Curriculum Planning based on Economic Knowledge in Some Developed Countries

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Abstract

Trade deficits, stock market woes, inflation, and the energy crisis are examples of economic problems in almost every under development countries during the past three decades. However, it is unlikely that most citizens understand what created these kinds of problems or how leaders have tried to solve them. This lack of knowledge is a consequence of insufficient emphasis on economics in the general education of citizens. This paper uses an integrated approach to examine the impact of a knowledge based economy on curriculum. It discusses a generic profile of an effective knowledge worker and how countries are responding to the challenge. This study shows how to plan and develop a new curriculum model based on economy. To meet the desired educational outcomes, it complements curriculum changes with a pedagogic approach that transforms the role of teachers to facilitators of learning.

Keywords: Curriculum Planning, Economy, Developed Countries, Education

Introduction

Curricula evolution and review in the developing countries and world is chiefly a story of primary education. Indigenous systems of socialization and education have always existed in all cultures. The curriculum based on economic knowledge approach encourages the integration of economic concepts into various disciplines. This helps teachers and students to experience the beauty of interdisciplinary connections among topics and to engage in intellectual inquiry beyond the impermeable walls of a single-subject area.

The knowledge of economy promises both opportunities and challenges. In exploiting new technological capabilities, new industries, businesses, and jobs are created as

organizations transform their operations and require workers with a different set of values and competencies—productive, creative, responsive, and adaptable to a fast changing environment. In response, educational institutions are rethinking their norms and practices (Gardner 1993), re-examining their role, and accelerating curriculum reforms to better prepare their graduates for work and society needs. A curriculum is planned with careful analyses of current and future social forces, understanding of human development theories, and appropriate identification of the nature of learning and knowledge required to meet its objectives and goals. Many pedagogic decisions are made in the process, and their implementation has a greater influence on the desired outcomes than the curriculum.

The key goal is to formulate educational experiences that develop in students the ability and desire to continue self-directed learning over a lifetime. In other words, learn how to learn during lifetime and how to update their knowledge in the best way.

This paper uses an integrated approach to analyze the form of curriculum required in a knowledge economy. It develops a generic skill profile of a knowledge worker and examines how a national technical institution reforms its curriculum model and how meeting the desired educational outcomes complements curriculum changes with a different pedagogic approach that transforms the teachers' role from dispensers of information to facilitators of learning.

This paper adopts the definition by Parkay and Hass (2000) that "The curriculum is all the experiences that individual learners have in a program of education whose purpose is to achieve broad goals and related specific objectives, which is planned in terms of a framework of theory and research, or past and present professional practice." It connotes curriculum as pre-planned and curriculum planning as a process of gathering, sorting, synthesizing, and selecting relevant information from many sources for the purpose of designing experiences that enable learners to attain the curricular goals developed through research on social forces, human development theories, and the nature of learning and knowledge. Social forces include social goals, pressures, and changes in the work environment. Educational institutions exist to induct students into a desired culture and to transmit the societal way of life. As education plays an

important role in shaping the world of tomorrow, it is shaped by the past, current, and future economic, political, social, demographic, and technological forces. Since education reflects the society's goals and values and its collective way of life, curriculum planners must understand how institutions can mirror the surrounding societal milieu (Parkay and Hass 2000). Research on human development has resulted in an expansion of theories that guide the work of curriculum planners in providing for individual differences, and curriculum designs that cater to the nature and needs of individual learners. Learning complexities and differences have led to the development of different pedagogic strategies that have greater impact on learners than the planned curriculum. With increased knowledge, what to exclude from the curriculum is as challenging as what to include. The way knowledge is organized for learners to process and make sense of will guide the development of alternative learning paths. The integration of knowledge to support multidisciplinary work results in more interdisciplinary courses offered. The bases emphasized reflect the philosophical orientation, but an integrated approach will ensure the development of a balanced curriculum with pedagogy that meets the specific objectives in relating to society and work.

Curriculum planning concerns the selection of knowledge, and the principles by which the selection is made (Lawton 1982). The curriculum must equip students with not just abilities to get the first job but capabilities to remain employable. Increased global competition and massive diffusion of new technologies have profoundly affected the nature of work (Carnoy 1998), evolving employment based on knowledge creation rather than routine work. Companies need fewer workers with broader job responsibilities and higher initiative, teamwork, flexibility, and skills in problem-solving and critical thinking (Ohio's Future of Work 1990, SCANS report 1991). The fast-changing workplace requires workers equipped with skills to respond swiftly to these changes. This posts challenges for technical education in preparing students to play a productive role in the economy (Campbell 1984).

