Challenges Facing Education: Roles and Goals

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In the past fifteen years, there have been worldwide efforts to steer education towards joint goals of equity, access and quality. In many systems these have been linked to efficiency because of financial constraints. All countries face the same difficulties in attempting to achieve these goals established by UNICEF in its conferences in Jomtien in 1990 and in Dakar in 2000. In arguing the case for education for all, world authorities agreed that the three goals of education: access, equity and quality are for all systems to achieve. The manifestation and meaning of the goals and the process of achieving them however differ in different national contexts.

Given that we can expect changes in society, technology and general lifestyles, education's output and its very role can also be expected to change. The rate of change is such that the society that exists when children enter the preschool year, no longer exists when those same young people exit the school system thirteen years later. The same is becoming rapidly true of the school curriculum as systems struggle to keep up.

The interaction between society, education and individuals is by no means simple. The dynamics of change mean that education systems, schools, families and individuals are all affected. Education systems that react will always be in a catch-up mode. Anticipating changes, and perhaps leading change, is important because it provides a defensible basis for decision-making. One thing is certain and that is that change is a constant. Schools and other education institutions operating in this context need to be aware of the trends and pressures placed on them. It is likely that we are in a new era of education where even the general role of education is changing but this is not the first time that the role of education in society has radically altered.

Transitions

The world has experienced two major technological and social transitions that have changed completely the function of education. In some countries it is still possible to observe the all three eras and the relevant educational functions. For generations, prior to the introduction of mass production and the technology of the industrial revolution, the prevailing culture was based on agriculture. Before harvesters and other mechanical implements were developed to plough, sow, fertilise, and harvest crops,

most work was based on the availability of a large supply of people and labour. Many people lived in a small area tending to the many tasks, which arose from the agricultural cycle.

Even the school year was organised around the winter storage, spring sowing and summer harvest. At these periods, the students were needed elsewhere. We inherited the summer, autumn and spring vacations from this agricultural cycle. In many education systems this organisation of the school year still remains.

The labour-intensive use of small areas of land, and the need for the producers to be close to the markets encouraged the maintenance of extended families in close-knit communities. The people with power and influence in the community were those who owned the land. Cottage industries serviced the needs of agricultural production and the artisan or craftsman worked alone or in small groups providing the needs of agricultural and related commodities. Large cities were difficult to sustain and groups clustered close to the source of their raw materials and to the people who could process them. Communication was predominantly by word of mouth, or public pronouncement. It took time and great effort for individuals to gain access to information but this was not particularly important to everyday lifestyles. Education was not particularly important except for those who owned and managed the land and extracted taxes or for those who were to be the spiritual leaders and aspired to assist citizens to acquire religious knowledge. Education was therefore useful only for a few.

The invention of the steam engine and, later, the availability of electricity as an energy source changed these circumstances in ways that must have been beyond the imagination of the village blacksmith, town crier, land owner or peasant worker. Machines on the land diminished the need for a lot of labourers. Factories were built to take advantage of the mechanisation of production and lifestyles were irreversibly changed. People migrated from small agricultural villages to larger manufacturing centres. Young families lived in their own city housing, not with their relatives, decreasing the influence of the extended family and isolating husband, wife and dependent children as a nuclear family. New occupations developed to assist the mass production process, or to service the manufacturing, distribution and consumer industries.

Labour deployment Concentrated on tasks related to mass production in factories and as migration to manufacturing centres gained momentum, larger cities developed and living conditions deteriorated to such an extent that factory "sweat shops" were considered to be superior environments to homes which were without water, power, sewerage or personal privacy.

In the manufacturing centres, people with most social power were those with the greatest control over the production process. In the rural areas, those with the largest land holdings held the power. Craft skills were redeveloped to suit mass-production processes and to service the mechanised industries that developed quickly as new occupations and trades became more refined. Means of communication changed from local "word of mouth" to print and, later, to the more sophisticated recorded media-radio and television. Information from around the world became accessible to almost everyone in developed countries. Formal, public education prepared students for their place in a manufacturing industrial society. Basic numeracy, literacy and specific occupational skills were considered to be all that were needed to secure a lifetime occupation.

