogħol konstruttiv, u jkunu ċittadini responsabbli. Fi kliem ieħor, għandhom isiru jafu liema huma l-ħsarat tad-delinkwenza u xi tfisser piż żejjed għas-soċjetà. Għandna ninkuraġġixxu l-użu krekjattiv u sodisfaċenti tal-ħin ħieles meta l-istudenti għadhom fl-iskola, u għalhekk il-lezzjonijiet ta' l-arti u l-artiġjanat huma siewja. L-istudenti jistgħu ikunu nkuragġiti biex jizviluppaw il-krekjattività u jkunu kburin b'dak li jagħmlu. Din ma tagħtix biss adulti iżjed ferħana iżda ħad-

diema tal-fabbriki iżjed responsabbli li kienu mħarrġa kif jistmernu xogħol ta' kafkaf u jipproduċu oġġett tajjeb. Taħriġ muzikali u artistiku hu importanti wkoll. L-iskejjel għadhom joffru l-opportunità lill-istudenti li jisimgħu muzika klassika u ħafifa, jikkritikaw xogħlijiet bħal dawn u jirkellmu dwar l-effett li l-muzika tħalli fuqhom. Imħabba u għarfien tal-pittura għandhom ikunu mrawma wkoll; dan jitolb l-opportunità li l-istudenti jirkellmu u jfissru l-fehmiet tagħhom. It-taħriġ f'qari siewi għandu jieħu s-sura ta' taħriġ fis-setgħat kritiċi; it-tfal generalment ikollhom kunfidenza akbar fihom infushom jekk ma jkunux skoraggħi mill-għalliema tagħhom li jistennaw minnhom li jaslu għall-istess konklużjonijiet li jaslu għalihom huma fuq ix-xogħol partikulari. It-trawwim ta' setgħa kritika bħal din u ta' espressjoni persunali jwassal għall-bini ta' poplu li jafda fih innifsu u fil-kobor ta' l-identità tiegħu, fost l-oħrajn fil-kapaċitajiet li jistgħu jkunu rieqda jew mohbija fihom u li jistgħu jidwettqu biss jekk isibu lil min jinkuraġġihom fil-mod it-tajjeb u qatt imrazzina fihom. Fil-gejjieni, studenti mħarrġa skond dawn il-linji ikunu adulti mimlija idejiet u kunfidenza biex iwettqu l-istess idejiet f'ħaddieħor. Bla ebda dubbju, l-iskejjel jistgħu jaslu għal dan biss jekk il-klassi tkun post xieraq għal diskussjoni ħielsa.

It-taħriġ fiżiku tat-tfal jista' jagħti wkoll riżultati li jidhru iżjed 'l quddiem. Adult b'fiżiku f'saħħtu li ma jegħjiex malajr fix-xogħol tiegħu, u li hu lest li jilqa' sfida u għandu wkoll ċerta ħila li jisaporti hu adult siewi fil-ħajja. L-imħabba lejn il-perfezzjoni fiżika, is-saħħa u s-setgħat tal-ġisem tista' tevita l-għažż. Dan iwassal ukoll għal sodisfazzjon fiżiku akbar fl-attivitajiet sportivi.

L-imħabba lejn l-ambjent Malti hi aspett importanti ieħor. Jistgħu jaslu biex itejbuh iżda qatt li jeqirduh. Aktar ma l-istudenti isibu lil min iġinhom jinteressaw ruħhom fid-dinja ta' barra, aktar nistgħu nibnu nazzjon b'vibra individwali f'saħħitha. Il-kompetenza ta' l-iskola tinkludi wkoll l-inkuraġġiment ta' l-istudenti biex jiddiskutu mhux biss il-kwistjonijiet ekonomiċi u soċjali iżda wkoll oħrajn politiċi u legali, trade-unjonistiċi u reliġjużi. Il-formazzjoni tal-karattru hi ta' importanza u għalhekk għandhom jitgħallmu jikkritikaw skond prinċipji ġusti. Il-bilanċ ta' l-argumenti jgħinhom ukoll biex jidwettqu jismgħu lil ħaddieħor.

Biex wieħed jiffaċċja l-isfida ta' kuxjenza ċivika akbar, l-iskejjel iridu jizviluppaw, qabel xejn, sens li l-istudent jappartjeni lewwel lill-klassi partikulari, imbagħad lill-skola partikulari, u t-tielet lid-distrett u mbagħad lin-nazzjon. Imħabba għall-patrija u

kburija nazzjonali ma nistgħux ngħaddu mingħajrha, l-aktar jekk iridu neqirdu l-vandalizmu jew il-ħsara maħsuba fil-propjetà ta' haddieħor. Studenti li jitgħallmu japprezzaw il-gmiel tal-pajjiż ikollhom id-dispożizzjoni li jhossuhom ko-responsabbli għalih. Kburija bil-wirt Malti, l-aktar bil-lingwa, mhux biss tibni mentalità nadifa, u apprezzament aħjar tal-qagħda tagħna f'nazzjon u fil-kontinent, iżda wkoll ftehim aħjar fi hdan il-membri kollha tal-komunità.

Fil-qosor, mela, is-sehem ta' l-iskejjel hu li jiżviluppaw dawk il-kwalitajiet kollha li jagħmlu lill-istudenti adulti shaħ.

Izda l-iskejjel m'għandhomx biss jiffurmaw idejiet. Għandhom jagħmlu minn kollox biex jistabilixxu rabta kbira bejn id-dinja ta' l-istudenti tagħhom u d-dinja ta' l-adulti. B'xorti hażina fl-iskejjel tagħna hemm it-tendenza fost l-istudenti li gēgēghellhom jaħsbu li d-dinja adulta hi xi haġa mbieghda u maqtugħa – dinja fejn missirijiethom u ħuthom biss donnhom jistgħu jidhlu. Ftit haġna minnhom jifhmu x'hemm fid-dinja adulta, x'inhu mistenni minnhom biex jippartecipaw kemm imisshom fil-ħajja soċjali. Għalhekk hemm il-ħtieġa li l-iskejjel joħolqu kundizzjonijiet fejn l-istudenti jkunu jistgħu jigu wiċċ imb'wiċċ mar-rejalta' tas-sitwazzjoni u jsibu ruħhom f'xi forma ta' xogħol ta' adulti. Proċess bħal dan irid jibda mill-bidu nett tal-ħajja skolastika iżda l-isforz jitlef it-tifsira u s-sens tiegħu jekk dan ma jsirx fuq livell kollettiv. Livell individwali f'dan il-każ jerga' jwassal għall-iżolament li aħna qeġhdin nis-suggerixxu li negħelbu. Dan irid isir bi pjan organizzat, li jieħu ż-żmien (numru ta' snin) u l-mezzi li jinstabu ma jiswew xejn jekk l-istudenti ma jhossux ruħhom interessati awtomatikament fi proġett bħal dan. Hidma bħal din tista' tinkludi l-possibiltà li għadd ta' studenti joħorgu mill-iskola għal ċertu żmien biex, ngħidu aħna, jaħdmu f'xi fabbrika jew f'uffiċċju. L-effetti ta' dan jistgħu jkunu tlieta: (i) tgħin fil-mixja ta' tranżizzjoni bejn l-iskola u x-xogħol; (ii) tagħtihom l-okkazzjoni li jintebħu liema huma x-xejriet persunali tagħhom; (iii) jagħharfu li għandhom jintegraw lilhom infushom, kull wieħed skond ix-xejriet persunali, fil-kumpless kollettiv tas-soċjetà adulta.

Dan il-proġett irid jagħti l-okkazzjoni lill-istudenti li jiddiskutu mal-ħaddiema sħabhom liema huma d-dmirijiet u r-responsabbilitajiet mitluba minnhom, jaraw il-ħajja f'aspett għdid u integru, u jkunu kapaci jagħharfu s-siwi tal-ko-operazzjoni f'sitwazzjoni vera. Dan iġinhom imorru lura lejn l-iskola mimlijin b'idejiet persunali li jkunu jistgħu jagħtu lil sħabhom u jiddiskutu magħhom. Jistgħu

jikkritikaw xi aspetti jew jirakkomandaw oħrajn. Forsi jaslu wkoll b'fehmiel dwar kif itejbu l-kwalità tax-xogħol, l-izjed f'dik li hi effiċjenza u produttività. Hi haġa importanti, fil-fehma tiegħi, li l-istudenti jsawru opinjoni dwar il-kundizzjonijiet tax-xogħol biex jaslu jaħarbu n-nuqqasijiet ta' oħrajn. Dan il-kuntatt bejn studenti u haċċiem għandu siwi edukattiv ċar.

(a) japprezzaw aktar il-ħidma tal-membri adulti tal-familja tagħhom u ta' l-ambjent haċċiem li hu immedjat għalihom;

(b) ikunu kapaċi jikkonvinċu lilhom infushom li m'hemm ebda barriera bejn il-ħajja magħluqa ta' l-iskola u d-dinja miftuħa tax-xogħol;

(c) jifhmu li l-aħjar livelli ta' produttività jistgħu jinkisbu biss, jew aktar, b'xogħol kollettiv;

(d) bis-saħħa ta' l-osservazzjonijiet, li għandha twassal għall-kritika msemmija, jrawmu fihom kwalitajiet ta' tmexxija.

Bħalissa l-istudenti għandhom ix-xejra jħarsu lejn il-ħajja ta' wara l-iskola bħala post fejn hemm fuq kollox eżamijiet u *interviews*, bir-riżultat li jaslu jassocjaw lil dawn ma' suċċess jew falliment persunali. Għalhekk sfida oħra ta' l-iskola tista' tkun li turi li l-ħajja tfigger wisq iżjed milli wieħed iġħaddi minn eżami. L-istudenti jeħtieġu ideja ċara dwar x'jistgħu jagħtu lis-soċjetà, kemm jekk ma jgħaddux mill-eżamijiet. F'dan id-dawl, l-attivitajiet ta' l-iskola għandhom imorra wisq iżjed lil hinn mit-tnejn għall-eżamijiet u anki lil hinn minn żjarat kulturali u tagħlim magħluq fi klassi. Flimkien ma' xogħol fil-fabbrika u fl-uffiċċju, l-iskejjel jistgħu jorganizzaw ukoll kampijiet tax-xogħol. Il-karattru ta' l-edukazzjoni jrid isir flessibbli biżżejjed biex jagħti programm ta' xogħol lill-istudenti 'l barra mill-iskola bil-għan li jiżviluppa fl-istudenti sens ta' dixxiplina.

Is-sehem ta' l-għalliem hu importanti ħafna. Irid ikun attiv il-hin kollu, u jrid ikun imħolli jorog lill-istudenti 'l barra mill-limiti ta' l-iskola u li jimpenjahom fi studji ta' l-ambjent u xogħol komunitarju, ngħidu aħna l-kura tal-morda u tax-xjuħ. Jista' jinkuraġġihom ukoll biex jagħmlu xi għamla ta' xogħol għall-foqra u dawk li huma inqas privileġġjati mill-bqija. F'dan il-qasam, ikun aħjar li tingħata opportunità fejn l-istudenti jistgħu jgħaddmu l-krejtività tagħhom. Jistgħu jingħataw materjal li bih jistgħu jipproduċu oġġetti utli, bħal bizzilla, bibien, twieqi, eċċ. Jistgħu jittieħdu fil-Qasam Sperimentali tal-Gvem u jagħmlu xi xorta ta' xogħol tar-raba'. F'dan it-tip ta' xogħol jistgħu jorganizzaw ħidma bejniethom fuq li-



vell magħqud ta' gruppi. Jistgħu jagħmlu xi xogħol f'dipartimenti tal-gvern, bħall-posta, sptarijiet jew għases tal-pulizija. Studenti akbar jistgħu anki jieħdu sehem fi proġetti tax-Xogħlijiet Pubbliċi, bħalma huma l-bini ta' djar, toroq u affarijiet simili.

Programm bħal dan ma jistax jeskludi l-ħin għall-isport. Flimkien max-xogħol jidhol ukoll il-logħob. Fl-isport ukoll jista' jiġi żviluppat is-sens ta' tmexxija, l-ispirtu ta' hidma fi grupp u s-sens ta' responsabbiltà lejn ħaddieħor. Hu importanti li nħarsu lejn itfal mhux bħala entitajiet sħaħ tal-gejjieni iżda bħala hlejjaq responsabbli li għandhom persunalità li qieghda tiżviluppa ruħha minn issa. Pass fid-direzzjoni t-tajba tkun li nqisu l-isudenti ta' bejn sittax u tmintax-il-sena bħala adulti. Vizjoni bħal din iġġieghel lill-isudent jibda jifhem li għandu jgħin kemm lill-familja privata tiegħu u mbaġħad lill-familja akbar tan-nazzjon. Jekk dan is-sens ma jitrawwimx fl-iskola, l-isfida tagħna li ndaħħlu b'suċċess lill-generazzjoni l-għdida fil-ħajja tal-kbar tfalli.

F'dan l-istudju naħseb li ta' min jiddiskuti l-aspett l-iżjed kruċjali tas-sugġett magħżul; il-problemi li l-iskejjel tagħna bħal issa jistgħu jsibu ruħhom fihom biex iwettqu dan li għedna. Qabel xejn, il-mentalitajiet qodma jridu jitbiddlu. L-iskejjel iridu jaslu biex jintegraw l-isforzi tagħhom fi ħdan il-kwadru wiesa' ta' organizzmu li jieħu f'idejha id-dħul taz-żgħażaġh fil-ħajja adulta. Ir-responsabbiltà ta' dan l-organizmu tkun li jikseb l-għodod meħtieġa biex proġetti msemmija għall-iskejjel ma jsibux tfixkil; l-għan ta' organizzazzjoni bħal din ikun li toħloq entuzjażmu fost l-isudenti biex dan il-proġett imfassal għalihom ikunu huma nfushom li jsostnuh biex jirnexxi.