Increased system sophistication decreases the need for manual skills, but places greater demands on the cognitive skills of workers with understanding of the technology used and knowledge of the system. Literacy skills like reading to learn and do, viewing,

listening, locating, and accessing information are essential (Rafferty 1999). Education involves ensuring students gain the technical, social and learning skills to function effectively in the workplace (Campbell 1984). It develops individuals ready for work. The thesis that education concerns only non-commonsense knowledge is being questioned. Lawton (1982) argues that while commonsense knowledge can be acquired through everyday socialization, the wide range and rapid growth of knowledge require education to lay a strong foundation for lifelong learning. More important than acquiring factual knowledge is the ability to identify, analyze, and solve problems. To transform students from being rote learners to critical thinkers requires an organized and purposeful teaching of these critical skills.

Would all these entail massive shifts in curriculum and redefinition of curriculum content? Gardner (1993) argued probably not. However, it would entail reorientation and realignment of pedagogy—shifting from dispensing information to facilitating learning. The focus is for students to learn and use appropriate tools to interpret and make sense out of uncontrolled and unorganized mountains of information instead of being overwhelmed by them. The key lies in the ability to generalize new insights, as every experience is unique and learning takes place by recognizing new relationships (Lawton 1982). Students need to make connections among the things they learn and the world in which they live (Campbell 1984). Making these connections involves application of concepts to the real world that stress the importance of flexibility, adaptability, ability to work in groups, communication and employability skills, and possessing the right attitudes (Lankard 1993, 1994).

The assertion of sociologists that all knowledge is socially produced for particular purposes and contexts is relatively non-contentious (Young 1998). It implies the importance of what defines knowledge in society, and who selects what and when to be included in the curriculum. Given the diverse abilities and interest of students, the curriculum must, whilst providing a set of core knowledge and skills, allow for greater choice for students to explore areas of study that encourage them to develop and achieve their potential. Providing for individual differences among learners, teaching of values, development of self-understanding, and problem-solving skills are four important criteria that illustrate how social forces influence and shape the curriculum.

The above analyses point to two important criteria for curriculum planning: the principle of adequate coverage of knowledge and skills, and the importance of achieving balance between general and specific knowledge and skills. The appropriate coverage and balance seek to ensure that important kinds of knowledge and skills are not neglected or ignored in the pursuit of addressing the immediate ones required by industries, through overspecialization. Clearly, the new emerging social forces of a KE influence the nature of knowledge and learning required in preparing students for the working world. Better understanding of human development concepts will help shape curriculum appropriate for each target group. The knowledge of economy calls for an integrated approach, to derive a balanced set of curriculum catering to the diverse abilities and interest of students, while preparing them to work in a curriculum based economy knowledge.

Development in Education and Curriculum Planning

Fundamentally, human beings are eager to better their lives. If this is so then, we must ask ourselves, 'how do people accomplish good changes to better their lives?' It would be impossible to consider development without considering the economic benefits that provide us with a more comfortable and convenient life. Development may be a response to the economic needs of individuals in society. However, no one can simply focus on a single dimension of development because development is about the transformation of the economic, social, and cultural spheres of a country (Sumner & Tribe, 2010). Education may have a central role to play as a more sustainable way of development. Furtado (1977) states that development, which has the meaning of 'change' in society, seems to be closely connected to economic change and particularly connected to economic growth. According to him, it would be impossible to improve one's life without considering the economic factors because the latter is related to comfortable living.

Cambridge Dictionary 2019 defines a developed country as "*a country with a lot of industrial activity and where people generally have high incomes*" (https://dictionary.cambridge.org/dictionary/english/developed-country). Some countries like the United States, Australia, New Zealand, the United Kingdom, Germany, Singapore, as

well as South Korea have begun to place more emphasis on the teaching of core skills and competencies to better prepare students for the workplace and to enhance global competitiveness. This section reviews such developments in an attempt to form a generic profile of a knowledge worker.

