The convergence and divergence effects of globalisation on Singapore’s education system

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Abstract
My goal in this paper is to examine the effects of globalisation on the education system in Singapore. I draw on what I have called the “elimination” process, which operates on two levels: first, at the level of the unequal preparation and subsequent removal of students from the school system, and second, at the level of the curriculum, noting that certain subjects in Singapore are receiving recognition while other subjects are facing the possibility of being removed from the school curriculum. It is argued that the global economy enables the expansion of career opportunities, largely due to a homogenisation effect, and specifically in the scientific arena. Yet at the same time, it facilitates an elimination process, especially for students without access to adequate preparation and for humanities subjects, such as English literature, as well. As reported in *The Straits Times*, the study of literature is steadily losing popularity and fast becoming a dying subject in Singapore schools. In this regard, the concept of globalisation epitomizes both divergence and convergence effects. I examine the government’s initiatives and education policies implemented in response to this change, and explore how this shift in emphasis both benefits certain students and affects the choice of subjects among students.

INTRODUCTION

The challenge for us is how to continue growing and the answer is, well, we’ve got to continue to restructure, we’ve got to continue to upgrade… it’s a worldwide trend because of globalisation… there is ferocious competition… (*Singapore Government Media Release, 2004*)

To the newly appointed Prime Minister Lee Hsien Loong, the process of globalisation is a “worldwide trend” and Singapore must prepare for the inevitable changes it brings. He urged Singaporeans to “restructure” and “upgrade” their skills constantly due to “ferocious competition.” To Prime Minister Lee, Singapore is at a crossroad. In order to survive in the future, the education system must be restructured to prepare for increased competition. Indeed, Professor Bhagawati, a leading authority on trade, explained that the process of globalisation has led to a conglomeration of different entities: “trade, direct foreign investment, short-term capital
flows, migration and technological diffusion and absorption” (Gupte, 2004, p. 8). As a result, new ways of governing the country are surfacing that reflect the interconnectness of both economic and educational policy.

This paper addresses the complexity of the globalisation process by looking at the convergence and divergence effects of globalisation. I describe the measures taken by the Singaporean government in response to these effects and discuss the interactions between Singapore’s culture and the government’s policies through the lens of critical inquiry. The first section provides a brief review of Bourdieu’s (1986) forms of capital as central to this critical inquiry. The second section highlights the dynamics of globalisation and some of the effects of globalisation on Singapore. The third section describes the government’s restructuring of the school curriculum in response to global economic shifts. In this era, acquiring basic technological skills such as simply knowing how to operate the computer is no longer sufficient. The proliferation of new forms of technology requires a talented workforce that possesses the ability to harness current technological advances, as well as a workforce that can continually generate new ideas to improve the economy. Finally, the paper concludes by addressing several complexities that arise from these education reforms.

THEORETICAL FRAMEWORK

Crotty (1998) notes that critical inquiry is used to elucidate the power relationships within society. By doing so it works to expose forces of hegemony and injustice that exist, for example, in texts saturated with ideology. Critical inquiry seeks to unmask “hidden truths” and address the “the power of ideas” that are embedded in the society (p. 113). In this context, critical inquiry provides methods for generating understanding and knowledge regarding the social inequalities that permeate the Singaporean education system.
The focus for this paper is the unequal distribution of students in Singaporean schools, and more particularly, how Singaporean students are channelled to the schools. For example, students posted to independent schools, autonomous schools and Special Assistance Programme Schools tend to be the same students who perform well in the Primary School Leaving Examination (PSLE). These students generally excel on their “O” examinations, enter the most prestigious junior colleges in Singapore and subsequently progress to universities. In most cases, these students are usually from middle upper income families, or parents who have special social connections to particular schools, such as parents who were previous students in a particular school. One of the mechanisms of this process of channelling occurs through access to and emphasis on science and technology subjects in schools, and the subsequent devaluing of humanities subjects.