Education was founded on gaining access to the "3Rs" and a smattering of social knowledge appropriate to social class. Those who were to inherit or to develop influential positions needed to learn the appropriate social skills in only a few selective schools, supplementing the home influence. Students from low socio-economic levels had almost no chance of developing these skills. A few were able to use education as a means of access to power. The school year was still based on the "storage, sowing and harvesting" cycles and the school's curriculum changed to suit the needs of the industrial society. The division between vocational and academic education became a strong force and in a sense, helped to determine for young their people relative positions in society, just as inheritance did in the agricultural era.

Now the computer is changing circumstances again, and to an extent similar to that of the steam engine and electricity in the industrial era. The term "post-industrial society" was coined to emphasise the idea that the world is undergoing a change of similar proportions and significance to that ushered in by the industrial revolution. The inventions which brought about those world-wide, industrial changes were

augmented by newer technology which affected resources, mobility, access to power, family and social structure, access to information, living and leisure, and the kind of skills necessary to contribute to society and political and value systems. Just as the "village smithy", the town crier and the landed gentry could not possibly conceive of the impact of the manufacturing technology, it was difficult for anyone to forecast accurately the ultimate impact of information technology on work, leisure, lifestyle and education.

It is inappropriate to educate youth with the ideas, values, processes and subject matter of previous generations. Too many aspects of life have changed and changes will continue to occur. The school system is no longer being used to produce individuals well equipped for an industrial society because they must be contributors to a knowledge society. Failure to prepare pupils for this change will lead to massive disenfranchisement and social disruption. Schools and school systems need to make a strong commitment now to long-term planning based on the characteristics of a post-industrial, information based, knowledge age.

Preparation for participation in a knowledge society

An individual's ability to gain access to, manipulate and produce information, in addition to the discernment of quality in tangible consumer products has become paramount as a basic skill in a knowledge society. Because of the influence of information and communications technology, our lives have been changed in many ways. Even our money system has undergone dramatic change for we can access our bank accounts in Australia from street machines here in Hanoi, make reservations on the Internet, and search for information at will. Computers and the knowledge Internet have had a direct or indirect effect on almost every aspect of life, but we are still trying to find ways of using them most effectively to enhance learning in schools.

The computer has had an effect of the same magnitude as that of the steam engine and electricity during the industrial and electronic ages. Agriculture has become less labour intensive and the influence of landowners has diminished. Along with this has come a diminution of the influence of an ideological opposition to the control of land and possession through religion. Factories and other manufacturing entities require

fewer people per product produced and workers now require different, information technology relevant skills. Even the influence of those who control the production and capital has diminished, as has the importance of the control of labour. As the knowledge society becomes more pronounced, new ideologies are emerging based on the control and production of information. Opposition seems to be emerging in a range of ways but as yet no dominant opposite to the knowledge controllers seems to have emerged. Schools and teachers may play an increasingly important role in providing access to knowledge, ensuring equity and quality of learning. Learning itself will have new meanings in a knowledge society and parallels are possible to draw with the shift in education from the agrarian to the industrial age. With the emergence of a knowledge society, what will be the role and function of education, what will the output look like?

Education of course is influenced by other social changes coinciding with the emergence of the knowledge society and perhaps because of it. Individuals are more mobile and able to move easily outside their close family community. Education is now expected to help in the development of values since family and social class patterns may no longer shape these.

There is greater than ever need to access information and knowledge but the knowledge base is increasing at an exponential rate. Power is now inextricably linked to knowledge and information control. Those with the greatest influence are those with the greatest access to, and control of, information and knowledge. The difference between participating in an information age and being involved in a knowledge society is the capacity to evaluate, control and manipulate information.

The shift in the power base from land to machinery to information and now to knowledge will continue. It will create new occupations, lifestyles, value systems and ways of participating in society. It is also creating new ideologies and sometimes-violent oppositions to those new ideologies. Current analyses of the knowledge society generally refer to the rapid and continued technological development in manufacturing and service industries, commerce and the media.

The changing world of work

The capitalist-socialist dichotomy is also no longer relevant. A knowledge society cannot be based on labour as capital but on information and knowledge and the capacity of its citizens to manipulate this and control information flows. If an equitable social order is to be based on a knowledge economy and post-industrial technology, than parallel restructuring needs to occur in all facets of society, including education. Market economy based socialist governments are evidence of this as they become increasingly successful both socially and economically.