Ix-xogħol ta' din l-organizzazzjoni jista' jkollu żewġ aspetti ewlenin: l-aspett ta' l-iskola primarja u l-aspett ta' l-iskola sekondarja. Il-qagħda attwali turi li l-iskejjel tagħna għandhom żewġ naħiet: in-naħa kwantitativa u n-naħa kwalitativa. Dwar l-ewwel waħda, l-iskejjel tagħna jagħtu numru kostanti ta' tfal li jhallu l-iskola skond ir-rata tat-twelid u l-emigrazzjoni. Minħabba li s-sistema prezenti hu sistema estensiv li ma jqisx il-ħila individwali, l-iskejjel tal-Gvern m'għandhomx iżjed is-setgħa li jikkontrollaw ir-rata tad-dħul. Iżda hemm bilanċ bejn dawk l-iskejjel li joffru tagħlim fis-snajja u dawk li joffru tagħlim akkademiku. Ma nidholx fil-mertu jekk il-kontribut attwali ta' l-iskejjel hux jaqdi l-ħtiġijiet tal-forza nazzjonali tax-xogħol għaliex bħalissa m'hemmx kwalifika uniformi li hi mitluba mill-industrija, hliet it-tagħlim fundamentali ta' kitba u numri. Sakemm l-iskejjel primarji jkomplu jiżvilup-

paw din il-ħila fost l-istudenti, din il-ħtieġa l-industrija tissokta issib x'jissodisfaha. Izda l-qofol tal-problema hu li l-ġejjieni qarib se jitlob wisq iżjed mill-impjegati, u għalhekk hu l-kontribut ta' l-iskejjel sekondarji li l-aktar li ppruvajt nikkonsidra hawn, speċjalment il-kwalità ta' dan il-kontribut. Bi kwalità ma nifhimx suċċess akkademiku, iżda dak li hu mistenni mill-istudenti jekk l-iżvilupp nazzjonali għandu jithaffef.

L-għan ta' l-organizzazzjoni li ssuġġerejt irid jara li fil-mewġa tat-tfettih ta' l-iskejjel, dawn il-kwalitajiet ma jintilfux. Jekk dan isir, jista' jinkiseb ħafna mill-iskejjel tagħna.

## EDUCATION AND NATIONAL DEVELOPMENT

by Dr. F. CHETCUTI\*

THE role of education in national development has become so accepted that few people stop to analyse how education does make its contribution. In this short paper I hope to trace the various factors which lead to national development and indicate the role education can play. I shall do so with special reference to Malta.

The first aspect of national development which I would like to deal with is national identity. In a country like Malta, which for hundreds of years was under foreign rule, and where independence has been gained only recently, national development means that its citizens must seek and strengthen their national identity. Extreme nationalism has led to enough rivalry and wars between different countries, and should not be encouraged. However a country does not become a nation if its people are not proud of their identity, of their language and culture and of those things which make them different from citizens of other countries. If we are to ensure national development we must care for our national heritage – we must care for our countryside, our trees, our birds, our bastions, our buildings.

We must know the history of our country and be aware of the contribution our religion has made and is making to our culture and way of life. We must be aware of the way our country is administered and also know the philosophy and ideals of our political parties so that we can make the right choice between them. We must have full knowledge of the Constitution of our country and of the principles on which it is based. We ought to be proud of the fact that we are Maltese. Up till quite recently we were not. Many Maltese, for varied reasons, had lost their national identity and were very different to acknowledge that they were Maltese. They preferred being mistaken for Englishmen, Italians or some other nationality. We had an 'inferiority' complex and tended to play down those things of which we should have been proud.

Educational institutions have a vital role in this aspect of na-

\*Views expressed in this article are the personal views of the writer and does not necessarily represent the views of the Educ. Dept.

tional development. Every level of the educational system has the function of helping our young find and be proud of their national identity. In schools in the United States, where it was important that children of immigrants should be integrated as soon as possible into the national identity, the day begins with a statement of allegiance to the flag. In Maltese schools, we teach the same — respect towards the Flag and the President, and encourage participation in national festivities and occasions.

In our schools we lay the foundations for the proper use of our language, which we teach not solely as a means of learning other subjects, but also so that our children can appreciate and use efficiently the language that unites us. At higher levels, our students study the structure and development of our language and appreciate how our language has been used to express the thoughts, ideals of our people, and has reflected our way of life.

In the schools we teach our children about the history of our country. Unfortunately, up to now we have not had the proper approach to the teaching of Maltese history, mainly because the text books we had on Maltese history were written more from the point of view of the occupying power than from that of the Maltese themselves. There has been a distorted view of Maltese history mainly because this was not based on documentation and research, but on biased reporting and sometimes, outright invention. The situation is improving. Researchers are finding how Maltese behaved, felt and reacted. The stress is being put on how the Maltese maintained their national identity in their long search for independence. Within a short time, our secondary schools will be provided with a new history text book which should help teachers make their students see themselves as part of the long sequence of the history of their country.

In the schools we encourage children to protect and enhance their environment. We make them aware of the wonder of birds and trees. We encourage them to raise seedlings which later on they plant and care for in their own village. Through the formal and informal teaching of Civics schools make students aware and proud of their country.

There is another kind of development in which schools have a vital role to play. This is development in the quality of life, in the culture and artistic expression, and in the moral tone of the country. This development is the slow ascent of a country towards real civilisation — the liberalisation of the human spirit and the opportunity for every citizen to develop his potentialities to the full.

This development is achieved when the people who make a nation are men of principle who respect the personality and rights of others and who understand that everybody is equal under the law, that human rights apply to all. This social development occurs when there is organisation and order to allow the individual freedom to express himself in art, craft, and in achievement. There is no need to enlarge on the contribution education plays. It is the schools that give the young the basic skills which enable them to raise themselves above their surroundings. Children are helped to learn to appreciate the beauty around them and encouraged to be creative; where there is good education there is a renaissance in society, in its arts, in its creativity, in its respect towards the environment, in its search for new ideas and towards truth. Society then respects the individual and abhors conflict and war. It also becomes discriminating in its use of technology and its products.

Naturally, this aspect of development depends to a large extent, but not wholly so, on the level of economic development. People who are hungry, people who do not find decent accommodation, people without adequate medical care, people who cannot find work, cannot improve the quality of life unless there is enough economic development to help rise life above the level of a struggle for existence. The key is economic development, though once this is achieved, it depends a great deal on the social development of a country whether the wealth gained leads to materialism and to a deterioration of the quality of life or to an all round improvement in society.

We read a great deal on the part played by education towards the economic development of a country. The sentence 'Education is a good investment' is so often used that it has become a slogan, and few people analyse what it means. Up to the first World War, the idea that education is a good investment was little known. Education was considered as the privilege of the rich, as a social asset and not as a means for greater productivity. Education was also sought by the middle classes so that they could maintain and improve their standing. There was little awareness of the link between education and economic development. One remembers that countries like England, Germany and the United States had their Industrial Revolution and developed their technology-based economy when more than half of their working populations was illiterate. With the struggle against colonialism, when many countries found their political independence hindered by lack of economic development, the concept of education being a good investment

came into its own. Poor countries found that capital invested in education leaves high interest by providing part of the infrastructure required for economic development. Education not only leads to better citizens, but provides the manpower required at every level, manpower which is adaptable to new techniques. The most important 'factor' a country can have is its own people. It is the thought, the skills, the art and genius of its people that provide crops and food, and use raw materials to produce goods required. Countries which were rich in minerals and other raw materials but whose people were not trained or educated, remained undeveloped and were exploited by other more developed countries. Others did not have raw materials but through the high level of education of their people, managed to attain a high level of economic development.

In Malta, we have practically no raw materials and we have to depend on our economic development on the skills and discipline of our people. Because of this, we, perhaps more than other countries, have to rely on the contribution of education. We also have to ensure efficiency in the educational system lest it consumes badly needed capital without giving adequate returns. Many countries devote a big share of the national budget to education and Malta can be considered among these countries. Of the £M74,456,803 Capital and Recurrent Vote in the 1975/76 Budget, £M7,396,050 were earmarked for education and culture, and this was a year of capital expenditure on drydocks, telecommunications and public housing.

In all countries educational systems face a dilemma. In contrast to other industries, education is both a producer and consumer of high level manpower; if it is to compete with other industries for the manpower it needs for its teaching force, it must pay its teachers competitive salaries. In many countries, Malta included, a high percentage of the money voted on education goes into salaries. During the 1975/76 financial year, about 68 per cent of the education and culture vote was spent on salaries. Since so much is needed for education to maintain itself, the educational system must be efficient and of high quality. Every pupil who leaves primary school not knowing how to read and write, at least in Maltese; every student who leaves a Trade School without having learned a trade; every student who leaves secondary school without the promise of being a good, productive citizen, is a waste not only of human potential but also of badly needed capital which could have been spent on hospital equipment or housing or factories.

When schools help to produce honest, hard working citizens with a sense of discipline, when they encourage in the young initiative and imagination and develop their talents, an enormous amount of energy is released in the country. Every level of the educational system has its part to play and each part overlaps the other. At the primary level children are trained in the basic reading, writing and computing skills so that they can have the tools to continue learning. Children are also made more intensely aware of the world around them. Their sense of curiosity and imagination are encouraged and sharpened and their physical and mental energies released and channelled towards self-development. At this stage children begin to learn to work together. It is the primary schools that should ensure that potential is not nipped in the bud. This education and training continue at the secondary level but there is a shift in bias. At the primary level the concentration is on the child himself. At the secondary level the focus is still the child, but the child in society and his contribution to this society. A student is made to think of a job and to acquire the training and skills he will require in his future job. This is not the sole aim of secondary education, but it is one of the major ones. In a number of countries this period of general education and training is becoming longer. When a skilled worker is expected to change his job at least three times during his working life, there is need for people who are adaptable and who can use their initiative in fitting themselves for new skills and techniques. They have to have a solid foundation of education so that they can adapt quickly to the changes that occur. This long term policy of manpower training is more easily adopted by rich countries. But sometimes, when a country is in its 'take off' stage of development, when it lacks essential manpower at every level to maintain and expand its existing industries, it must make use of 'short term' measures. The need arises to take short cuts in training young people into the skills urgently required by the country - welding, machine fitting, plumbing, electrical installation, and other trades and crafts, so that factories can operate. Malta has adopted both systems. The Technical Institutes accept their intake into middle level technician courses from students who have finished their five year secondary school course. The Institutes have had and will continue to have a very important function in the training of skilled manpower and their role will be intensified and expanded. Besides the Technical Institutes there are also such specialised institutions such as the School for Nursing, the Nautical School and the School of Electronics. However, des-

pite these institutions there was a considerable waste of human potential and far too many of our young people were leaving school untrained and without the motivation to continue their education and training elsewhere. With the raising of the school leaving age to sixteen, many boys and girls who had seen little relevance of the education they were being given, saw the extra years as an extended period of frustration. These young people were eager to go out to work but did not know how and the new Trade Schools fitted both their needs and also the need of the country for young people skilled in crafts and trades. The different conditions in the Trades Schools, which to young people looked and felt more like factories than schools, gave frustrated students the motivation and hopes they had lacked. Besides offering them opportunities to learn new skills, the Trade Schools offer them the opportunity to learn new attitudes of self-reliance and self-help. Young people in Trade Schools are taught to make the things they need in their schools. They are also taught to become productive as soon as possible. The Trade School experiment shows that it will succeed in its short term aims. Whether it will succeed in satisfying the long term manpower needs of the country depends on three main points:

1. The provision of facilities for life-long education where these young people, whose general education may have been somewhat curtailed, will develop other skills or broaden those they have, and improve their general education after they have started work.

2. The organisation of the educational system in such a way that there are no closed doors between one level and another. A promising student in a Trade School, or one who is a late developer, should find it possible to move to a Technical Institute and from there to the Polytechnic if he is able and willing to do so.

3. Sympathetic supervision and further on-the-job training once these young people find jobs.

At present the skilled manpower our economy needs is trained in the schools. One of the reasons is that with the exception of the Drydocks and a few government departments, there are no major industries which take responsibility for training the new manpower they need. Vocational training is generally not done 'on the job' but in the Trades Schools, in the Technical Institutes and the Polytechnic which train the craftsmen, the technicians, the waiters, office staff, the cooks and the seamen Malta needs.

The third level of education – the University and the Polytechnic, has the function (among others) of providing high level man-



power. It is possible that up to now there has been little planning on what this high level manpower should be. The general attitude was that the more graduates we had the better it would be for the general tone of the country; that these graduates and professional people would give Malta the leadership it needs and help towards the development of a national identity and the social development of the country. No thought may have been paid on the right mix of professions and the only control and direction was the number of places available. Not enough thought was paid on the relevance of university and polytechnic courses to the economic development needs of the country. Even when education was looking after its own manpower needs – teachers, it did not take into consideration its actual needs. It kept producing teachers for the primary schools when what was required was teachers for the secondary schools and did not realise that it was overproducing. Third level education could be very efficiently producing skills and professions the country does not really need. Recently however there is more awareness that these two institutions should be geared to the economic development of the country. Both are asking such questions as 'What kind of engineer does Malta need? How can we have better managers, trade union leaders, accountants and teachers? How could degree courses be made relevant to the students and their future work? How can we encourage research which can help our economic development?' Both Institutions are become aware that they must get their priorities right and that they are duty bound not only to expand but also to prune if they are to use efficiently funds allocated to them.

Economic growth and educational expansion are mutually dependent. The former creates the financial and psychological conditions which are favourable to the latter, and inversely, educational expansion, especially at the secondary and higher levels of technical and vocational training, is a necessary condition of economic progress. When deciding the relative values to be attributed in a development plan to the various types and levels of vocational and technical training, a clear and accurate picture of the manpower needs in the various occupational categories and at the level of skills is very important. It takes time to set up new schools and to complete the training of young people attending them. It takes even longer to train teachers in new skills. Forecasting manpower needs is never easy and depends on the success or otherwise of the development plan. Such hazards are considerable in the large industrialized countries. They are even more serious in the developing countries.

In Malta we share the same difficulties and may have some of our own because of the small size of the country. It is easier to have a thorough knowledge of the occupational structure of the active population so that existing deficits can be corrected. The relatively small numbers involved make it possible to depend on expatriate expertise until local personnel can take over training responsibilities. However, any mistakes in manpower training are felt more because they cannot be so readily absorbed. At the higher levels of manpower there is always the danger of a 'brain drain'. At this level it is uneconomical to train small numbers and over production may lead to frustration and under-use of highly qualified personnel.

The various services in a country always make requests which together exceed the country's financial possibilities and a political decision has to be taken on allocation to particular services. Education also falls under this restraint. In developing countries the decision may be to give priority provisionally to the economic aspect of educational expansion as the best way of obtaining in a relatively short time a wide educational expansion based on purely human and cultural motives. In Malta, the general tendency has been to base the expansion of education largely on human and social considerations and not simply on economic needs. It is only lately that attempts are being made to give the economic needs more stress by basing the educational pyramid on an estimated structure of skill categories for the active population. What we are seeing now is a revaluation of educational priorities to make education more relevant and rewarding both to the individual and society.