Under the America 2000 Education Strategy formed in 1990 to close the skills and knowledge gap of Americans, the Secretary's Commission on Achieving Necessary Skills (SCANS) was set up by the US Department of Labor to specifically advise the secretary on the level of skills required to enter employment (SCANS report 1991). At the end of its study, SCANS identified a set of eight competencies and skills shared by all workers, termed "workplace know-how." The set comprises three foundation skills categorized as literacy skills, thinking skills, and personal qualities, that are prerequisites to achieving the five competencies related to resources, information, interpersonal skills, systems, and technology.

Australia and New Zealand —In 1991, the Australian Education Council (AEC) acknowledged a need for competencies required by workers to merge more closely with competencies required in the workplace (Werner 1994). The argument was for a convergence of vocational and general education to meet both individual and industry needs. The key competence areas endorsed as essential for all young people engaged in post-compulsory education and training are language and communication, mathematics, scientific and technological understanding, cultural understanding, problem-solving skills, and personal and interpersonal skills. In New Zealand, the emphasis on development of essential skills was prompted by its desire to achieve a better placing in the international economic arena and to ensure all its young people gain the knowledge, skills, understanding, and attitudes which will enable them to contribute fully and effectively to NZ's future and societal well-being. In response, the planning council identified in 1991 the generic skills that are increasingly needed in all areas of the economy as ability to continue learning and adapting throughout life, communication and interpersonal skills, information skills, business and managerial skills, technology and computer skills, language skills, thinking and creative problem-solving skills, and math skills.

United Kingdom and Germany—In 1989, the UK's Secretary of State Education advocated the merits of incorporating core skills across the curriculum to equip young people with the knowledge and skills all future workers would need (Werner 1994). He emphasized that in a changing workplace all workers will need broad-based qualifications. In response, to find which core skills to incorporate into the study programs of post-secondary education, the National Curriculum Council proposed a list of core skills for the endorsement of the National Council of Vocational Qualifications. This list includes communication, personal skills, working with others and improving one's own learning and performance, numeracy, information technology and competence in a modern language. With demands made on skilled workers due to new technologies and manufacturing processes, the German Federal Ministry of Education and Science sponsored a project in 1990 to identify core skills required over and above technical expertise (Werner 1994). The core skills identified are organizing and carrying out a practical task, communication and cooperation, application of learning techniques and interrelated thought processes associated with the work in question, independence, and responsibility and ability to work under stress.

Singapore—In his speech at the 1998 World Economic Forum annual meeting on educating tomorrow's global citizens, the minister for education of Singapore stated: "Learning in the twenty-first century will have to be a lifelong process, and formal education must lay the foundation for this lifelong process of learning and re-learning. Our schools and universities must develop in our young the core skills and competencies, as well as mindsets that will enable them to learn continuously throughout their lives." (http://www.moe.edu.sg). He spelt out three main areas that constitute the most important building blocks in this foundation: (1) Technological skills—It is important for students to be technologically savvy in an increasingly high-tech world where technology shapes the way people live, work, and play. A strong foundation will enable them to appreciate future changes in technology more quickly than others, and to capitalize on emerging opportunities. (2) Creativity—With greater information accessibility, the difference lies in what is done to create new knowledge. As countries move from labor-intensive to skill-intensive, to a knowledge-intensive economy, their workforces need to be more innovative to push themselves continually

up the value chain. The road to developing an innovative workforce starts in school, training students to be enterprising and creative thinkers. (3) Learning skills and a passion for lifelong learning—Formal education must equip students with the prerequisite learning skills (i.e., how to learn) and imbue in them the enthusiasm for learning, so that they will want to learn continuously throughout their lives.