This is not the only change emerging as a result of the knowledge explosion that has implications for education. There are many apparent paradoxical situations emerging. Computing and technology itself has been deskilled with greater use of robotics and automation. Jobs are increasingly being designed so that independent thought is neither required nor desirable. On the other hand, critical thinking is considered necessary for an increasing number of non-technological vocations. Educators need to be aware of the shift in thinking skills required. There is a greater need for people to be able to access and make inferences from data and the need for higher order thinking and reduced emphasis on rote or drill or formulaic learning. Individuals will require greater powers of abstraction and independence in order to master complexity rather than be confused by it. Otherwise we may produce has been called the "Technopeasant" who is dominated by technology, whose human capacities are dwarfed by the capacities of machines and computers.

Just as in the industrial era occupations could be classified as those related to the production, distribution and consumption of products and commodities, the occupational structure related to a knowledge society is changing and new occupations linked to the production, distribution and consumption of information and knowledge are emerging. Hence the choice of vocations is changing and enlarging and new options are emerging as the knowledge society takes shape. The new occupations need new and different entry skills and people who lack those skills will be denied entry to a knowledge society occupational structure.

The educational credentialing system is a sign of the way in which education allows entry. Multiple credentials classified students into streams heading towards highly specific destinations. The credential acted as a licence to enter a specific class of vocations. A single credential on the other hand indicated a non-vocational education and required a common curriculum, allowing choice of vocation to be made after the common education has been acquired. In some equity-emphasised literature, this was interpreted as equality of outcomes. Neither system of credentialing has proven successful. We now have a multiple credentialing system with cross over and credit transfer being developed through the recent credit transfer matrix. This flexibility is a sign that education is moving away from locking students into a stream by way of a fixed credential system. This is not the way of a knowledge society.

Clearly, if a knowledge society requires new knowledge, skills, attitudes and values, and if the education system is expected to be one of the prime suppliers of these, then large-scale changes to the system, its structure, organisation, processes and priorities are required. The introduction of computers and technology into the school systems illustrates one such dramatic change tat embodies all of these characteristics. Until 1976, for instance there were no personal computer companies anywhere in the world. Now, personal computer companies abound, the machines are in most homes and they are compulsory in schools. New attitudes, knowledge and skills are a natural extension of their introduction into schools, the home and the workplace. They will even influence the very role of education itself.

The Ideological Purposes of Education

Two views of the purpose of education have been common. Does the school respond to social pressures and serve to reproduce the society ("social reproduction theory") or does it serve as an agent of social change ("social reconstruction theory")?

The first suggests that the function of the schools is to produce citizens fit for the current society and to provide a skills base for its economy. It is a maintenance function restoring equilibrium to the status quo. We see the tension between these two functions all the time. Schools are repeatedly asked to respond to problems in society and to introduce changes expected to lead to solutions. The school is asked to help preserve a society's existing values, political, industrial and economic ideologies as

well as the cultural and social identity by adjusting its curriculum to address social problems. The school is asked to take o the role of a problem-solver, used to maintain social equilibrium by reproducing the status quo. The problem is that the status quo is moving, and global influence of information and political and economic pressures mean that no society is stable and immune from the influence of these pressures. Attempts to maintain an idealised or existing social order by eradicating social problems, or by resisting the influence of the global economy and ideology through education have enjoyed lasting support despite their persistent record of failure.

On the other hand the school is often seen as an agent of social, political and economic change capable of preparing citizens to challenge the prevailing system of values, structures and political systems. It can be manipulated to introduce a new type of society more in accord with the ideals and values of ideological reformers. But, few political systems have effectively used the school system alone as a tool for developing a new political or social order, unless it is supported strongly by a major power base in society. In a knowledge society where information control is the key to power, it is unlikely that global powerbases will use only the school. The basis of a new social order is more likely to be developed outside the school system and then find its way into the curriculum. It is possible that teachers and information workers will be the leading agents in many aspects of this change.

Previous attempts to reconstruct society through the school system without simultaneous political, economic and social reorganisation are non-existent. A new political or economic order usually reshapes the school to support a new ideology and to produce the foundations of the fledgling political and social order. Powerful global influences supply products and services to schools in ways that are needed for entry into the knowledge society, but at the same time inculcate a way of thinking among the emerging generations.

The Goals of Education.

