TRAINING - The Key to Successful Systems in Developing Countries

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1. The South East Asian Scene

In Asia during the past 5 years, there has been a growth in investment in computers amounting to more than 30% per annum. At the end of 1977, Malaysia had approximately 150 computers, Philippines 250, Indonesia 80, Hong Kong 275, India 430 and Singapore 200. The majority of these installations being first time users who suffer from an acute shortage of trained personnel. In the absence of suitable training, development can at best be retarded, at worst completely abortive, wasting desperately needed resources.

2. The Computer Environment

Many of the problems facing the computer departments in the developing world have a familiar ring to those of us who have been in computing for some years. We would, for example, recognize that a successful department is only possible if much thought is given to its place in the organizational structure. Equally, the positioning of the Analysts, Programmers, and Operations Staff within the staffing hierarchy will have a bearing on the long-term development of systems. Computers initially attract the most intelligent of the developing countries manpower, but without long-term career prospects, this situation will not continue. This is a particularly serious problem in those organizations with a rigid hierarchical structure. There, promotion is normally decided by seniority rather than ability. The arrival of a small group of computer specialists whose skills are much in demand may have a major impact on long established organizational structures. The management will be forced to rethink its whole approach to the way the business is organized and run (a most useful exercise in itself).

Training is frequently regarded as the reward for long and patient service, rather than a vital element in the development strategy. Training has, of course, a part to play in improving morale, but not to the exclusion of its effectiveness in creating and improving technical skills. Ironically, the situation is exaggerated by the provision of "free" training by the manufacturer as part of the orginal contract. Some will inevitably be overseas, and nominations will be done by years of service rather than need.

In UK, if a session or a course is not up to standard, criticisms will be made, sometimes very forcibly. Constructive criticism is, I believe, vital if standards are to be set and maintained. Such attitudes are however very foreign and unnatural to many races and societies. The Asian, for example, is usually very pleasant and polite and loathe to criticize, especially in public Thus, presenters use material and techniques of presentation which would be quite unacceptable in the developed world. This is in part due to the lack of professional training personnel in developing countries, but hopefully this situation will gradually change.

Though not fully appreciated by the users, 'unbundling' has proved of considerable benefit in raising standards. Users now recognize that training costs money, and are therefore more concerned with quality courses related to the needs of the organization. Having to pay for training, has also meant that budgetary provision must be made and the necessary controls established to monitor performance.

There is therefore a need for a person in the Computer Department to be given responsibility for planning and co-ordination training. Most

installations in a developing environment will not be large enough to justify a full-time appointment. The nomination of a suitably senior part-time Training Officer is one solution. I stress seniority, since this indicates the importance of the job to the other staff of the Department.

The management must therefore accept the importance of the right training, at the right time to the right people. Unless this is so, development plans must be amended to match the realities of the situation. Complex T.P. or Data Base systems should not be attempted unless the analysts and programmers have received appropriated training. The latest hardware will never in itself guarantee successful systems.

3. The Training Environment

Ideally, there should be a comprehensive training plan covering both computer professionals and computer users. This should be related to agreed computer development strategy (the existence of such a strategy begs several other questions).

The training will begin with the Analysts and Programmers and at a later stage Operations Staff. A "green fields" situation is in many ways easier to deal with than the extension of an existing programme. Though computer people are supposed to be agents for change, they are notoriously slow to accept new ideas and this is as true in the developing world as elsewhere. The 'not invented' here syndrome is also just as prevalent.

Overseas long-term academic courses can act like a bright light to moths to the students from developing countries--Firstly, the course is overseas (an attraction in itself), secondly it may lead to a paper qualification that can be used for promotion purposes. The fact that the course is highly specialized and perhaps applies to 1% of the senior computer staff in UK or USA is disregarded. The developing countries have a desperate need for staff who can design and implement working systems, not staff that have a Masters Degree in some esoteric aspect of computing that has no relevance to current requirements.

The longer academic courses do have attractions to the computer management. They are much easier to arrange than a short series of related practical courses. Bodies such as British Council will provide the necessary organizational back-up and even the funds if necessary. One large air fare for a 12 month stay appears more cost effective than the same fare for a 4 weeks stay. However, I believe the shorter practical courses taken in sequence will give maximum benefit because staff are trained in specific techniques. They then return quickly to apply their new knowledge to their own environment. The shorter period spent overseas also minimizes the domestic disruption resulting from a years absence.

The home management, however feel the need to obtain their full 'pound of flesh'. The students who may hope for a short holiday , quickly discover that they pass rapidly from course to course with minimum periods of relaxaion. The management must be made to realize that this approach far from maximizing the benefit of the training is indeed counterproductive.

The training needs of the Computer Users can easily be forgotten in the rush to produce systems. The sooner that the user is aware of the potential service the computer department can offer, and the new standards of discipline that he must follow, the quicker will effective systems be produced. Lacking the right kind of education, the users will quickly develop the anti-computer attitudes tinged with an element of fear that were all too prevalent in the more developed countries until recently. The Analyst needs the willing co-operation of the user in any environment, but this is particularly true in the developing country where the physical, social, political and racial factors may well have a considerable bearing on the required system.