South Korea— Hundt (2009) describes the case of South Korea as miraculous because it escaped from poverty to prosperity in only four decades. South Korea was one of the poorest countries due the Korean War. During the 1950's, the country needed a great deal of international aid. Since then, South Korea has modernized rapidly. In 1996, it joined Organization for Economic Cooperation and Development (OECD), which is regarded as a club of advanced countries. Moreover, South Korea became the 24th member of the Development Assistance Committee (DAC), OECD in 2009. This is very meaningful because once a supported country becomes a supporting nation, it can be regarded as a highly developed country. The structure of industry in South Korea has advanced from a typical agricultural society since the 1960's. It had a period of heavy and light industrial growth (1970e80's), and finally gained high technology such as IT. There was also rapid migration in urban areas. In 2008, over 20 million people of the total population of 50 million lived in the Agglomeration of Seoul-Incheon (The World Fact Book, 2008). People call South Korea a successful developed country based on such growth. However, it still has problems, which may have been forgotten during the dramatic process to develop the country. South Korea tended to be constantly striving after economic growth. Politics were almost solely autocratic and many people died for democracy in the country (Pirie, 2008). Yet, it is still easy to see news about corruption within the country's government. The gap between the rich and the poor has also increased, and South Koreans are confused about traditional and modern values due to the rapid development. Furthermore, before becoming a member of DAC in 2008, South Korea's ranking of its ODA/GNI ratio was very low at only 25th (ODA Korea MFAT, 2009). Now, South Korea should do its duty to support other developing countries as a member of the DAC OECD. Though some of these limitations are directly linked to the economy, others are not. Overall, the main cause

of the rapid development was due to the economy. The role of education plays a huge part in the genuine development of a country. Having noted this, South Korea could come up with a practical alternative to reduce their negative social factors through education and achieve the true development of 'good change'.

In South Korea education has not only been regarded as an important part of its long history, but it has also played a pivotal role in development. As a country that lacks natural resources, South Korea has focused on rearing its human resources as its best resource. During this process, education was regarded as a tool for success and wealth. Therefore, the private education market in South Korea has grown sizably, and the equity of education has decreased. Moreover, business or management schools are favored because it is considered that they can earn money easily (Choi, 2005).

Key features of new curriculum

The new curriculum model bridges the gaps in the existing model necessary to foster thinking and learning workforce. The key features are: Emphasis on employability skills training—Employability skills are foundation skills and qualities that are transferable from one job setting to another. They enable an individual to learn new skills as technology changes. Under the new model, the teaching of employability skills is strengthened by augmenting the explicit teaching of such skills and incorporating them in technical modules.

Explicit teaching—The learning of employability skills was reviewed with reference to the employability skills identified by the local CREST (Critical Enabling Skills Training) program and other initiatives such as SCANS in the US and Key Skills in the UK. The CREST program launched by Singapore's Productivity and Standards Board instructs seven core skills that prepare workers for future jobs. With reference to the desired educational outcomes and inputs from teaching staff and industry, a set of employability skills modules were developed for each level of training, and made a certification requirement. Some modules are enhanced versions of existing general studies modules, such as personal effectiveness and thinking skills. New modules are communication skills, interpersonal skills, personal effectiveness, group effectiveness, thinking skills, IT, and numeracy.

Implicit training—The learning of employability skills is only effective if students can apply them in the process of acquiring technical skills and knowledge. Research shows that without explicit specification, application of such skills is often overlooked by both learners and teachers. Under the new curriculum model, the format of documenting skills standards is modified to explicitly specify the employability skills required in performing the various occupational tasks.

Introduction of more common core technical modules and electives—In a curriculum based on economic knowledge where specialized technical skills are highly dynamic, students must have core technical skills to enhance their adaptability to new technologies and mobility within and across industry sectors. The new model ensures that students acquire a good technical foundation and understand basic concepts, by placing stronger emphasis on core technical skills and introducing more common core technical skills across related courses. More elective modules are introduced to cater to diverse abilities and interests. The new model is more customized, learner-centered, and ability-driven in helping students discover their capacities and capabilities, and nurturing their understanding of basic concepts.

Introduction of project module—As a strategy to foster thinking doers and the spirit of innovation, project modules, which used to be only for higher-level courses, are incorporated into the curricula. The project enables students to integrate the skills and knowledge that they have acquired from their courses, and provides them with more opportunities to practice thinking and selflearning skills. It allows students to learn and apply these employability skills in the process of designing a project, organizing their work, working with others, and eventually presenting their projects.

Testing underlying concepts and employability skills— As assessment methods impact teaching and learning approaches, the review examines how students are assessed, to ensure that they understand the concepts underlying their practical skills. With importance placed on the acquisition of employability skills, appropriate application of related skills in performing practical work becomes a conscious design in the new assessment system. Integrated testing of underlying concepts and employability skills is necessary to achieve the educational outcomes of developing students' cognitive ability; cultivating in them inquiring minds; and instilling the innovative spirit that

enables them to seek, process, and apply knowledge and skills effectively in their work.