The Jomtien and Dakar conferences emphasised the three goals of equity, access and quality. Policies and procedures need to be sufficiently flexible to accommodate these and still set the direction for a knowledge society. These goals have to compete with

other pressures based on efficiency. Pervasive problems, especially those linked to a lack of access and equity, require support from policy-based curriculum initiatives and will continue to shape education.

A system oriented towards ***efficiency*** is centrally organised, dominated by professionals and geared towards economies of scale. Universal standards are established and general ability and achievement testing is used as a means of grouping or streaming students and matching then to pre determined benchmarks and standards. Whether the standards have any basis in reality of requirement in society is not always a central concern. The curriculum is usually centrally controlled and accredited, and transmitted via approved textbooks.

When ***quality*** of education is the major thrust, support and planning structures are supplied; funding is aimed at specific levels within the system and at specific programs within levels aimed at lifting overall cognitive outcomes. Innovative programs are disseminated from central agencies and students receive credentials based on defined exit competencies.

A system oriented towards ***access*** is decentralised, making use of advisory groups and committees to enhance student access. Funding is aimed at population subgroups for categorical or attribute-based programs. Participation and retention rates become an essential element of policy. But the disadvantaged have continued to lack benefit from additional education, and further encouragement is needed to lift participation rates and the quality of educational outcomes. Access emphasising programs focus on retention rates in order to help minorities benefit from schooling. They aim to provide access to additional education for identified excluded groups and to redress imbalances via comprehensive and compensatory education.

When ***equity*** is a major goal, heterogeneous grouping and mainstreaming form the basis of student classification. Testing and other assessment procedures focus on diagnosis for input and less on comparisons of outcome behaviour. An emphasis on equity assumes that all students who enter a school system are entitled to the same basic education, regardless of ethnic, intellectual, socio-economic or racial attributes.

Differences between schools are minimised and programs aiming to overcome home and social disadvantage become a central theme.

Policies focusing on equity have been around for a long time. Massive expenditure has been allocated to achieve equality of opportunity and outcome. But, while progress has been made, inequalities still exist. This is a socially dangerous situation as large numbers of students are being systematically disenfranchised from participation in a knowledge society. What then is a good system of education? Indicators of equity, access and quality are not difficult to obtain. UNESCO projects routinely collect data to measure these dimensions. Some examples show how difficult it is to achieve in all three.