# EDUCATIONAL SERVICES AND THE PROPOSED GRANTS SCHEME: A PRELIMINARY APPRAISAL

by E.P. DELIA

THE Students Representative Council (SRC), Royal University of Malta, are actively rallying support for the immediate introduction of a grant scheme at the University. A published *Memorandum* (SRC, 1975) professes the urgent necessity for a subsidy in cash to university students; proposes a model 'financial benefit - household income' correlated assistance plan, based on results from a survey about students' needs and expenses while at university; and promises research on the personal demand patterns and related costs of students in the other post-secondary educational institutions in Malta, namely, the M.C.A.S.T. and Trade Schools.

The arguments for the creation of a grants system could be briefly synthesized under three headings:

## (i) EQUAL OPPORTUNITY FOR ALL

Tuition in public educational institutions is provided at zero price; however, maintenance costs over the period of study are real and have to be borne by the student, or, better, by the parents. Therefore, if opportunities for following the course of one's choice are to be equal for all, a student-to-be should be assisted by an annual direct subsidy. This grant should reflect the financial support a student could expect to get from his parents, the prevailing living standard and, consequently, costs. Unequal treatment to persons in different circumstances is equitable.

## (ii) INVESTMENT IN MAN

Tertiary education should be encouraged by Public Authorities because it creates 'human capital' and produces 'externalities' or 'spill-over effects' in consumption and production. A healthy, skilled and adaptable community signifies a larger and diversified productive potential than one which is predominantly illiterate, unskilled or sick. If wisely administered a higher sectoral and aggregate output could better the living standards of all, both of those active in production and of those who are impeded from di-

rect participation in output because of ill-health or age. Education forms a 'better' social man. The benefits of enjoying a more intellectually stimulating life are not exclusively restricted to the recipient but through ideas and ways of self-expression are passed on to others around.

### (iii) INDEPENDENCE FROM PARENTAL FINANCIAL SUPPORT

Students attending university should be freed from parental financial support. The SRC believes in this form of partial independence, yet they are not keen to insist upon it.<sup>1</sup>

The *quality* of instruction and the possibilities for self-expression should not suffer throughout the period a student passes in an educational institution. If the intake of students increases and/or if new courses are started it is tacitly understood that the additional lecturing staff, and the library and laboratory facilities are accordingly adjusted. Optimal ratios between staff-student, staff-research time and output, student-self involvement in academic and social life, student-research output, though not explicitly discussed, are presumably assumed throughout the *Memorandum*. Extending facilities should not result in the deterioration of the commodity offered.

This paper is primarily a 'searching' article. It accepts the *Memorandum* as representative of one well-informed pressure group and attempts to highlight and discuss very briefly some of relevant considerations connected with the provision of educational facilities and the means of financing them. Most of the hypotheses presented in discussions about education in Malta have not been subjected to rigorous research; consequently the pointing out of research lacunae and the speculative nature of certain assertions

<sup>1</sup>The reason for relegating to a relatively minor status the 'partial self-independence' argument could be that, once the grant system is in operation, a qualified self-independence would probably follow as a result; this would depend on every particular student-home relationship.

Moreover, it is truly unwise to get in conflict with other pressure groups whose aim is the defence of family unity. Energy could best be utilised in harnessing support for the scheme rather than exhausted on debating about relationships between the individual and the family unit. Anyway, it is realistic to adopt the persuasive 'moral' argument of helping those in need — the majority would be prone to agree, although disagreement could arise about the optimal way to do it, given the time limit, the community's resources and the socially determined commitments and priorities.

frequently made in connection with tertiary education is an obligation which this paper partly meets in *passim*.

Certain characteristics of the market for educational services and the linkages between this market and the labour market are first introduced and succinctly commented upon. The question of personal opportunity costs in tertiary education is, in turn, raised and illustrated. Finally, some 'ambiguous' features of the proposed grant system are pointed out.

## 1. PRICING, PUBLIC PROVISION AND EDUCATIONAL SERVICES

The demand for educational services is a *derived* demand. A person is willing to hire such services for his own use, or for the benefit of his dependents, because he feels confident that psychic and/or financial rewards follow formal educational training. Formal education is primarily a means to an end: better living standards replete with mental and physical stimuli and the faculty to respond to them.

Individual preference patterns are not sufficient to obtain a commodity; willingness to pay must be translated into the ability to do so. It is known that the income and wealth distribution in any one year in a country is positively skewed.<sup>2</sup> Therefore, the resources available to a section of the community would not allow the consumption of goods and services above those essential for nutrition and for a minimum provision of shelter and clothing. The rigorous application of one law of the private market – failure to pay excludes a person from the consumption of a service – leads to underconsumption of educational services and, consequently, underinvestment in physical facilities and human resources that assist in the production of such services, from what could be considered socially optimal amounts.

An economic case, couched in terms of long-term optimal resource allocation and the maximisation of social benefits, could be made for the public or State *provision* of formal educational services: education produces 'external' benefits and, by definition, the private market would fail to charge for the social, non-private, gains. Stated differently, the actual cost-benefit ratio to

<sup>2</sup>The term 'country' is assumed coterminous with sovereign boundaries.

An estimate of the static dispersion pattern of pretax basic pay rates in Malta, surely, a very limited definition of 'income', is given in E.P. Delia 'Dispersion of pre-tax basic payrates in Malta' – forthcoming in 'Economic and Social Studies' – Department of Economics, R.U.M.

society is lower than the cost-benefit ratio obtained from solely including private costs and private benefit. Educational services should be extended further than the private market would suggest if the true social costs are to be equated at the margin with the true social benefits, thus maximising returns to a given volume of inputs.

The State's intervention in the market for education is also called for because of the possibility of individual myopic behaviour arising out of the non-simultaneity of the payment for a good and the satisfaction of its consumption. It is the parent who pays tuition fees but it is the son or daughter who benefits, in the greater part, from schooling. To rectify any distortion in family budgeting in which expenditure for education could be underallocated, the State's corrective policies are justified. Public intervention could assume the form of legislation enforcing compulsory education and the imposition of fines upon a parent or guardian for failure to meet the minimum obligations specified by law.

Public provision, however, does not automatically imply public production (i.e. control of educational institutions by the State) or education at zero price (i.e. 'free') for all. Of course, it may be optimal to administer a publicly produced, zero price educational system under certain conditions, perhaps resulting in a significant saving-up of time by beneficiaries and man-hours and stationery in administration. Saving of resources, however, should not be outrightly assumed. It should be the object of analysis, the result of research, and not an assumption accepted unquestioningly as a sort of an unrefutable fact of life.

The criterion of public provision suggests simply that those households whose income – command of resources per time period – is inadequate to consider, and afford, sending one, or more, of their members to a formal academic or technical course of study, should be subsidised in order to meet the cost. A subsidy could be direct or indirect. A direct allowance per period increases a household's income leaving the relative commodity price structure initially unchanged. Any effects on absolute and relative prices would follow from the induced changes in effective demand, thereby reflecting consumers' preferences, and also the supply conditions. The nominal purchasing power of a household is increased; if the overall price index remains fairly stable, the nominal increase could be taken for a real gain.

An indirect subsidy takes the form of supplying a good at a

lower price than it costs to produce. If the subsidy equals the production cost, the good is provided at zero price or, as commonly and erroneously held, 'free'. In principle, zero-priced commodities are available for all – for those who are willing and able to pay for them and for those who, though willing, are not in a position to purchase them given their immediate commitments. Subsidising one commodity, leaving nominal incomes unchanged would modify in turn, a relative price structure, thus inducing changes in consumption patterns. If the subsidy amounts to a comparatively low change in real income, the direct effect on demand for the subsidised good would depend on the elasticity coefficient of the demand schedule.<sup>3</sup>

It must be emphasised that privately 'free' goods are not free for society; they are always costs that must be borne by someone. A transfer of resources occurs; but whereas in the case of the direct subsidy, the actual amount of resources transferred is known, in the instance of an indirect subsidy, the volume and distribution pattern cannot be known, unless a detailed knowledge of the consumption patterns of households is available. So whenever this second form of assistance is applied, the reasons for preferring such a redistribution mechanism to a direct subsidy should be explicitly stated. Publicly provided *and* produced services could be sold at an economic price, reflecting costs, while they would still be obtained at zero cost by those who are socially considered eligible to benefit from a subsidy scheme. A 'zero-price'<sup>4</sup> for some, but not for all, is bound to produce different attitudes towards costs from those prevailing in a 'free for all' environment, and help regulate expectations.

The importance of possessing a clear idea of the opportunity costs of resource transfer cannot be minimised. For, intergenerational welfare, however defined, as well as welfare distribution within one time period would depend upon decisions on resource allocation and use. The resources allotted for education services

<sup>3</sup>Economic theory shows that perfect competition produces optimal resource allocation and welfare maximisation. Tampering with the optimal relative price structure would, therefore, tend to reduce welfare. Since the real-world does not necessarily meet the conditions implied by the perfect competitive model, one cannot be sure whether distorting a given price structure would increase or reduce general welfare.

<sup>4</sup>In the case of Educational services, 'zero price' policies could be extended to include tuition fees, transport and residential expenses.

would depend on a series of factors including: the total resources, partly reflecting past decisions, available to a community; the processes through which educational services are to be created and distributed; the historical pattern of provision of such facilities; the distribution pattern of pre-tax, pre-subsidy household income; and the ideology of the political party in government.

Any decision taken affects the immediate and the long-term welfare of generations within a country; it cannot be expected that solutions are simple to obtain. Compromise on several issues would have to be reached. It is helpful, for a proper evaluation of any decision-making, that the upheld value-judgements should be unequivocally spelled out.

Unfortunately, decision-making is not facilitated by the knowledge that formal education produces 'externalities'. It is somewhat difficult to establish up to what level of 'schooling' does the social rate of return exceed the private rate of return. So long as marginal social benefit exceeds marginal private benefit, public subsidies of some kind are called for, the basic tenet being that those utilities or additions thereto, that are exclusively privately enjoyed should be wholly paid for by the consumer. A public subsidy, therefore, is justified when utilities following the consumption of a good are not entirely restricted to the purchaser.<sup>5</sup>

Should public provision be applied only to primary education, where instruction is concentrated upon the basics of self-expression and communication namely reading, writing and mathematics? Should the idea of external benefits be extended to secondary education, grammar technical or comprehensive? Does tertiary education produce externalities? If it does, are the spill over effects limited to general courses or are they also linked to professional courses? Do post-graduate studies result in externalities? To state that 'education produces external effects' is merely saying a truism. The argument would be half-baked.

It should be emphasised that economic theory suggests when private benefits equal social benefits, the person enjoying the incremental welfare should bear the costs that render possible the rise in utility. It is essential, therefore, to establish which type of educational services produce external effects, that is, situations where incremental social welfare exceeds incremental per-

<sup>5</sup> The notion of a 'pure' private good, with zero externalities, is a polar one. Pure private goods do not exist in reality.



sonal welfare.<sup>6</sup>

For example, if a man is preparing himself for a medical (legal) career, and, given the supply conditions of doctors (lawyers), the expected financial rewards<sup>7</sup> produce rates of return on the investment (income foregone, tuition fees and maintenance costs) that are higher than the prevailing rates on comparable risky investment, it could be argued that the benefits are predominantly of a private nature and that the person concerned should pay for learning his skill.<sup>8</sup>

Similarly, academic degree-correlated bonus on a job would reduce the payback period. The time required for the recoupment of the investment in one's self is a matter to be decided following an empirical investigation and not an issue to be solved theoretically. Research would incorporate the probability of not finding a job and incurring additional cost in time spent in search and waiting.

If the probability of finding a preferred job on course termination is unity, the projected flow of income, weighted by the probability value, would not be affected. But with a probability coefficient between 1 and 0 (i.e.  $1 > p > 0$ ), the projected earnings flow would be reduced. A smaller value for probability implies a greater investment risk. The higher the risk, the greater would the unqualified pre-tax flow of earning would have to be if society is to attract the most suitable men for a job.

<sup>6</sup> An increase in a person's welfare, everybody else's remaining constant, means an increase in social welfare. It represents a so-called Pareto optimal situation. If social welfare increases by a larger amount than the increment in personal welfare, spillover effects are said to have followed from a person's increase in welfare following the consumption of a good or a service.

<sup>7</sup> Example is restricted to financial rewards and omits psychic returns because the latter are very hard to estimate and they introduce the thorny problem of interpersonal comparisons of welfare.

<sup>8</sup> Policies could be taken following study of a particular market for skills; means to increase (reduce) supply to meet demand, could always be found. Note, however, that the causes for pre-tax income differentials in an economy, and within a group, are often not easily identified. See:

— Reder M., 'A Partial Survey of the Theory of Income Size Distribution' in Soltow L. ed. 'Six Papers on the Size Distribution of Wealth and Income' (National Bureau of Economic Research — 1969) especially pages 214-229.

— Atkinson A.B. ed.: *Wealth, Income and Inequality* (Penguin Education: 1973 — Part Three).

The probability coefficient could be applied as a proxy for market demand for a given labour skill or aptitude. Supply of such labour inputs could be regulated after account is critically taken of both the medium run requirements, say for a decade, and the transitional phasing out programmes essential to avoid bottlenecks or avoidable surplus. Such human capital and skill projections can never be easy to achieve and frustration for the transitional students would, probably, never be eliminated. Factor markets operate with a lag in response to changes in final goods market; knowledge is not available in time for some students to change half way through a course of studies; and supply of services, including the educational, would fail to react as they ought to, under a zero price system. Decisions to modify the intake of students entitled to benefit from specific courses would have to be taken by public administrators in a seemingly arbitrary fashion.

If the investment motive for following a course loses its attraction, a student may decide to carry on with his original plans for the psychic returns that a particular course is expected to offer. Society, through its education leaders, would have to decide whether the provision of such a service is justified or not once pricing is ruled out as a rationing device. This dichotomy in motivation for study could be shown as follows:

$$E_t \rightarrow C_t; C_n, \dots, C_f; Y_m, \dots, Y_r.$$

where  $E$  = Time spent at an Educational institution, pre-primary, primary, secondary and post-secondary.

$C$  = Psychic rewards, including the satisfactions obtained from the status associated with a job.

$Y$  = differential flow of earnings per period.

$t$  = years spent at a formal educational institution.