Competence-based assessment—To ensure that graduates are fully competent for work in their selected trade area, the assessment mode is competency-based, where evidence about performance must be obtained, and judgments made on that evidence against prescribe performance standards. Under the new model, critical competencies and related knowledge required at the entry point into a chosen occupational field are identified in the skills standards. Students only pass if evidence shows their attainment of all the critical competencies and related knowledge stipulated in the skills standard.

The new model essentially built on the existing system. It strengthens the system by augmenting the teaching of employability skills in all courses, to ensure students are adequately equipped with what every worker in a curriculum based on economic knowledge ought to know and be able to do successfully regardless of the job. The introduction of electives broadens training beyond technical skills and promotes multidisciplinary training. Applying Taylor's model, the new curriculum model provides a more balanced emphasis between job-specific skills and generic employability skills required of workers in the knowledge era.

Pedagogic model— Under the old model, the teaching of theory was separated from practical training. Training was carried out using a combination of teacher-centered methods and activities, participatory learning activities, and the curriculum based on economic knowledge approach adapted from the German dual system. The approach was used mainly in practical settings where students were provided with opportunities to be self-directed and independent in their learning under the guidance of a teacher. It aimed to equip students with social and methodology competencies, on top of technical competencies. The new pedagogic model is a fusion of two approaches to learning: the cognitive apprenticeship (Collins et al 1989) and the curriculum based on economic knowledge model. By merging ideas from the two models, the new model takes on the strengths of both approaches to learning. It prescribes a process-oriented approach to teaching and learning for students to acquire three key competencies: technical, methodological, and social. It works on the basis that learning takes place in context. The four-stage, process-oriented approach provides maximum opportunity for active

involvement in planning what to learn together with the teacher as a facilitator, exploring resources and ideas to meet the specific instructional objectives of the lesson, practicing the procedures learned through individual and group exercises and activities, and performing as individual and group in displaying knowledge and skills learned. This learning process reflects real-life applications and is transferable to new situations when internalized as a natural process of learning. This pedagogy is applied to all lessons, and forms an integral part of the new curriculum with the role of a teacher transformed from dispenser of information to facilitator of learning. Students become more active, inquiring, and independent learners. The extension of learning key competencies and values in the curriculum has directed learning efforts towards achieving the desired educational outcomes in preparing students for a curriculum based on economic knowledge.

Some Recommendations for Curriculum Planning regarding Economic Development:

- Co-operation between social partners and the government should be legislated.
- The occupational profile and curriculum framework should cover a list of competencies.
- Staff exchanges should be encouraged and promoted between enterprises and educational institutions.
- There should be a general consensus of the requirements for each occupation.
- Methods of curriculum delivery should be compatible with the national resources, social attitudes and other work ethics.
- Certification in vocational education should be rationalized in a country.

Conclusion

Development seems to be linked to the notion of change and the overall change in society is affected by the economy. That being said, countries might first try to accomplish economic development. The key goal for curriculum planning is to develop educational experiences that create in students the ability and desire to continue self-directed learning over a lifetime. In a fast-changing workplace where career change is a

norm and the ability to continue learning a necessity, workers need to be equipped with a different set of competencies. Such dynamic social forces demand a different nature of learning and knowledge in the curriculum, soundly grounded on human development theories. This requires educational institutions to adopt an integrated approach in curriculum planning. This paper presented an integrated model of curriculum planning as a framework to analyze the form of curriculum required in preparing students for work in a curriculum based on economic knowledge. It developed a generic profile of an effective knowledge worker based on the review of recent developments in the education scene. The paper studied how a national technical institution, in adopting an integrated approach, is able to reform its curriculum and pedagogy models by building on the strengths of its existing systems. The case highlighted how curriculum changes will not be effective without the adoption of an appropriate pedagogic approach to achieve the desired educational outcomes. The new approach transforms the role of teachers from dispensers of information to facilitators of learning. Specifically, this paper has shown how challenges in a curriculum based on economic knowledge provide opportunities for curriculum review. The demands of curriculum based on economic knowledge have prompted technical institutions to refocus their role, forcing an acceleration of reforms to equip students with the essential skills to participate successfully in the workforce. The high employment rate of graduates, despite the recent economic downturn, strongly attests to the success of reforming its curriculum.

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