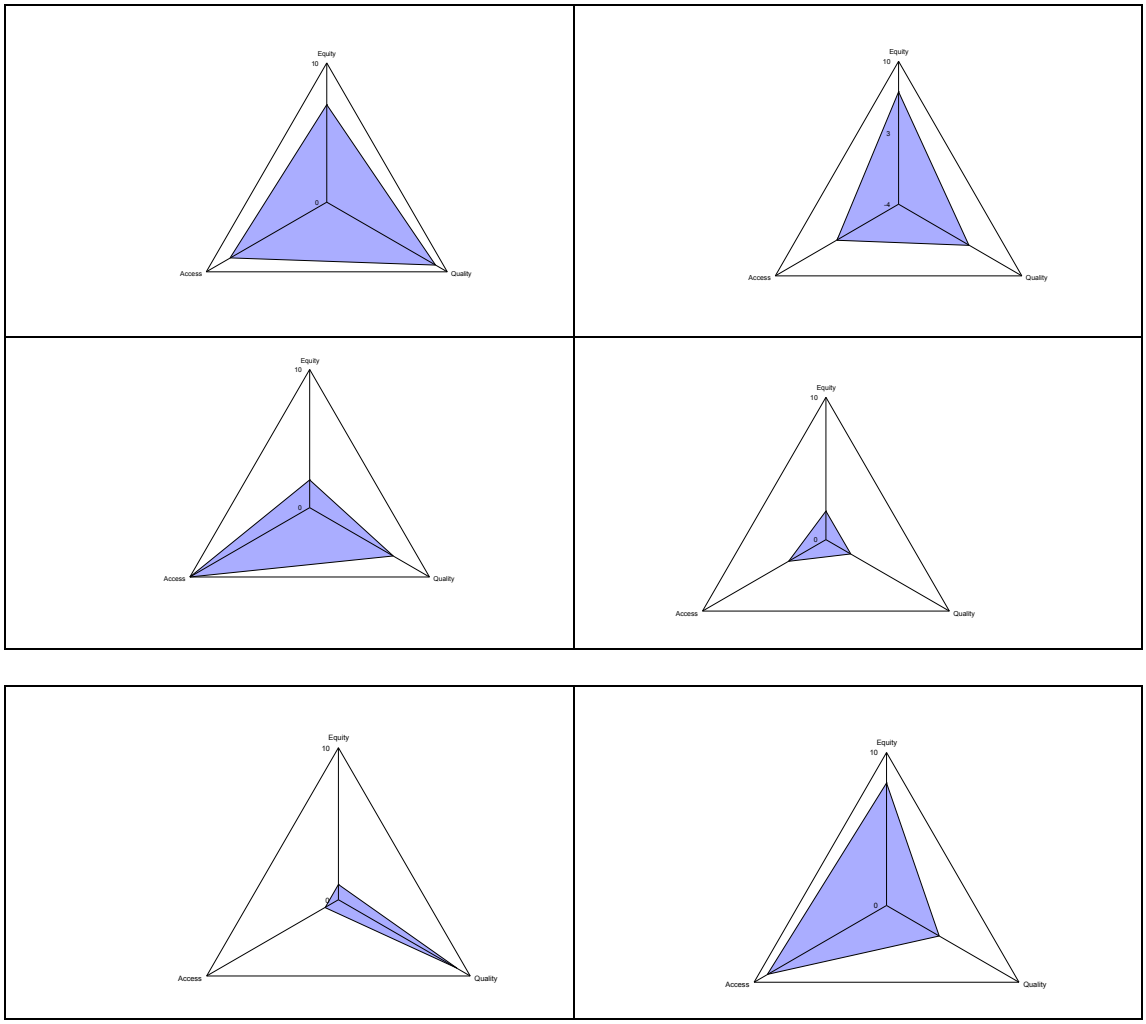


Figure 1: Illustration of the dynamic relationship between Access, Equity and Quality.

The tension between access, equity and quality is an issue that we have not yet resolved. The combination of equity and excellence, for example, seems to imply a core curriculum. How can this be achieved within the framework of equity mechanisms in a continuingly changing knowledge base? It might be easier to provide excellence (quality) and inequity or, as the some systems are charged with doing, equity and mediocrity. The three main mechanisms for an education system cannot (or do not) coexist with equal emphasis or without tension.
The figures below illustrate how these dimensions interrelate and how changing one of them affects the other two

The ability to access, manipulate and evaluate verbal, visual and numerical information will be the enabling skills of the knowledge society and unless students develop the skills to higher order levels that involve challenge of generalisations and testing conjectures, they will not be able to take a full role in society.

The challenges facing education in a knowledge society are varied and serious. Those I have outlined will undoubtedly also be faced in developing countries as well but the rate of change will be faster, leapfrogging the technology divide and implementing the current state of technology. The problems faced by developed countries will pale in comparison. We are privileged in our economy and our education infrastructure. It is our joint responsibility to help but not determine the shape and role of the education system in other countries.

Resolving tensions for change.

1 . Innovation, responsiveness and adoption in school systems decrease with the size of the system and are dependent to some extent on external shocks to the system.
2. Research results are not integrated into education as much as expected.
3. Improvement in outcomes (both cognitive and non-cognitive) may require sweeping changes in the organisation, structure and conduct of educational experiences.

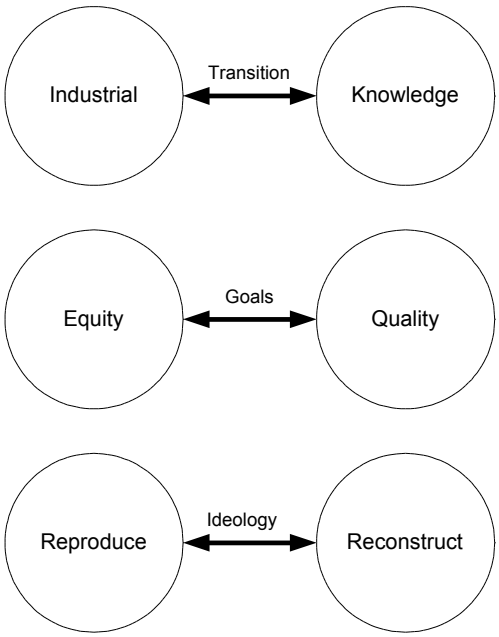
Others have identified that enduring change has specific characteristics.