There is often some element of self interest in the failure to educate the user. Computer professionals are above average intelligence and educational levels, and they do possess skills which are much in demand. There is then an understandable, if not acceptable, wish to restrict this knowledge to a small magic circle who can retain their hold on the market. The senior line management must resist the attitude and encourage the movement of staff, and hence knowledge, to and from the computer department. By so doing, the knowledge and experience will be broadcast throughout the organization and much of the mystique of computing will be dissipated. The movement into and out of computing will minimize the so called 'onion effect' ie computing is difficult to get into, very comfortable and remunerative for a period, but very difficult to escape from. The mobility will also help computing to be accepted as an integral part of the organization and help to solve some of the problems mentioned earlier.

4. The Provision of Training

Any computer department should have an officer who has some responsibility for reviewing training requirements. Unfortunately, the function is often ignored completely and appears to have no career prospects whatsoever. Consequently there are unlikely to be any volunteers for the position amongst the local staff. The management can do a great deal to correct this situation, by giving the job appropriate status.

A short-term solution to this lack of volunteers (and lack of expertise) is the employment of the expatriate expert. The expert can help particularly by developing an overall strategy and by teaching the local teachers. The long-term implementation can only

be successfully carried out by local personnel. The developing countries need their own home-gram experts. Implementing any new approach takes time and must be accepted by the local personnel. The overseas expert faces the problem familiar to all consultants. Many things appear obvious and easy to the outsider (and indeed that is their particular virtue), but may not prove quite as easy to put into practice. Once again proposals can be affected by the social, economic and political circumstances of the environment.

The expert should have as a primary objective to train the trainer. This officer will speak the language(s), will be permanent resident and will be aware of the local taboos. He or she will nevertheless need to be trained in course organization, presentation techniques, development of material, the creation of training records, be aware of new teaching techniques, be aware of what is available locally, and have the confidence to deal with the manufacturer firmly. The transfer of this teaching technology is where the overseas expert is particularly valuable. The expert who simply gives technical courses will discover if he returns to the scenes of his triumph, after even a short passage of time, that little has really changed for his efforts. He should really aim to be a catalyst which starts a reaction that continues long after his departure.

In Europe the manufacturer normally provides high quality training presented by training specialists. In the developing world, he may require some "persuasion" to provide the same kind of service. Once again the 'ex-pat' expert should be able to offer invaluable advice as to what is the norm. This is particularly important during negotiations for new equipment. The purchase should have very clear ideas as to his requirements as to the form, quantity and quality of training. Any manufacturer unable or unwilling to comply should be excluded from the list of potential vendors. I appreciate the manufacturers problems in providing the back-up, 'but if you don't like the heat, get out of the kitchen'. These problems are not the concern of the purchaser who will find that he has more than enough difficulties of his own once the new equipment is installed.

Apart from theoretical training the manufacturer might offer some on-site practical training through a secondment. Due to a shortage of local sites, this training could again be in the manufacturers home country. This practical training in a working installation has many attractions but is extremely difficult to organize in practice. The host organization is faced with an overseas vistor who may not be completely fluent in the language and is certainly not familiar with the environment. The trainee may be very willing and yet will prove a hinderance to the real work of the department. There will be communication problems so that the training leaves much to be desired. Secondments need very careful planning and very tight on site control if they are to succeed. This control cannot be applied from a distance of perhaps thousands of miles. Unless the manufacturer is prepared to accept this responsibility the

training will prove a waste of time. A possible alternative is to use a training consultancy who will undertake this responsibility for a fee of course.

The developing country is perhaps best advised to consider the creation of a centralized training facility. This is not to suggest that the training offered should be a simple extension of the manufacturers services. Rather that the programme should concentrate on broad principles and aim to create an objective attitude towards the supplier's various services.

The creation of such a facility will involve the expenditure of large sums of money and the creation of a cadre of skilled instructors. The provision of premises, equipment, instructors salaries, machine time, development and production all cost substantial sums, and can only be justified if they are spread as widely as possible. The training must not be limited to one government department and must be repeated as required.

The 'ex-pat' expert can again make an important contribution to this development. Experience in similar organizations and in creating programmes should speed the establishment of the centralized training organization. I believe that the emphasis should be on short practical courses. They should not be manufacture oriented (the manufacturers can do this much better), nor should they be long academic type courses. The developing countries have an immediate needs for Analysts and Programmers who can design a working system quickly. The systems may not be perfect, but then they very rarely are.

The more developed of the developing countries will attract the commercial course running organizations. They will, I believe, only succeed where a training atmosphere is present (in the form of a Training Officer) and of course where a budget has been allocated. The commercial courses do tend to be highly priced and the need for this level of expenditure will only be accepted, when the need for high level training is also accepted.

Conclusion
Computers are being installed at an ever increasing rate throughout the developing world. To succeed they must be backed by skilled local manpower. The training for these skills must be provided locally. Unless this training can be provided, there can only be a tragic waste of resources and a slowing down of development. Indeed, in these circumstances the best advice that can be given is to avoid computers completely.