$n$  = years after finishing formal education, assuming, to simplify, no formal on-the-job training.

$f \leq d$  = age when mental faculties stop functioning; this could happen before death ( $d$ ).

$m$  = time when a job is taken.

$r$  = age of retirement from work.

The time dedicated to formal self-formation produces satisfaction while studying ( $C_t$ ) (or dissatisfaction in the case of the boy or girl who attend school because he or she is compelled to do so), future psychic rewards (burdens)  $\sum C_n$  at times difficult to dissociate from good (ill) health and, hence, financial costs non-

incurred (incurred), and, flow of income higher than it would have been if educational training were not undertaken.

If the expected differential earning flow fails to materialise, the rewards to the individual would be psychic, summed up by  $\sum_{n=t+1}^f C_n$

which should now be taken to include the 'negative' reward or burden arising out of the disappointment following a malinvestment decision. If a person knows in advance that the probability of finding a job following a particular course of studies is nil, and insists on pursuing his plan it could be plausibly argued that no investment motives are involved. Expected  $\sum Y_m = 0$ ; study is being followed for its own sake - 'Ars gratia artis'.

Primary education in a developed economy is followed for the sake of making a better man out of an individual. However, Secondary education and, almost certainly, tertiary education, cannot be unqualifyingly considered as being so pursued. A financial objective would be prominent in the decision calculus of the students who continue attending these institutions after the legal school-leaving age is reached; for the longer the duration of full-time study, the higher the costs become.

At the tertiary educational level income foregone forms the major component of total costs. A 'zero price' tuition reduces the explicit expenses bill; a grant system, linked to 'free' tuition, contributes towards the reduction of implicit cost. A grant system universally introduced throughout all institutions within one educational sector, could be assumed neutral in the long run, that is, it should not influence a student's decision to follow a course of his own choice from those being offered. However, it might influence decision to continue post-graduate studies, and the basic choice whether to undertake post-secondary education. In the short run, a grant system may induce the marginal student to consider following professional courses; but, in the long run, the additional incentive offered by the grant need not be a determining factor, especially as a household income correlated cash grant possesses an in-built mechanism to reduce the financial attraction of the scheme. Provided that knowledge about factor market conditions is available in time and free, the intake of students for specific courses would be influenced and, in part, regulated by the fulfilled expectancies, or otherwise, of past diploma holders.

The induced changes in the factor-market conditions could foil the 'equality of opportunity' principle on which justification for a

grant scheme is based. The equality principle implies social mobility — tasks which are financially attractive in a time period should be open for all in the future. When factor supply increases, demand being fairly constant, standards expected from the incumbents are raised. Although, in theory, it could be assumed that the quasi-rent element is reduced in the income of factors whose supply is, for a time being, low compared to demand, in practice this need not be so. Instead of having changes in income regulating the flows of demand and supply, there occurs changes in standards expected — standards are raised when supply exceeds demand and lowered when factor shortage persists.

Emigration would reduce factor supply, and, to the extent it succeeds, it would act as a barrier to changes in income levels. But, in its absence, the meritocracy basis that 'equal opportunity for all' policy should give rise to would give way to nepotism. The laws of the market-mechanism operating through price changes would come into force at one time or another; if impeded continuously from doing so, other rationing devices would have to be implemented. A 'Friends' or 'Friends of Friends' criterion is simply one of them!

If a grant system is introduced within one institution, at a given level of education, it distorts the conditions upon which students could be expected to base their decisions. If a course of studies is given only at the unsubsidised institution, the students following such training would be being discriminated against. On the other hand, if courses are available, on fairly comparable terms, at the two institutions, students could be expected to enroll themselves in the one where a grant is available. This could result in the overburden of staff and facilities in the subsidised institution while produce underutilisation of the resource capacity in the 'student-losing' one, unless staff and facilities are fairly easily interchangeable, that is unless the marginal rate of transformation of production between the two institutions is elastic. Misallocation of resources is inevitable and avoidable disutilities arise.

Of course, a partially-introduced grant system implies a lower financial burden for the Public Exchequer; fewer beneficiaries are involved. With a per capita grant for a base, the general introduction of an assistance scheme is unquestioningly more expensive to run, unless the per capita value is obtained in reverse: divide a lump sum by the number of beneficiaries. This would probably mean a lower contribution to those who are in greater need, and it would only partially meet the objective of reducing the burden of finances

from being an impediment to the pursuit of studies of one's choice.

Ideally, perhaps, such a grant scheme should be integrated within the framework of the State's general welfare programme. It is clear, therefore, that the introduction of a major means of income redistribution within a community cannot be lightly treated or analysed on its own. The streamlining of welfare programmes, whenever possible, and the elimination of inconsistencies arising between any two schemes are essential for the minimising of distortive effects on resource allocation within an economy.<sup>9</sup>

In summary, economic theory justifies State intervention in the provision of educational facilities in a mixed economy. However it is not easy to establish whether State subsidies should be extended to all levels of education. The criterion that 'private returns should be privately paid for' demands critical statistical research before it can be usefully applied. A universal grant system, implemented within the tertiary educational institutions, should minimise distortion of individual choice making, although it would be more financially burdensome for the State. It would also accentuate the motives for undertaking post-secondary education, namely, psychic rewards and financial returns. The latter do not depend solely on the quality of education and the student's efforts; rather they are the outcome of a set of forces commonly synthesised in the term labour market structure. A once-and-for-all solution is simply non-existent in the real world; solving one problem very often automatically means creating another.

## II. FOREGONE INCOME, AGGREGATE MARGINAL TAX RATES AND THE PROPOSED GRANT SCHEME

Formal tertiary educational preparation is the output of a combination of inputs of time and effort supplied by the student himself, the quality and time of lecturing and supervision provided by the academic staff, and the input of facilities provided by a well-stocked library and, in the physical sciences, the relevant laboratory or field equipment.

Explicit financial costs for a student include tuition fees, and the expenditure on books, equipment, transport services, and 'self-maintenance' over the study period. Tuition and examination fees are nil under zero-price provision system; but books, transport services and 'self-maintenance' expenses are generally incurred by the student.

<sup>9</sup>See Delia E.P. 'Welfare Programme Reform and Income Supplements' (Economic and Social Studies - R.U.M. Vol. 3 1974).

It is estimated that on average a university student in Malta spends about £M200 annually, at 1974 prices, for his education.<sup>10</sup> This statistic excludes the opportunity cost, or income foregone, of tertiary education, assuming, of course, that the student is offered and accepts a job during the same period. On a weekly wage of £M14, the opportunity cost of a three year course at the university would be £M2184 or £M728 gross per annum, excluding any interest payments accruing during the period. Deducting income tax leaves £M2100.84,3 over the triennium, and £M1961.22,3 'take home' earnings after subtracting the national insurance contributions.<sup>11</sup>

The visible costs (i.e. £M200 annually) represent only 28.47% of income foregone, or 28.56% on the post-tax income estimate. The opportunity cost of tertiary education could be reduced if summer or week-end jobs are made available for students. In the absence of a grant system, occasional earnings contribute to finance 'self-maintenance' i.e. they contribute to the basic £M200 require-

<sup>10</sup> *Memorandum* pages 15-22, reproduces A.I.E.S.E.C. survey. No data are, so far, available about the estimated annual costs for students at the MCAST and the College of Education, now incorporated with the MCAST.

<sup>11</sup> At £M10 per week the income foregone over the three year period, excluding interest payments, amounts to £M1560 gross; £M1546.96,2 net of tax or £M1406.38, allowing for the national Insurance Contribution (equal to £M46.54 p.a. for an employee at 1975 rates).

If the student is unable to find regular employment, the opportunity costs would decline accordingly.

Expenditure on books is not included; comparisons between specific costs related to a job (as books are to education) cannot be made unless the alternative employment is indicated. Similarly 'self-maintenance costs' are assumed similar to both the student and the teenage worker.

A fundamental difference between income foregone and the grant appears in the treatment suggested under income tax laws. In the student's case the *Memorandum* proposes that the head of household should continue enjoying the tax-exempted allowance for his daughter or his son plus a tax-free grant i.e., £M160 + grant, inversely varying with imputed Income. Total tax-exempted income ranges between £M360 and £M210. In the case of the young worker, the child maintenance allowances are no longer credited to his father's income, while he pays income tax in his own right. Since income from occasional work by a student is probably not recorded in the parent's income tax return, the family would still benefit from the £M160 child maintenance exemption; this could represent a maximum saving of £M16 in tax, assuming marginal income just exceeds the tax-exempted level.

ment. With a grant scheme in operation and, for argument's sake, assuming the student is entitled to a maximum benefit, and works for eight weeks at £M14 weekly, the income foregone, from his personal point of view, is reduced to £M416 p.a. Reducing opportunity costs means decreasing the initial investment outlay that needs be recouped at a compound interest rate.

The concept of 'income foregone' leads directly to the issues of the *unit* eligible for State assistance and the fundamental purpose of Government welfare programmes. It is commonly accepted that the State should assist those citizens who are in 'need', however the 'needy' are defined. Usually, also, because of limited resource constraints, the unit for assistance is the household. It is held that households unable to provide a stipulated minimum of amenities essential for sound physical and mental health should be assisted, in kind or in cash, through different public welfare programmes to attain a socially desired living standard. The *Memorandum* recognises this, and, indeed, considers post-secondary education as 'a potential loss of income for the parents'.<sup>12</sup>

At the same time, a grant of £M50 is suggested for those students whose parent's income exceed £M1600 'equivalent';<sup>13</sup> a 'token subsidy' is, therefore, being recommended whether the household is in need or not.

The *Memorandum* would have suggested an outright grant of £M200 per student were it not that this implied a heavy financial burden on the Public Budget.<sup>14</sup> A student should be assisted *because he is continuing his education*. According to this idea, the criterion for State assistance is not a household's needs but personal status. Moreover, since the grant is to be paid in cash to the student,<sup>15</sup> it is his income which is of prime importance. There

<sup>12</sup>Paragraphs 5, 42.

<sup>13</sup>The derivation of 'income equivalence' is explained further below.

<sup>14</sup>Paragraph 27.

It is estimated that the grant scheme introduced to the University would cost £M150,000 at proposed rates and given the present income distribution of present students' parents as suggested by the AIESEC survey. This statistic was given at a press conference by the SRC in December 1975.

<sup>15</sup>Paragraph 34.

Raising the question of 'book tokens' vs 'cash', the *Memorandum* states: 'Our overriding reason, is, however, that the student should be treated as a responsible person and left free to spend the money given to his own circumstances and his own judgement of his needs'.

arises, consequently, an inconsistent attitude towards the unit eligible for aid. The student, for example, could cash in the money, spends it in the way he thinks fit (it is his money) and continue to be a burden on his family.

A grant system is one means of interhousehold (interpersonal) income redistribution. A basic £M200 grant to all students represents a partial refunding of income withdrawn in taxation, unless the grant is subjected to the 'clawing back' influence exerted by the marginal income tax rates, just as children's allowances and end-of-year (or mid-year) bonus are. Suppose that the head of the household, rather than the student is made to receive the grant on the understanding that he administers the funds in the educational interest of the student.<sup>16</sup> This supposition appears to fully agree with the proposed scheme of associating the value of a grant in inverse relation to the 'income' of the head of household and of proposing that the grant should be tax-free while the parent would still enjoy the benefit of child maintenance exemption. With the household for a unit, how do different units emerge, in terms of net income, once allowance is made for both the implicit marginal tax rates<sup>17</sup> embedded in the scheme, and for the explicit marginal income tax rates in Malta?

As observed above, the proposed scheme is inversely related to a household's 'income equivalent'<sup>18</sup> as estimated from the A.I.E.S.E.C. survey. The basis for income estimation is a four person household, married couple plus two dependents; for every dependent above two, £M200 is deducted from a family's income and for every dependent under two, £M200 is added. A student whose parent's income, thus defined, is under £M1000 would receive a grant of £M200; if income lies between £M1000 and £M1200, a grant of £M175 is received; for an income between £M1200-£M1400, the grant is £M125; between £M1400 and £M1600, the grant is £M100, and for income exceeding £M1600, grant equals £M50.

<sup>16</sup>Note that the idea of relating cash to a particular use goes against the basis for administering cash rather than vouchers. See fn. 15 above.

<sup>17</sup>The implicit marginal tax rate (IMTR) is Reduction in grant following an increase in a household's estimated income.

$$\text{i.e. } \frac{\partial G}{\partial Y} < 0$$

where G = grant

Y = Household Income.

<sup>18</sup>This term is not actually used in the *Memorandum*.



The *Memorandum* suggests that the income scale be adjusted to absorb the cost-of-living increase in wages and salaries officially acknowledged by the Government. This proposal demonstrates an awareness about the true importance of the purchasing power of money. In the absence of suitable income deflators reflecting consumption patterns by locality and income group, the addition of the cost-of-living compensatory allowance to the basic scheme should serve as a proxy for price changes.

A comparison between different households, varying in terms of financial income, maintenance burden (family size), and income taxation, is given in Table 1. There is one element common to the five cases, namely the value of 'income equivalent', and the resultant eligibility to a grant of £M200.

**Table 1**

'INCOME EQUIVALENT' OF £M1140, OWN INCOME, FAMILY SIZE AND TAXATION (£M)

CASE	OWN INCOME	LESS NATIONAL INSURANCE CONTRIBUTION	TAX EXEMPTED ALLOWANCE	TAXABLE INCOME	NOMINAL TAX	DISPOSABLE POST-TAX INCOME
I	1140	1093.46	1100	—	—	1093.46
II	940	893.43	940	—	—	893.43
III	1340	1293.46	1230	63	6.3	1287.16
IV	1540	1493.46	1390	103	10.3	1483.16
V	1740	1693.46	1550	143	14.3	1679.16

Note: Case I: Married Couple (MC) + 2 Children (16+)

Case II: MC + 1 (16+)

Case III: MC + 3 (16+; 2 = 16-)

Case IV: MC + 4 (16+; 3 = 16-)

Case V: MC + 5 (16+; 4 = 16-).

(a) The value of £M1140 include the cost of living increase and a 'Christmas bonus' of £M36 for 1975.

(b) Different combinations of the age of children would, of course, lead to different tax-exempted allowance. Allowances are based on 1975 levels. Allowances for Medical Care expenditure and Life Insurance Policies are not included. Their inclusion would reduce, or eliminate completely, tax for Cases III, IV, V. If the grant value

is added to family's income, the head of household could purchase an insurance policy and benefit from the maximum allowance of £M200 allotted by law for such policies.