There are four major characteristics of changes that endure. First, the change should be associated with changes in the internal organisation of the school. Second, the change should create a new classification of teachers who, in turn, establish ties with external organisations, creating a constituency of support for the change. This seems to be the most important aspect of bringing about change in education and emphasises the point made earlier, that simultaneous change in society and education are required. Third, the change must be easily monitored by external sources. In the past, this has been easily achieved by the external assessment and testing or examinations systems that not only monitor implementation of curriculum initiatives, but they have a controlling effect as well. Fourth, teachers must support the change. Without this level of support, the change will rarely be implemented.

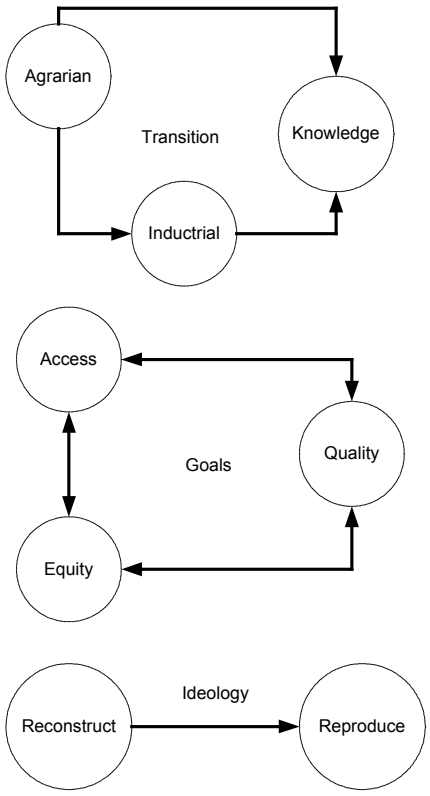
Education is not an end result, nor can it alone stimulate change in response to all the pressures arising from society. Education is just one of many interrelated aspects which plays an important but not the determining role. Only indirect responses are made to social, welfare, economic and industrial and environmental pressures and its influence are restricted to the development of skills, values and knowledge in young people. While it is generally believed that changing an education system is a difficult and slow process, this may not be the case. Changes in the past 15 years have been profound in Vietnam in particular and the changes are far from simple.

In Australia, it is not simple but the challenges are less complex. The transition is from an industrial to a knowledge society and the influence of the agrarian has diminished to near zero. The main goals of education focus on equity and quality and these are reflected in specific programs and monitoring. Access is no longer a problem. In general there is some tension between reproduction and reconstruction and it is on the ideological basis that we perhaps have the sharpest differences. Even in this domain however the distinctions that we draw are superficial. In general there is an agreement that we need a new form of society and a reconstruction is taking place. Those who argue for a return to old values and practices are really clinging to outmoded practices and their influence is diminishing. A new form of society is needed for a knowledge society in Australia and the change is inevitable.

Australia



In Vietnam, the influences on the education system are far more complex. The transition process needs to balance three eras. There is still, in much of Vietnam, a well-entrenched agrarian society based on land and primary production almost subsistence. One only has to travel a short distance from major cities to encounter non-industrialised agrarian populations. It is changing but the society still exists. For these communities education has an important role, and the communes are well organised around education, but the resources and status is limited. The role of education in these communicates is more related to sustaining the way of life than to changing it. The goals of education for Vietnam are similarly complex. There is a serious goal of providing universal primary education and for the most part all children now receive some primary education, but retention rates to the end of primary school are not substantial. The vast differences in achievement, resources and provision in various regions indicates that equity, while a serious goal of the society, is still a long way from being achieved. Moreover, quality of education outcomes is very much related to a minority of students. As Vietnam concentrate on equity, and access, there may be a loss of general standards of learning, while the better students will remain at or near the world's best. At the same time Vietnam is attempting to introduce a new and more learner centred curriculum and this too is based on a change in the teaching methods, so treasured for centuries in the Confucian society. The distinctions between the education systems are dramatic and serious

efforts need to be made to understand the underpinning issues before well meaning consultants try and change the system to model on a western education system serving a completely different system of ideology, education goals and social transitions.

Vietnam