Bourdieu (1986) identified four forms of capital to describe and explain social inequality. First, economic capital is defined as financial and monetary assets that can be used to produce and consume goods and services. In any society, there is a tendency for the social structure to favour those who already possess economic capital, conferring privilege over others as a result. Given larger economic assets, this group tends to have a greater opportunity to participate in elite schooling. Second, cultural capital, also known as informational capital or education capital, is defined as assets of individuals. According to Bourdieu (1986), these assets exist in three forms: in an embodied state, such as long lasting dispositions of the mind and body; in an objectified state, in the form of cultural goods such as books and machines; and in an institutionalised state such as educational qualifications (Bourdieu, 1986). Third, social capital is defined as the relationships and links between different groups of people. These linkages can be socially instituted in the forms of a class, a school or an association. In Singapore, social connections may
empower a person with special privileges. For example, by having parents who graduated from a particular school, certain children may be given the privilege of entrance into the same school, perhaps with lower entry scores than others. The fourth form of capital, symbolic capital, reflects the use of symbols to legitimate the possession of different types, levels, and configurations of the other three forms of capital. Symbolic capital symbolises the interaction between the three forms, which, according to Bourdieu (1986), contributes to the foundational dispositions, or habitus, of every individual.

Singapore’s government adheres to a human capital theory, identifying educational investment as the key source of the country’s wealth. According to Singapore’s “Ministry of Manpower,” human capital theory is defined as “human and intellectual capital” (Tan, 1999, p. 7). The government has noted the importance of emphasising human development given Singapore’s limited resources, small geographical size and its restrictive domestic market. Having a workforce that is both efficient and prepared to respond to global changes gives Singapore an added advantage in maintaining its position as the world’s most “globalised” nation (Branson, 2001).

GLOBALISATION: IN PRINCIPLE AND IN SINGAPORE

Globalization is inherently a complex and heterogeneous process; it is too simplistic to conclude that it will lead to convergence and homogeneity. Cerny (2003) points out that it neither entails the emergence of a homogenous marketplace, nor the dominance of one type of corporate organization. In other words, the process of globalisation generates both convergence and divergence pressures, which provide an ideal condition for dynamic interactions (see Figure 1). Having opposing forces occur concurrently creates a profound set of tensions. As shown in
Figure 1, these opposing pressures have created a gap for unimportant or insignificant contributions to the globalised economy.

Fundamental advances in technology have accelerated the speed of globalisation. Particularly noteworthy are the increasing levels of international trade and competition. Information, capital and innovation flow over the world at top speed, fanned by technology and fuelled by consumers’ desires for the best and least expensive products (Dicken, 2003). This high intensity of change results in an acceleration of uncertainty. Power becomes fluid and is no longer absolute because countries are now highly dependent on and vulnerable to global market forces. Maintaining economic status is crucial for Singapore given its high dependence on foreign trade.

Human resources are perceived to be a vital asset to Singapore’s economic development. The Thinking Schools Learning Nations policy directly connects educational productivity with economic productivity. At the center of this policy initiative is a governmental commitment to the development of cultural capital. The goal in Singapore is to create a total learning environment that facilitates the development of a future generation of students who are capable of making sound decisions to keep Singapore vibrant and prosperous (Tan, 2000). Singapore’s economy has been transformed from a labour intensive manufacturing industry to one that stresses technology-intensive production and a service based industry. The workforce must therefore adapt to new conditions and develop new skills in response. Indeed, O’Shea (1999) noted that “the workforce of the 21st century will require creative and critical thinkers, change-adept individuals, innovative and science/technology savvy workers and life-long learners” (p. 4). In view of this and to support this transformation, the Singaporean government’s key strategy is
to diversify and engineer an up-to-date workforce by investing heavily in its people to foster a spirit of innovation and enterprise in future Singaporeans.

For example, the University of Singapore (NUS) is working to provide a climate that fosters the “growth” of young entrepreneurs. The university has started a three-year programme to support undergrads to take up overseas business ventures. One successful undergrad has successfully set up a company that enables international airlines to offer affordable text messaging and email service prices. Another, a postgraduate, has collaborated with a university professor and entrepreneurs in Silicon Valley to set up a DNA testing venture company (Davie, 2004). These young entrepreneurs exemplify the “ideal future Singaporean” that the government hopes to engineer.

EDUCATION IN AN INFORMATION AND DIGITAL AGE

Diverging trends

In Singapore, functional literacy used to reflect the social and economic tenets of the government. Concerted efforts have been made to incorporate a wide array of changes in the education system to prepare approximately 1.9 million workers to be literate. In the new economy, acquiring the four meta-skills—listening, speaking, reading and writing in English—is no longer sufficient. Knowing how to read and write is no longer sufficient. Indeed, to operate successfully in a technology-based society, the role of literacy has been redefined.