(c) If the head of household owns his house, the imputed rental value would be added to 'own income' for tax purposes. Liabilities and Maintenance Costs related to own house would be reduced.

(d) In the case of a self-employed head of family, National Insurance contributions in 1975 amounted to £M83.20 per annum.

Adjustments to the income regions within the scale follow only cost-of-living increase; any increments in salary or wage rates, of interest or rent would not be so considered. In Case I, for example, the household would forfeit £M25 annually per dependent for the incremental marginal increase in own income. If the change in income exceeds £M25 per annum, the household would still be better off; but, in the case of two dependents each entitled to a £M200 grant, the change in own income would have to exceed £M50, otherwise aggregate income would be lower than before the marginal increase.

Income increases exceeding £M6.54 (Case I) and £M46.57 (Case II) place the household in the taxable region. Though taxable income could be reduced further by the inclusion of medical expenses, as pointed out in the note to Table 1 above. A clearer definition of the term 'income' is essential. For the same term stands for three different interpretations depending on the interpreter. The head of household would probably concentrate on the cash in hand; the Inland Revenue Department includes income in kind, hence the inclusion of the rental value of owner occupied houses; the *Memorandum* works in terms of, what we are defining, 'Income Equivalent', which differs considerably from 'cash in hand' or 'cash plus kind' values.

Salary or wage increases are acknowledged as additions to own income under the three above definitions. This implies that, over the duration of a course of studies the value of the grant received by the *student* declines as his *father's* salary or wage increases. Precisely when the student wants to consider himself, quasi self-sufficient financially, he would find his own resources declining. This rather ambiguous situation should emphasise the necessity of deciding upon the unit of assistance.

Of course, this observation tacitly assumes that the head of household is not earning maximum salary or wage after sixteen years of service. Cases of job mobility, promotion, and revision of salary/wage scale are not uncommon in the real world; and so the argument may not be as rare as it may appear.<sup>19</sup>

The opportunity cost of an increase in own income in terms of the proposed scheme is summarised in the Implicit Marginal Tax Rate Schedule (IMTR). This is presented in Table 2, the upper limits of 'income equivalent' brackets are used for computations. The IMTR is at its lowest value when such limits are used.

**Table 2**

IMPLICIT MARGINAL TAX RATES IN THE PROPOSED GRANT SCHEME.

'INCOME EQUIVALENT'	CHANGE IN INCOME	GRANT	CHANGE IN GRANT	I.M.T.R. (a)
$Y_E$	$\Delta Y$	G	$\Delta G$	$\frac{\Delta G}{\Delta Y}$ (%)
1000	-	200	-	-
1200	+200	175	-25	12.5
1400	+200	125	-50	25.0
1600	+200	100	-25	12.5
1600+		50	-50	Depends on Income

Note: (a) Sign of IMTR is reversed.

Within each bounded 'income equivalent' group, the marginal tax rate function is a rectangular hyperbola.

To be practical, one must include income tax considerations, pointed out in Table 1, with the opportunity cost of the grant scheme obtained in Table 2. A household consumption potential and, therefore, welfare,<sup>20</sup> depends on net income, that is, income

<sup>19</sup>Upward movement of interest rates on saved-up capital or in rental values on land or construction would have a similar effects on income as wage and salary scales.

<sup>20</sup>This statement assumes that Welfare is a function of a household's consumption. Welfare depends on other factors besides consumption; so the proposition should be taken as a crude assertion about the real world.

post-tax payment and post subsidy receipts. Income tax payment changes according to family size and age and to other circumstances. Table 3 integrates the marginal tax rates, explicit and implicit, for a four-member family, Married Couple plus two children over sixteen. The first five columns derive the marginal tax rates given the 1975 rates, Column 7 adds these to the IMTR obtained from Table 2, assuming that only one of the two children receives the grant. Table 3 illustrates what happens when a household's income increases; in the case of MC+2, the term 'income' would be practically the same for income tax purposes and for eligibility to the grant scheme; this would not be the case for other family sizes.

Table 3

AGGREGATE MARGINAL TAX RATES: MC+2

(1)	(2)	(3)	(4)	(5)	(6)	(7)
OWN INCOME	CHANGE IN INCOME	INCOME TAX	CHANGE IN TAX	MTR	IMTR <sup>(a)</sup>	AGGREGATE MTR
Y	$\Delta Y$	T	$\Delta T$	$\frac{\Delta T}{\Delta Y}$ %	$\frac{\Delta G}{\Delta Y}$ %	(%)
-1140	-	-	-	-	-	-
1141-1340	200	19.34,6	19.34,6	9.673	12.5	22.173
1341-1540	200	49.01,9	29.67,3	14.837	25.0	39.837
1541-1740	200	103.52,9	54.51,0	27.255	12.5	39.755

(a) Sign reversed.

It is observed that the incorporation of the IMTR turns the progressive marginal income tax schedule into an aggregate regressive system over the £M1341-1740 region. At best, if the post decimal point values are ignored, the aggregate tax schedule becomes proportional at the margin over the said income region, namely 39%. A household whose income increases from £M1340 to £M1540 pays £M29.67.3 in income tax and loses £M50 in grant assistance. For the next £M200 rise in income, income tax payment, based on a progressive schedule, rises by £M54.51, but the loss in grant assistance falls to £M25.

As structured, the proposed grant system is biased against certain income groups. If income taxation is to meet its objective of tax progression, the IMTR should be neutral, uniform for all income brackets. If the principle of tax progression is to be applied throughout the tax and subsidy schedules the IMTR would have to rise with income increments. It seems that it is best to construct a 'neutral' grant schedule, thus minimising the disincentive effects of loss in subsidies following increase in own income.

It should be understandable, at this stage, that attempting to establish the net effects of formal educational services and the relative merits of their financing (one of the several forms of resource distribution) is no easy task. Platitudinous statements about imagined, desirable effects leave much to be accomplished. Justice to the multifold influences of educational services and financing systems cannot be properly made in a few pages, with practically no related research being available.

This paper identifies a few neglected factors connected with the pricing system and the education market; it pointed out that other criteria would have to be implemented so long as the demand for places in education institutions exceed supply, and so long as the supply of trained individuals exceed the demand for their services in the relevant factor markets.

This article, hopefully, demonstrated that a general approach to a problem should be preferred to a partial analysis. The comments about the proposed grant scheme should be viewed within this framework. A telescopic vision of a scheme of things is bound to lead to unwarranted, and probably regrettable, conclusions.

# INTELLECT: THE CINDERELLA ELEMENT IN EDUCATIONAL TECHNOLOGY

by CHARLES FARRUGIA

To many educators the term 'educational technology' creates visions of sophisticated and wonderous machines supported by necessarily expensive and highly complex organizations, the panacea of all educational ills. Many other educators regard educational technology as an inhuman, mechanical placebo that relegates teaching and learning to a series of impersonal and educationally suspect manipulation of switches and gadgets. Both views are extreme and wrong since they stress only the mechanical element of educational technology, and ignore the more pervading, if less conspicuous, intellectual element.

## THE INTELLECTUAL AND MECHANICAL ELEMENTS IN TECHNOLOGY

Komoski defines technology as 'any man-made device, process or logical technique designed to systematically produce a reproducible effect' (1969, p.74).<sup>8</sup> He bases this definition on the Greek root where *technologia* (*techne* = art, craft; *logia* = systematic study).

'... had to do with techniques of logically arranging things, activities or functions in a way that could be systematically observed, understood and transmitted; and hence reproduced in the absence of the person who had first done the arranging. Sometimes, such arranging or logical ordering had to do with a way of doing things - a process; but most often it took the tangible form of a mechanical device - a machine' (1969, p.74).<sup>9</sup>

Thus, the products of a mass-production concern can be regarded as the outcome of the two elements in technology: the *intellectual* element designs the artefacts, organizes the process and sets up the structure for the production to be carried out with predictable results, the *mechanical* element is evident in the machinery and the actual reproduction of the artefacts. Analogous situations in education can be found in most uses of the media. In educational broadcasting, for example, the studios, audio, visual and transmission equipment constitute the mechanical element of 'educational'

technology, while the broadcast script incorporating the selection, ordering and presenting of content, together with directions for the use of the equipment, constitute the intellectual element. *However, since the mechanical element is more manifest, 'technology' has become increasingly associated more with machines and less with intellect.*

The tendency to neglect the intellectual, and overrate the mechanical element of technology prevails in the educational world where administrators and teachers believe that when they buy and use audio-visual equipment they are benefitting from, and contributing to, technological advancement, if they lack the machines they are missing out on technological progress. Consequently, as the authors of *The New Media: Memo to Educational Planners* (Schramm *et al.*, 1967, Chapters 1 and 2)<sup>10</sup> stress, too much attention, time, finance and energy are devoted to proving that audio-visual devices teach as effectively as the teacher in the conventional classroom, instead of developing the content and devising methods which utilize these aids to their best educational advantages. Far too many human and material resources are employed to confirm the value of apparatus, when these resources can be better utilized to refine the intellectual element – through improved selection, organization and presentation of content followed by adequate evaluation and modifications – and in the process enhance the mechanical element. Furthermore, even when technological processes as well as machines are employed in education, these are frequently simply borrowed from non-educational situations and transplanted to serve educational functions. Thus systems analysis, performance contracting, contingency planning, computer science, as well as broadcasting, cinematography and typography techniques, among others, are often simply borrowed from the commercial and entertainment realms and applied to education with little or no adaptations to educational requirements. Similarly, conventional classroom presentations of questionable quality and unvalidated courses are frequently broadcast, filmed, multi-media packaged, programmed, and labelled 'educational technology'.

Effected and impressed by what Komoski calls the impact of the 'world-making technologies of industry, agriculture, and the health services' on education, many educators apply the mechanical, and occasionally the intellectual elements of technology to education, rather than incorporate these elements to develop a technology *within* education. The rest of this paper proposes how the impact of the mechanical and intellectual elements of technology on, and

their application to education can be exploited to evolve a technology *within* education.

#### THE IMPACT OF TECHNOLOGY ON EDUCATION

Toffler (1970, p. 29)<sup>21</sup> writing about the impact of technological innovations on society, explains that these do not merely force change on machines and techniques, but also suggest or compel solutions (or conflicts) to social, philosophical, even personal problems. A cursory look will show that this impact affects all facets of education including educational equipment, environment, attitudes and methods.

*On educational equipment.* The impact of technology on equipment is most evident in the quantity and quality of equipment in the schools. Design improvements, easier operation, relatively cheaper film, video and audio recording facilities, photocopying or printing equipment, as well as greater access to the more expensive language laboratory, television, and computer systems, have encouraged many educational systems to invest heavily in apparatus. Such developments enable teachers and pupils of amateur abilities to produce educational materials of high technical quality, a factor that has encouraged people to use apparatus when only a few years ago they would have been loath to do so.

*On traditional school environment.* A different kind of impact is provided by the technology that makes it easier for students to pursue self-instruction. The development of resource centres, information retrieved systems, radio and television broadcasting, programmed texts, and self-instructional packages\* can free some students from the classroom environment, and allow them to pursue their own interests at their own pace in their own time. Technology can break down classroom restraints to an extent that the early audio-visualists would never have thought possible. The new technology, points out Kurland (1968),<sup>10</sup> has brought closer the possibility of realizing the long desired objective of many educators of having the best teachers do for every pupil what previously they could do only for a selected few.

Technology makes it possible for educational systems to discard their traditional fixed time-tables. The eight-thirty-to-four school day, Monday to Friday school week, and September to July school

\*The educational value of this equipment depends on the quality of their 'intellectual' element (i.e. their content and organization) as well as technical quality.



year, need no longer be rigidly maintained. Similarly, the individualized and mass educational media make it possible to abandon the tradition that the period of formal schooling should begin at five years and end around the age of twenty. for the now possible, indeed necessary, process of 'lifelong' education.

*On traditional attitudes to education.* The effects of mechanical and intellectual technology on society at large are having a direct influence on the students. The young student exposed to mass transportation, instant communications, multi-colour newspapers, comics and magazines, chainstore consumerism, advertising, and the mass communication media, goes into the classroom with a vaster store of knowledge and simulated experiences than his parents did. Other sources of information and experience have demoted the school from being the major official source of knowledge and opinion maker (Coldevin, 1971).<sup>2</sup> They have heightened the division between the in-school and out-of-school life experiences, and the problem of the relevance of much that goes on in school. Far from being awed by technology, today's student accepts and regards it as an integral part of his life, to an extent that in many ways technology is re-shaping concepts and attitudes once held unquestionable.

*On instructional methods.* Less noticeable, but perhaps of greater magnitude than the more spectacular effects described above, has been the impact of technology on the methods of teaching and learning. Programmed instruction comes immediately to mind: it has compelled educational systems to look more closely at curriculum development and methodology, at educational aims and instructional objectives, at lesson structures, and at assignments and evaluation.

The greater use of audio-visual aids can effect methodology even when the lesson-delivery is of the conventional format. Hoban (1968)<sup>8</sup> argues that the instructional efficiency of educational materials derives not so much from the media themselves as from the effective use of psychological principles of teaching and learning incorporated in media utilization. The literature supports this claim. MacKenzie *et al.* (1970, p.75),<sup>11</sup> for example, state that it is a matter of common observation in higher education that the use of educational materials tends to add clarity and precision to the way the lesson content is presented. They suggest that the mere discipline of seeking out, or preparing for oneself materials that are suitable for one's course adds to its educational effectiveness. Vriend observes that due to the use of educational materials,

'lesson design has inevitably become more precise, more realistic, more highly specified, and as a consequence, probably more effective' (n.d., n.p.).<sup>23</sup> Furthermore, Schramm *et al.* (1967, p. 79)<sup>10</sup> and Scharlts *et al.* (1970, p. 39-40)<sup>18</sup> evaluating the effect of the new media in education note that the resultant improvement in lesson design produced by the use of educational materials becomes noticeable not only among educators producing mediated lessons, but also among those who use them in the classroom. The author's own experience in training teachers to prepare lessons both for the conventional classroom and for broadcast presentation, supports this view.

The impact of technology *on* education reaches into every facet; it is not too difficult for educators, therefore, to simply use mechanical devices and believe they are engaged in technological processes.

#### THE APPLICATION OF TECHNOLOGY TO EDUCATION

The use of audio-visual and other teaching-learning aids, and the application of communication theories in education are often regarded as synonymous with educational technology. In fact, they exemplify the way in which the intellectual and mechanical elements of technology are often applied to the educational process, rather than developed *within* a technology of education.

The emergence of film and radio devoted almost entirely to entertainment, and to a limited extent as mass education media, quickly fired the imagination of many educators who fancied the limitations of the classroom spirited away by the new media. For example, a cartoon printed in all seriousness in 1923 by *The Chicago Tribune* and titled 'The Changing World' illustrated Edison's prediction that motion pictures will replace books in the school. The presumed result, as the illustrations and captions indicate, will be that instead of the students having to go forcibly to school, mothers will get them to behave with such admonitions as: 'Now young man, if you aren't good, I'll not let you go to school today'; instead of shuffling their way reluctantly through the school gates, students will be waiting eagerly for the doors to open; instead of rushing out joyfully once school is over, students will leave reluctantly with such remarks as 'Gee, it ended too soon', and 'I wish we could have had another of that nature pitcher' (cf. Adams, 1965, p. 20).<sup>1</sup>

The Yale Motion Picture Research Project (May, 1958),<sup>15</sup> and the Pennsylvania State University (cf. Saettler, 1968, pp. 333-335)<sup>17</sup>

experiments with film and filmstrips as media of instruction, reinforced and gave official sanction to the above notion, even though these studies, among many others, did not provide conclusive evidence that audio-visual instruction is more, or less, effective than conventional methods. Still, the popularity and mystique of audio-visual aids increased with the spread of photography and the greater access to filmstrips, films, and gramophone records.

Many educators hastily envisaged the use of these media as a means of enlivening instruction by introducing previously unavailable elements into teaching and learning. Scenes and sounds remote from the school could be brought into the classroom: the wilds of Africa, the treasures of the Louvre, the King's voice, Beethoven's 5th, even scenes and sounds from the Bible, or the remote, only imaginable first landing on the moon, could be as close as the nearest film or record library. These might be brought into the classroom at the teacher's or student's convenience, the argument went, a facility which undoubtedly could become a valuable asset in facilitating learning. However, exaggerated claims soon began to be made about audio-visual aids, claims that could not be sustained unless the aids were used in conjunction with validated instructional methods.

The main argument that audio-visual aids enliven teaching and increase interest, comprehension and retention is based on the hypothesis that the more abstract the content the more difficult it becomes for the learner to comprehend it. Conversely, the more lucid and nearer to 'first-hand experience' the teaching material becomes, the greater are the learner's chances of comprehension. Dale's Cone of Experience (1961, pp. 42-56)<sup>1</sup> and its later adaptations are based on this hypothesis. To this is added the argument that audio-visual aids are able to overcome the teacher-pupil communication barriers of day-dreaming verbalism, referent confusion, limited perception, and physical discomfort, as well as counteracting the out-of-school interferences caused by the entertainment media (Wittich & Schuller, 1962, p. 15).<sup>24</sup>

Although one cannot disagree with these arguments one can only accept them to a limited extent. No amount of first-hand or simulated experiences can ensure that learning will take place if teacher, or students, or both, lack the interest, the motivation, and the right attitudes towards the subject matter. Further, the passive student facing a boring teacher will remain just as passive facing boring or irrelevant films, filmstrips, television programmes or programmed texts. In spite of the inherent presentational attributes

of audio-visual materials and their potential contribution to education, their full value will not be realised as long as they are used simply as additions *to*, and not incorporated *within* the educational process. Gagné, quoting Thorndike's 'Telling is not teaching', warns that even when audio-visual materials facilitate communication:

'... one cannot simply equate communication with the process of instruction. Communication in its broadest sense of an event involving apprehension of a situation may be said to be an inevitable part of instruction, but by no means the whole (1969, p.95).<sup>5</sup>

Furthermore, communication implies a two-way process in which the sender becomes aware whether the receiver has received, understood and accepted the message. This point is often overlooked by audio-visual enthusiasts.

The failure to fully appreciate the student's role, his interest and personal motivation in the process of learning, remains the major shortcoming of those educators who place too much confidence in the mechanical element of educational technology, and too little concern for its intelligent element. In overstressing the presentational attributes of audio-visual aids, they tend to take the student for granted as a passive and willing receiver. Consequently, they remain primarily concerned with improving the hardware rather than enhancing the role of the mechanical element in educational technology to help the student reach his educational objective. In contrast, the educational technologist is concerned with the role of audio-visual aids in so far as these affect the learner's behaviour. Goldiamond (1968),<sup>7</sup> for example, sees the role of educational materials - including books - as stimuli that the teacher uses to reward students for work well done, as discriminative stimuli that provide information and instruction, as deprivation variables or motivators for further research, as constant stimuli where they become part of an ongoing instructional programme, and as behaviour creating or producing stimuli (i.e. making a model, shooting a film, producing a classroom magazine) in the process of learning. In this content the use of educational materials takes a proper perspective among the many variables that lead to learning *through a technology within education*.

#### A TECHNOLOGY WITHIN EDUCATION

The intellectual element in educational technology has its roots in 'programmed instruction' which came to the forefront with the

work of B.F. Skinner and the so-called Behaviourists and stimulus-response psychologists.

On the principle that changed behaviour may imply learning, and that teaching is a process of behaviour modification, the educational technologist proceeds through experimentation and variable outcomes to develop a technique whereby teaching and learning will proceed in a pre-determined pattern and with predictable results. Thus Goldiamond,<sup>7</sup> for example, regards good educational technology as derived from good teaching theories (science), which in turn are derived from good teaching principles. Thus, *practice* is the application of knowledge, artistry and intuition leading to good or bad results; *science* is the systemization and the making of generalizations drawn from the practices; while *technology* is the application of science to solve practical problems (1968, n.p.).<sup>1</sup> As a scientist, the educational technologist first identifies his problem, then forms a hypothesis to explain it, and finally performs the experiments that allow him to accept that hypothesis or reject it in favour of an alternative. Starting by practice, the educational technologist proceeds to develop a process whereby the environment of the learner is deliberately manipulated and adapted until the response required by the predetermined educational objectives is achieved. In this process of learning, the stress is on *doing* rather than knowing. This factor, points out Gagné (1968, p.6)<sup>5</sup> is the most important outcome of the programmed instruction movement since what is being taught becomes an intellectual skill not merely recallable verbal information. In this concept the learning of history and geography, for example, does not consist in the memorizing and regurgitating of facts, events and dates, but in understanding and interpreting them as factors that influence the way people live. Likewise, mathematics does not consist in the manipulations of figures and formulate, but in the recognition of relationships and the building of concepts.

The stress on 'process' not 'content', and the importance of empirically verifiable results provide the basis for establishing instructional objectives (Mager, 1962; 1967),<sup>12</sup> developing learning systems (Glaser, 1965),<sup>8</sup> stressing instructional design (Merrill, 1971).<sup>14</sup> It leads to curriculum research which looks for relevant content (Taba, 1962)<sup>20</sup> rather than simply updating the information in old established subjects. This development of an intellectual technology of instruction has injected into the educational process the concept, and the proof, that teaching and learning need not be a haphazard activity where the outcome can, at best, be only

guessed at. On the contrary the process of instruction can be structured and conducted in a manner that yields predictable results. The exception occurs – or should occur – when instruction is devised to lead to open-ended results.

The concept of developing a technology within education recognizes and accepts, but at the same time seeks to incorporate, the impact and contribution that mechanical and intellectual technologies can have on education. It is appropriate for adherents to this view of educational technology to seek out ways of incorporating within the instructional process the developments in learning theory, the production and utilization of educational materials, new curriculum content, and planning and management practices. Consequently the interest of the educational technologist in teaching/learning aids, for example, does not lie in proving how powerful or effective they are in teaching, but in devising means and processes where they can be utilized most efficiently. Similar considerations are applied to curriculum development, pedagogical change and educational planning.

The educational technologist's interest in curriculum development derives from his concern about the student's desire to undertake meaningful learning experiences. He sees the need for the student to learn 'how to learn', devise his own learning environment, understand what he is doing and why he is doing it, rather than repeat without understanding what has been drilled into him. The educational technologist's interest in new pedagogy, particularly in instructional design, derives from the stress programmed learning theory places on what Ullmer describes as:

'... the contention that *instruction is a process that can be approached in a systematic or technological manner*, in which the numerous parameters relevant to the efficiency of instruction can be identified, analyzed and manipulated toward the end of prescribing optimum conditions for learning based on and validated by scientific inquiry and measurement (1968, p. 11).'<sup>22</sup>

The educational technologist's concern with planning derives from his conviction that 'the numerous parameters to the efficiency of instruction' can become most effective when educational needs are identified and problems specified, so that all the human and material resources available to the system are planned, organized and managed within the constraints of the society that will benefit from them.

The inter-relationship between the parameters is brought together

by the (British) Council for Educational Technology through its definition of educational technology as 'the development, application and evaluation of systems, techniques and aids to improve the process of human learning'; or Mitchell's definition as:

'... a field of study and practice within education concerned with the intentional and systematic organization of ideas, activities, and environments (through the application of cybernetics, systems theory, and other relevant knowledge and skills) to accomplish a specified and potentially reproducible educational outcome (1971, pp.7-8).'<sup>16</sup>

The foregoing attempts to elucidate that overconcern with the use of audio-visual devices (or the muscle power) of educational technology, over-emphasises just one of its major variables. Furthermore, this over-emphasis tends to polarize the extreme convictions of many educators and non-educators who at one end of the continuum regard the adoption of machines as the only hope of education's survival in an increasingly technological world, and those at the other end who see in machines a further personal threat to themselves as teachers and as another contribution to the dehumanizing of society. The over-emphasis on the use of machines in education overshadows and relegates to a secondary position the intellectual power of educational technology. Instead, the intellectual element should plan, structure, and regulate the use of machines - whether they are blackboards or computers - to lead to an effective, efficient and rewarding process of teaching and learning.

## YOUTH – TRANSMISSION AND COMMITMENT

by Fr. DIONYSIUS MINTOFF

MALTA has a youthful population. More than 35% of its 300,000 population are under 20 and 60% below the age of 25. In a country where there is complete absence of natural resources, the human resources are the only asset Malta can rely upon in national development. And it is against this background that the Republic of Malta's policy on youth is shaped. It is the aim of the government to provide for the development of every young person so that he will be able to realize as full a life as possible regardless of his family's economic background and status. Malta recognizes the importance of providing comprehensive youth services in education and training, health and social welfare, employment as well as general welfare. Recently measures have been taken to nurture the youth into responsible and dedicated citizens of the country by entrusting them with the right to vote at the age of eighteen. The vestiges of centuries of colonial experiences are no longer curbing our youths from a relaxed, active participation in politics. So Malta has brought out new strength, dynamism, hope and self assurance. It has weakened the clash mentality between generation – it has narrowed the generation gap, that stopped the outlets to their talents. There will be a new sense of equality and thus a readiness to respect and understand the views and aspirations of all.

Our country is now dedicated to the ideology of development and modernization. Our own system of education has been for years showing cracks in the wall. Our youths have to be provided not only with educational facilities and economic security but also with the new dimensions to their presence in the community and healthy changes brought about in the approach to development. Our youths are not satisfied with remaining dissatisfied. There are signs that they are on the move. This is a happy sign as long as they co-operate with others who like them want a happier society to live in.

A milestone in the social and educational history of our island was the legislation of the first 'Education Act'. But it should not remain the business of experts in the Government. The co-operation of the people has to be secured to ensure its success. The



younger generation has a major role to play in the implementation and execution of this first 'Education Act'. So far in the educational field we were unfortunately still linked by an obdurate umbilical cord to our pre-independence past. Our 18th and 19th century heritage of division of labour based on a monoculture, a small capitalistic class, a system of education for the few, the academic and white collared, disdain for manual labour and aping our colonial betters still haunt us. There is a reactionary, fossilized thinking among amateurs and do-gooders who feel they hold a monopoly to the future of youth. Education has not found any nobler aim in our country than the examination mania. Everything was learned for examinations purposes. Self-education, self enrichment and self development outside the examinations needs were rarely or never encouraged. The schools have preserved methods which only foster a passive, unthinking mentality.

Only free people conscious of their worth and their equality can build a free democratic society. How close was our system to this ideal? Very far indeed. On the contrary it was a system which produced robots and intellectual slaves and does not in the least encourage the actualization of all our potentialities. The syllabus was there to keep us busy. Politics, international affairs manifest themselves by their absence. Thinking was prohibited. It was not the education of a truly democratic country for it serves the purpose not of the majority but a handful of people and the establishment whose survival depends on the ignorance of the masses. Their culture and their values were rammed down the throats of people eager to 'become educated'.

Malta is running a race against time. As any other under-developed country it has a special role to play in the world education movement. We face many a problem intricately interwoven with demands and aspirations for development which cannot be solved by borrowing institutions and methods from developed countries. New answers will have to be found, experiments ventured upon and flexible institutions created. The contention is that the best way to make independence meaningful is only via education. There must be a plan taking into consideration all social, political, economic and intellectual realities. The publication of the 'Development Plan for Malta 1973-1980' illustrates the Government's efforts in this direction. Making active citizens, capable of understanding and coping with the problems of society is the grand design of this 'Plan'. The younger generation has a major role to play in its exe-

cution. Without their participation, development will be very slow and expensive. But with their participation, they will become aware of the various roadblocks along the way of progress. Maltese youths are strong believers that they can lead a rewarding life both as individuals and in society. This is impossible unless they have contact with social, economic, cultural and political life. Maltese youths are helping the quick and smooth development of our island by their revolution: 'the superseding a pedagogy of transmission by a pedagogy of commitment, relationship and research.'

Mediocrity prevails in a country when its people are not imbued with noble ideas and a sense of direction. It is true that scarcity of jobs had forced our intellectuals into joining the Civil Service where many vegetate intellectually. But Malta independent means independent reasoning, original work and productive thinking.

It seems to me that these two objections correspond to two needs, to two of the fundamental aspirations of youth which are also the two requirements of a developing island.

Our young people certainly desire independence, yet yearn for a sense of belonging to a community.

It is one of the duties of the University to teach them how to acquire the former, as a sense of freedom, and the latter as a driving force for the development of our beloved country – Malta.

# IS-SEHEM TA' L-ISTUDENT FL-IZVILUPP

minn J. SAMMUT

## I. L-IZVILUPP ĠENERALI

KIEKU kellna nagħmlu "survey" u nsaqsu x'inhum s-sehem ta' l-istudent fl-izvilupp, jiena ċert li l-biċċa l-kbira mit-tweġibiet ikunu li l-istudent ma jikkontribwixxi xejn għax ma jaħdimx. Naħseb li taqblu miegħi li din hi ideja żbaljata ħafna. Mhux biss żbaljata imma wkoll ta' ħsara għall-izvilupp innifso u intom fid-dmir bħala studenti li tikkumbattu dan l-iżball fl-interess tagħkom u tal-pajjiż:

Biex inkunu ċerti fuq hiex qegħdin nitkellmu bi hsiebni nibda ngħid xi haġa fuq l-izvilupp: x' nifhmu bi żvilupp, x'jinvolvi, x'għandu jsir biex jithaffef u x'parti għandu f'dan kollu l-istudent.

Mhinix sejjer nesponi xi teorija partikolari iżda l-iskop tiegħi hu li bil-ftit hsibijiet li sejjer inpoġġi quddiemkom nipprova nistimula il-fantasija tagħkom bix-xewqa li dan iwassal halli tużaw il-ħażna kbira ta' enerġija u idejat tagħkom b'ċertu entużjażmu u kreattività, kwalitajiet li jikkarakterizzaw il-popli ta' daww il-pajjiżi li għamlu l-akbar isem fl-istorja ta' l-izvilupp tal-bniedem.

### X'NIFHMU BI ŻVILUPP

Bosta drabi meta nsemmu żvilupp nillimitaw ruħna għall-izvilupp ekonomiku biss. Jista' jkun li r-raġuni għall-dan ġejja mill-importanza li kiseb dan is-sugġett minn wara It-Tieni Gwerra Dinjija 'l hawn.

Fil-fatt, l-izvilupp nazzjonali ihaddan progress f'bosta oqsma barra dak ekonomiku, bħal ngħidu aħna, żvilupp soċjali, politiku, kulturali, legali u amministrattiv. Dawn il-bosta oqsma ta' żvilupp jagħtu lill-pajjiż identità nazzjonali u kollha huma b'mod jew ieħor marbuta ma' xulxin. Ma għandniex xi ngħidu l-izvilupp ekonomiku hu ta' importanza kbira. Hu għandu relazzjoni diretta u jwassal għall-żvilupp f'bosta oqsma oħra tas-soċjetà. Aħna jkollna hawn nittrattaw is-sugġett b'riferenza speċjali għall-izvilupp ekonomiku li hu l-aktar fattur konkret u li fuqu jien nista' nitkellem bi ftit aktar kunfidenza.

L-izvilupp ekonomiku hu l-*process* li bih il-produzzjoni u l-ġid

fil-pajjiż jikbru b'rata kontinwa. L-għan ewlieni hu li l-ġid li jġib miegħu l-iżvilupp jitqassam b'mod ġust biex jogħla l-livell ta' għejxien tal-poplu kollu, jinqered il-mard, titwal il-ħajja, jitjiebu l-kundizzjonijiet ta' saħħa, djar u taġħlim. L-iżvilupp jagħti lill-bniedem kontroll akbar fuq in-natura, għażla akbar u aħjar ta' kif jgħix u sigurtà akbar.

Dan kollu hu r-raġuni għaliex kull pajjiż irid li jkabbar l-iżvilupp tiegħu. Illum anki l-aktar soċjetà primittiva għandha għatx kbir għall-iżvilupp għaliex bit-titjib kbir li sar fil-mezzi ta' komunikazzjoni id-dinja saret bħall-pajjiż wiehed u dawk li jgħixu f'pajjiż wiehed u dawk li jgħixu f'pajjiżi fqar jafu li l-ħajja tista' tkun ferm aħjar minn taġħhom. Għalhekk dan in-nissel fihom xewqa u aspirazzjonijiet kbar li jiżviluppaw.

#### X'HEMM BZONN GHALL-IŻVILUPP

Il-prim attur ta' l-iżvilupp hu l-bniedem. Biex jitwettaq l-iżvilupp hemm bżonn ta' bidla radikali f'pajjiż fqir. Hemm bżonn ta' xerriet u ideat ġodda u ta' bidla fl-attitudni tal-poplu. Hemm bżonn ukoll li kull wiehed ikun motivat li jagħmel l-aħjar użu mir-riżorsi limitati tal-pajjiż biex jikseb l-aħjar riżultat.

Biex jikber il-ġid fil-pajjiż hemm bżonn li tikber il-produzzjoni. Dan jinhtieg investiment qawwi. L-investment materjali hemm bżonnu biex tinbena u tissaħħaħ l-infrastruttura ekonomika, bħal bini ta' portijiet, toroq, provvista ta' ilma u dawl, komunikazzjonijiet u xogħol ieħor. Hemm bżonn ukoll investiment f'oqsma li jagħtu produzzjoni diretta, bħal fabbriki, magni, lukandi, makkinarju għal biedja u vapuri tas-sajd. Dan kollu hu investiment f'kapital fiżiku jew materjali.

Dan l-investment la jista' jsir u l-anqas jagħti produzzjoni mingħajr nies imħarrġa f'kull qasam tal-produzzjoni u amministrazzjoni. Għalhekk minbarra investiment materjali qabel xejn jinhtieg investiment fil-bniedem jew aħjar investiment fir-riżorsi umani. Il-lum kulħadd jaqbel li l-investment fil-bniedem hu ta' l-akbar htieġa għall-iżvilupp.

#### L-IMPORTANZA TA' L-EDUKAZZJONI

Kif diġà għidt l-iżvilupp hu proċess li jinvolvi l-individwi kollha fis-soċjetà. Fil-pajjiż hemm min qed jipproduċi u b'hekk jgħin b'mod dirett l-iżvilupp, u hemm oħrajn li qegħdin jithejjew biex aktar 'il quddiem ikabbru dan il-proċess ta' żvilupp. Fil-fatt il-proċess ta' żvilupp hu wiehed kontinwu u kemm min qed jipproduċi kif ukoll min qiegħed jiġi ppreparat u mħarreg, għalkemm mhux atti-

vament fuq xogħol li jirrendi qliegh, jiformaw kollha parti ntegrali mill-proċess dinamiku ta' l-iżvilupp. Min għadu mhux jipproduċi qieghed jitharreg' biex għada jkun jista' jagħti sehem dirett għat-tkabbir tal-qliegh.

Biex ċittadin jagħti sehem għall-iżvilupp jinhtieg' preparazzjoni tajba u dan jitlob sistema ta' edukazzjoni addattata. Din is-sistema trid tghallem sugġetti bażiċi biex kulhadd ikollu aċċess għall-ħażna ta' għerf li ngabar matul iż-żmien, biex wiehed jitharreg' fil-ħsieb, titqanqal il-kurżità għat-tagħlim u nteress tu-ħajja, u biex wiehed jaqbad aktar malajr it-taħriġ. Dan hu l-ewwel pass: warajh jiġi taħriġ dirett f'sengħa jew professjoni li jista' jwassal għall-tagħlim u taħriġ aktar avanzat.

Illum kull bniedem attiv, sew jekk għadu l-iskola u sew jekk jaħdem, huwa student. Fid-dinja moderna s-sistema tal-ħajja qieghda tinbidel kontinwament u l-bniedem ma jistax jintrabat ma' sistema ta' edukazzjoni statika. Għalhekk nibtet l-ideja ta' "lifelong education". Dan hu konċett vast ta' proċess ta' edukazzjoni kontinwa tul il-ħajja kollha tal-bniedem biex tiġi żviluppata l-potenzjalità ta' kull individwu u b'hekk jintlaħqu l-ħtiġiet tal-ħajja li kontinwament qieghda tinbidel.

## II. L-ISTUDENT F' MALTA

S'issa ttrattajna s-sugġett b'mod generali. Issa nghaddu biex naraw is-sehem ta' l-istudent Malti fl-iżvilupp ta' pajjiżna.

Bħalissa Malta għaddejja minn fażi mportanti fl-iżvilupp nazjonali. Kellna bdil kostituzzjonali. Fl-opinjoni ta' bosta għandna bidu ta' qawmien kulturali ġdid. Qieghda ssir bidla strutturali fis-soċjetà u fid-drawwiet tagħna. Dan it-tibdil kollu qieghed isir b'mod evoluzjonarju. Biex dan it-tibdil jissahħaħ u jdaħħalna f'fażi ġdida hemm bżonn ta' bidla strutturali ekonomika u l-gvern fassal pjan li jfisser l-għanijiet ta' l-iżvilupp u l-mezzi li bihom għandna nilhqu dawn l-għanijiet.

Kif jista' l-istudent Malti jagħti sehem akbar biex nilhqu l-għanijiet ta' l-iżvilupp ta' pajjiżna? Jien sejjer insemmi dett modi:

- (a) l-atteġjament ta' l-istudent lejn l-edukazzjoni;
- (b) il-preparazzjoni ta' l-istudent għall-ħajja tax-xogħol; u
- (c) il-motivazzjoni ta' l-istudent.

### (a) L-ISTUDENT U S-SISTEMA TA' L-EDUKAZZJONI

Fl-interess ta' l-iżvilupp hemm bżonn li l-istudent jifhem aħjar il-bidla meħtieġa fis-sistema ta' l-edukazzjoni u jaddatta ruħu għaliha.

Sa ftit ilu l-ghan basiku tas-sistema ta' l-edukazzjoni tagħna mill-iskola primarja sa l-Università kien skond il-ħsieb tradizzjonali li l-ħajja tal-bniedem hija maqsuma fi tnejn:

- (i) perijodu ta' preparazzjoni u taħriġ; u wara
- (ii) perijodu ta' attivita diretta jew xogħol.

Skond din is-sistema kif student kien itemm l-ewwel perijodu kien jakkwista ċertifikat, diploma, grad, jew iġħaddi minn eżami li jimmarka t-tmiem tat-tagħlim u l-bidu tal-ħajja tax-xogħol. Taħt dik is-sistema l-istudent kien bilfors irid jitgħallem kważi dak kollu li seta' jkollu bżonn tul ħajtu kollha. B'hekk l-edukazzjoni kienet maħsuba li ddeffes f'ras l-istudent l-akbar għadd possibli ta' fatti li wiehed ried jiftakar tul ħajtu.

Billi llum hemm il-bżonn li l-bniedem għandu jibqa' jitgħallem tul ħajtu kollha, is-sistema ta' l-edukazzjoni nbidlet u jinħtieġ li l-istudent jaddatta ruħu għal din is-sistema. Issa l-edukazzjoni tkompli wara l-ħajja akkademika meta l-ħaddiem jakkwista motivazzjoni għal studju aktar avanzat u taħriġ aktar.

Ma hemm bżonn aktar li nghabbu moħħ l-istudent b'ħafna fatti, iżda l-edukazzjoni formali għandha isservi bħala preludju biex wiehed jitgħallem jesprimi ruħu u jgħix u jaħdem f'soċjetà. L-emfasi prinċipali għandu jkun fuq l-espressjoni, żvilupp ta' fakultajiet mentali, konċentrazzjoni u osservazzjoni. Wiehed għandu jitħarreġ dwar fejn u kif għandu jfittex informazzjoni u jakkwista l-ħila li jaħdem flimkien ma' oħrajn.

L-istudent hemm bżonn jifhem li kull fażi tul il-ħajja tal-bniedem toffri ċerti esperjenzi partikolari u għalhekk kull perijodu tal-ħajja għandu jitgawda. Waqt il-perijodu ta' studju iż-żagħżuġ ma għandux iqis lilu nnifsu bħala skjav ta' l-istudju iżda irid jagħmel mill-aħjar biex jiehu sodisfazzjon mill-istudju u t-tagħlim.

Huwa veru li biex wiehed jakkwista mpieg jew kwalifika irid jgħaddi minn eżami iżda l-istudent irid jiftakar li l-akkwist ta' mpieg ma għandux ifisser it-tmiem tal-karriera ta' studju iżda l-bidu ta' fażi ġdida ta' tagħlim.

#### ATTEGGJAMENT XJENTIFIKU

L-iżvilupp jeħtieġ li l-bniedem jaddotta atteggiament xjentifiku. Għalhekk hemm bżonn li l-istudent jaddotta din is-sistema jekk irid ikollu suċċess fil-karriera u jagħmel l-akbar kontribuzzjoni għall-iżvilupp.

Xi tfisser atteggiament xjentifiku? Fi ftit kliem dan jikkonsisti fi spirtu ta' avventura li wiehed jipprova jiskopri l-ġdid u s-sewwa

u li ma jaččetta xejn bħala fatt. Bniedem xjentifiku jrid ifittex għalih innifsu u qatt ma jasal għal konklużjoni jekk qabel ma jiv-verifikax il-fatti.

S' issa s-sistema ta' edukazzjoni tagħna kienet bażata fuq ħafna veritajiet li ma nistgħux nikkwestjonawhom. Ħafna minna dejjem fittxew is-sigurtà assoluta f'kollox: nibzġhu li niżbaljaw, nibzġhu nistaqsu, ma nissograw xejn u nevadu problemi fundamentali. Darrewna nsibu l-provi lesti u dejjem inġibu ruhna skond l-opinjoni aččettata.

Jekk l-istudent irid jgħin l-iżvilupp hemm bżonn li nbiddlu din il-mentalità. Hemm bżonn nifhmu li l-konvinzjonijiet, ideoloġiji, u drawwiet mhumiex regoli fissi u universali, applikabbli għal kull sitwazzjoni u żmien. Hemm bżonn nifhmu li kull sitwazzjoni u fehma huma relattivi għall-isfond ġenerali u partikulari tagħhom.

L-iżvilupp ta' pajjiżna għandu jiddependi ħafna fuq kemm l-istudenti jirnexxielhom jakkwistaw dan l-ispirtu ta' avventura, ta' riċerka u ta' sfida ntelletwali. Hemm bżonn li nakkwistaw din il-fakultà mentali, din l-attitudni għall-ħajja u għall-verità.

#### (b) L-ISTUDENT U X-XOGHOL

Htieġa oħra ta' l-iżvilupp hija rabta mill-qrib bejn setturi diversi (bħal tekniċi, politiċi, kulturali, industrijali, kummerċjali u oħrajn) u s-sistema ta' l-edukazzjoni. Dan hemm bżonnu biex l-edukazzjoni ssir veru strument għat-titjib fil-ħajja soċjali u taħriġ tal-ħaddiema biex ikunu jistgħu jaqdu aħjar dmirijiethom u r-responsabbiltà tagħhom b'suċċess.

L-istudent jista' jagħti sehm wkoll biex tissaħħaħ din ir-rabta bejn id-diversi setturi ta' l-ekonomija u s-sistema ta' l-edukazzjoni. U dan hu aspett li jolqot lill-istudent aktar mill-qrib għax għandu x'jaqsam mal-impieg tiegħu.

Il-lum l-edukazzjoni, u b'mod partikulari l-edukazzjoni għolja, ma għadhiex il-monopolju tal-ftit. Aktar ma jgħaddi ż-żmien l-opportunità għall-edukazzjoni għolja aktar tiżdied. Dan iġib miegħu l-ħtieġa ta' bilanċ bejn il-bżonn tal-pajjiż għall-ħaddiema mharrġa u speċjalizzati u n-numru ta' żgħażaġh b'edukazzjoni avanzata u taħriġ speċjalizzat.

Li jinżamm dan il-bilanċ mhux xi haġa faċli, l-aktar meta fl-ekonomija tal-pajjiż u fis-sistema ta' l-edukazzjoni tkun qed issir bidla strutturali. F'ħafna każi in-nuqqas ta' bilanċ iġib miegħu ħala ta' riżorsi, frustrazzjoni fost iż-żgħażaġh u telf għal pajjiż.

Hu d-dmir ta' l-Istat li jiżgura li s-sistema ta' l-edukazzjoni tkun orjentata għall-ħtiġijiet ekonomiċi u soċjali tal-pajjiż. Din hi

aktar faċli li tgħidha milli li twettaqha għax kull bidla tqanqal bosta diffikultajiet u gġib magħha ċerta reżistenza. Hemm ukoll diffikultà li wiehed jantiċipa b'ċertezza il-htigijiet ta' haddiema b'ċerti kwalifiki speċjalizzati f'soċjetà dinamika, meta l-bidla fl-ekonomija hija mgħaġġla.

Is-sistema tradizzjonali ta' edukazzjoni bilfors tohloq diskrepanza bejn l-opportunità għax-xogħol u x-xewqa ta' x'impiegi partikolari li jeżistu biss f'moħħ l-istudent. Minn naħa l-oħra bidla fis-sistema ta' l-edukazzjoni waħidha la sejra tirrimedja l-iżbilanċ bejn ix-xewqa ta' l-istudent u l-opportunità ta' xogħol, u l-anqas ma sejra żżid in-numru ta' mpiegi li hemm bżonn. Li rridu niżguraw hu li ma jkollniex żgħażaġh li qegħdin jistudjaw jew jitharrġu bla ebda prospett ta' xogħol jew li jekk isibu jaħdmu, ikollhom jimlew impiegi bil-wisq inferjuri għall-kwalifiki u taħriġ li jkunu kisbu.

Ma rridux nitqarrqu jew niġu skoragġiti mill-fatt li xi gradwati ma jsibux mill-ewwel l-impieg partikolari li jixtiequ. In-nuqqas ta' xogħol għal gradwati jista' jkun ta' natura temporanja u jolqot biss il-gradwati żgħażaġh matul l-ewwel snin tal-ħajja tax-xogħol tagħhom. Id-domanda ta' min ihaddem tista' tkun rigida u ma tirispondix mill-ewwel u awtomatikament għan-numru ta' gradwati li jfittxu x-xogħol.

X' inhu s-sehem ta' l-istudent f' dan kollu?

L-ewwel, kull żgħażuġh għandu jifhem li f'soċjetà moderna l-fatt li wiehed imur l-Università ma għadux aktar garanzija ta' mpieg bi hłas għoli u ta' status soċjali partikolari. Aktar ma l-ekonomija timxi 'l quddiem u jikber l-iżvilupp, impiegi għolja u status soċjali jkunu aktar jiddependu mhux fuq kemm mort skola biss iżda fuq kemm tikkontribwixxi fuq ix-xogħol u fil-ħajja in ġenerali.

Wiehed li jirċievi edukazzjoni għolja ma għandux jippretendi li kif jiggradwa kull "employer" lest biex itih karigi għolja. Fil-fatt nafu li l-"employers" ma tantx timpresjonhom fl-ittri wara ismek iżda b'kemm tista' tgħinhom biex iżidu l-profitti. Hafna korsijiet ta' studju ma jagħtux hliet potenzjali biex wara li wiehed jibda jaħdem ikun jista' jipprattika b'aktar effiċjenza. Iżda dan ma jiddependix biss fuq kemm wiehed ikun studja, iżda fuq it-tip ta' edukazzjoni li jkun irċieva flimkien ma' fatturi oħra li nsemmu aktar tard.

Mingħajr ma nnaqqas ir-responsabbiltà ta' l-Istat u tal-awtoritajiet tal-edukazzjoni, rrid ngħid li l-istudent innifsu jista' jagħti sehemu sew u jieħu bosta inizjattivi.

(i) Meta jasal biex jagħżel il-karriera tiegħu, żgħażuġh għandu



jfittex il-parir ta' nies infurmati.

(ii) L-istudenti ma għandhomx jistennew li jiggradwaw biex jib-dew ifittxu x-xogħol u jieħdu nteress f'attivitajiet soċjali, kul-turali, ċiviċi u f'oqsma oħra. B'hekk jibdew minn kmieni b'interess fil-ħajja tal-pajjiż li sservihom ta' ntroduzzjoni għall-ħajja tax-xogħol.

(iii) Waħda mid-diffikultajiet li tohloq żbilanċ bejn iż-żgħażaġh li qegħdin ifittxu x-xogħol u n-numru ta' impiegi ġejja minn nuqqas ta' komunikazzjoni bejn l-istituzzjonijiet tal-edukazzjoni u l-"employers". Hemm bżonn ta' "feedback" bejn is-sistema tal-edukazzjoni u l-kumpliment ta' l-ekonomija. Hawn l-istudent jista' jgħin biex jimtela' vojt kbir. L-istudenti għandhom jistabilixxu kuntatt dirett ma' setturi ndustrijali u kummerċjali billi jorganizzaw visiti lill-fabbriki, "seminars", u "surveys" biex jittestjaw l-intenzjonijiet tal-"employers" u d-domanda għall-ħaddiema speċjalizzati. L-"employers" jistgħu aktar ikunu liberi u anqas suspettużi li jitkellmu dwar il-prospetti ta' impiegi ma' studenti milli ma' ufficjali tal-Gvern.

(iv) Il-gradwat ġdid għandu jifhem li kif jibda jaħdem ikun għadu sejjer jibda l-apprendistat tiegħu. Jekk għjaraf il-ħila u l-limitazzjonijiet tiegħu jsibha aktar faċli li jimpjega ruħu u jagħti prova ta' x'jiswa pass pass ma' kif jakkwista esperjenza Prattika.

#### (c) L-IZVILUPP U L-IMPORTANZA TAL-MOTIVAZZJONI BIEH WIEHED JIR-NEXXI

L-istudent jista' jagħti sehem akbar għall-iżvilupp b'mod iehor.

L-iżvilupp jinhtieg valuri u attitudni ġodda u organizzazzjoni soċjali ġdida. Hemm bżonn dispożizzjoni li naċċettaw idejat u metodi ġodda. Għandna nkunu lesti li nesprimu l-opinjoni tagħna bla tlaqlieq. Għandu jkollna aktar interess fil-preżent u fil-futur milli fil-passat. Hemm bżonn li jkollna sens ta' puntwalità akbar u aktar nteress f'organizzazzjoni u effiċjenza. Hemm bżonn ta' twemmin fil-qawwa tax-xjenza u t-teknoloġija u l-ħtieġa ta' distribuzzjoni aktar ġusta tal-ġid.

X'jimmotiva lill-bniedem biex jakkwista dawn il-valuri? Kieku kellna nattribwixxu dawn il-kwalitajiet għall-motiv wiehed konna ngħidu li s-suċċess fl-iżvilupp ġej mix-xewqa fil-bniedem li jir-nexxi fil-ħajja.

Is-suċċess fil-ħajja jiddependi fuq bosta fatturi, bħall-edukazzjoni, intelligenza, talent, opportunità u fortuna, iżda dawn il-fatturi kollha għandhom inqas importanza mir-rieda qawwija u d-de-

terminazzjoni tal-individwu li jimexxi. Hemm min jirreferi għal dan il-fattur bhala "D-factor" (drive, doggedness, determination) jew "Achievement Motivation". Ahna l-Maltin nsejhulu ambizzjoni.

Hemm xhieda storika li fejn dan il-fattur fil-popolazzjoni naqas, is-soċjetà staġnat u falliet, fil-waqt li l-pajjiżi bl-akbar rata ta' iżvilupp huma dawk fejn il-haddiem u kull ċittadin għandhom l-akbar determinazzjoni li jimexxu billi jieħdu inizzjattiva, jkunu dejjem lesti li jaħtfu l-opportunità, u jhossu sodisfazzjon kbir li jaqdu dmirhom bl-akbar effiċjenza.

L-iżvilupp ta' pajjiżna jiddependi fuq ir-rieda ta' kull ċittadin li jirnexxi u jikseb suċċess. Hawnhekk l-iżvilupp joffri sfida lill-istudent. Fost l-istudenti għandna nsibu l-mexxejja ta' għada f'bosta oqsma mportanti tas-soċjetà. Rajna li s-suċċess fil-hajja jiddependi aktar mir-rieda ta' l-individwu milli minn kemm wieħed dam jattendi l-iskola. Jekk kull student jifhem u jagħti mportanza lill-motiv li wieħed jimexxi, nistgħu nkunu konfidenti li l-futur ta' pajjiżna hu tassew sabiħ; ma jkollniex dubbju li l-hajja ta' kull wieħed minna tkun ta' sodisfazzjon, u li nilhqu l-għanijiet tal-iżvilupp tagħna fl-iqsar żmien possibli.

THESES AND DISSERTATIONS  
SUBMITTED FOR THE DEGREES OF  
THE ROYAL UNIVERSITY OF MALTA

HERE listed are theses and dissertations submitted for the higher degrees of the University. In addition, I have listed dissertations submitted for a number of first degrees, e.g. LL.D. (a first degree, though traditionally a doctorate) and B.Arch., because there are very few Maltese publications in such fields as law, education and architecture, and in some cases the dissertations embody the only research ever done in a particular field. Dates are given for all dissertations, except for a number of B.A.(Hons.) History dissertations, the dates of which were unavailable.

The Bachelor of Education degree was conferred only once, in 1953.

All the items listed are available in the University's Main Library, Msida, except for the B.A.(Hons.) history dissertations which can be consulted on application to the Department of History, Faculty of Arts, Msida.

Yearly supplements to this list will be published in this journal.

PAUL XUEREB

*Doctor of Philosophy (D.Phil.)*

MALLET, A. – The Orobanche Crenata germination factor – 1974.

*Master of Philosophy (M.Phil.)*

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*Doctor of Divinity (D.D.)*

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- CIRILLO, R. – The doctrine of the Church and the right of private property (with special reference to the 'Rerum Novarum' and 'Quadragesimo Anno'). An appendix on the social problem in Malta – 1947.
- DEBONO, J.M. – The ecclesiology of Karl Barth – 1974.
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- ZAMMIT GABARRETTA, A. – The presentation, examination and nomination of the Bishops of Malta in the seventeenth and eighteenth centuries – 1959.
- Doctor of Laws (LL.D.)*
- ABDILLA, R.V. – The rendering of services – 1959.
- ABELA, G. – Legal problems arising from the registration of trade unions – 1975.
- AGIUS, C.A. – Quantum of damages in injury claims – 1969.
- ARRIGO, N. – 'Jus retentionis' – 1973.
- ATTARD MONTALTO, P. – Impedimentum criminis – 1961.
- BARTOLO, J. – The crime of perjury – 1958.
- BIANCHI, L.R. – Problems connected with *unica charta* wills – 1973.
- BIANCHI, P. – The theory of fraud in civil and commercial law – 1973.
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- BORG, J. – Modern developments in the private international law of torts – 1975.
- BORG BARTHET, A. – The law of persons in the light of the Constitution – 1973.
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- BRINCAT, J. – Promise of sale – 1969.
- BRUNO, V. – The *ultra vires* doctrine in the context of Maltese delegated legislation – 1975.
- BUGEJA CARUANA, J. – Stipulations for the benefit of third parties: a comparative study – 1964.
- BUTTIGIEG, E. – Executive titles and their execution – 1975.

- BUTTIGIEG, J. – A comparative study of partnership *en nom collectif* in Maltese, Italian and English law – 1969.
- BUTTIGIEG SCICLUNA, N. – Legal problems of the hotel industry – 1975.
- CAMILLERI, A.G. – Gaming and betting under Maltese law with special reference to the Civil Code – 1958.
- CAMILLERI, A.J. – Labour practices within the framework of the concept of freedom of association – 1975.
- CAMILLERI, F.G. – The concept of domicile in private international law in Malta – 1958.
- CAMILLERI, G. – PAYE and PT systems in Malta; an analysis – 1973.
- CAMILLERI, J.D. – The usages of trade in commercial sales – 1969.
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- CAMILLERI PREZIOSI, L. – A brief study of the most important clauses of the bill of lading – 1964.
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- CIAPPARA, J.M. – A general survey of the private international law of succession with special reference to Maltese law – 1958.
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## CORRESPONDENCE

B'Kara.

Sir,

Fr. Mario Jaccarini's plea for the setting up of an all-round counselling service at the University (Vol.I No.I) is a very worthwhile proposition. In fact most overseas universities have these services well-organised on their campus and even our secondary schools will soon be having their own counselling services.

However, I think Fr. Jaccarini gives undue importance to the appointment of a medical officer but not enough consideration to the appointment of a counsellor. A professionally trained counsellor should be able to deal (at least in the initial stages) with most of the students' problems, be they emotional, behavioural, vocational, sexual, financial, moral or academic. His training should give him enough expertise to deal with these problems and refer them to the specialist when the need arises. His role would be similar to that of the general practitioner in the medical profession. Of course, the counsellor will have to have the services of such specialists as a chaplain, medical officer, psychologist, psychiatrist and, perhaps, even a lawyer, to refer to when the need arises. This I think should be the pattern for an all-round counselling service the University should provide for its students.

Yours truly,

Joseph M. Sammut



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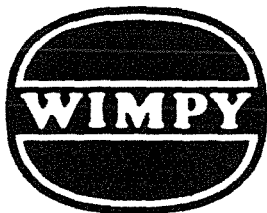
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