Bruce (1997) argues that in order to operate successfully in today’s technologised society, sociotechnical literacy is needed. English is now used as the springboard to decode a wide array of sign systems generated by technological industry. Literacy has been redefined to incorporate the skills needed to decontextualise and to engage in different forms of literary texts. One has to be able to use English to synthesize knowledge and to apply it adequately. And given this new
definition for literacy, “a qualitative change, a quantum leap to get different sort of education, different sorts of results” becomes important ("The important," 2004). Singapore’s students need a literacy education that provides critical engagements with globalized flows of information, image, text, and discourse (Luke & Carpenter, 2003). Singaporeans are expected to possess a set of complex abilities to understand and use English language for both personal and economic development. Former Education Minister, Teo Chee Hean, explained that the international language of science and technology will play a big role in the globalised world, and therefore it is vital for Singaporeans to be conversant in this language. Young Singaporeans are encouraged, “to speak the language of science and technology so that they can communicate with their peers worldwide and use it to advance themselves and Singapore” ("Use language," 1999).

Consequently, a system that builds on a clear “articulated policy on the use of information technology,” with “the provision of computers and IT training for teachers” must be implemented in schools in large scale ("IT policy," 2000).

Resourcing and restructuring schools is critical because in Singapore academic qualifications are equated with economic value. Investing heavily on education, the country’s cultural capital, is seen as a guaranteed way to attain the five Cs: cash, credit card, car, condominium and country club membership (Luke, 2001). The education system is moving from a content-based structure to a knowledge-based structure: a structure that focuses on acquiring a problem solving mindset. The restructuring includes all levels, from primary through to tertiary levels, and offers computerization, digitisation, miniaturization and fast speed Internet connections to local schools. A knowledge-driven economy can no longer depend on the ability to produce things; it must also innovate, solve problems, create and exploit new ideas (O'Shea, 1999), and IT has become the key tool to develop this ability. In line with this need, the
government has been investing about $380 per year on each of its 530,000 students, one and half times more than that in the United States for the past three years (Lee, 2004).

From this perspective, education plays a pivotal role by equipping students with new strengths, skills and knowledge. According to Lee Kuan Yew, as the world economy changes and businesses become more knowledge based, whether in IT, biomedical sciences, banking or ordinary retailing, we have to keep pace with the new knowledge and systems (“Adjusting to”, 2001). The government’s primary goal is to make sure that both teachers and students are prepared to contribute to the new globalised economy.

**Singapore’s IT Masterplan – Phases I and II**

Acquiring an appropriate education is vital to prepare students for the extensive use of IT. As articulated in the Information Technology (IT) Masterplan, the key objective for this comprehensive implementation is to ensure all Singaporeans are IT literate by building IT-based infrastructure in all schools. Though a strong foundation in IT awareness has been laid since the early 1980s, full endorsement only began when the government launched its first IT Masterplan in education from 1997 to 2002. The first phase of the IT Masterplan was to equip every student with the essential IT skills required for inculcating learning, creative thinking and communication skills. The government set aside two billion Singapore dollars to hard wire all schools. In July 2002, the IT Masterplan moved into the second phase, adopting a comprehensive approach to using IT. Building on the first Masterplan, this second phase focuses on technology research and development to enhance learning at school, national and global levels.

To complement this transformation process, the education ministry has launched the *Programme for Rebuilding and Improving Existing schools*, or PRIME. This works in conjunction with the IT Masterplan by upgrading and installing new facilities in schools.
Advanced facilities, such as computer laboratories, media resource libraries, IT learning resource rooms, pastoral care rooms and health and fitness rooms are being built. This upgrading program involves a total of about 290 schools and will take place over a period of 7 years to complete at a total cost of about $4.46 billion (PRIME). In essence, IT will become a core aspect of the curriculum.

**IT in students’ project work**

The investment in advanced technology and facilities creates an IT-rich environment that fosters the integration of IT related activities in schools. To empower students with creative thinking and lifelong learning skills, schools are encouraged to experiment with IT, and one way this is done by incorporating IT-based learning activities into the present school curriculum in the form of project work. The education ministry uses project work as a tool to cultivate critical and creative thinking skills. Project work has become compulsory for all students. It is completed during school time, included across subjects, and contributes towards the final grade (Lee, 2000).

Indeed, since 2003, project work contributes 10% towards the total entrance mark of students admitted to local university (Smith, 2000). It has also become an alternative form of assessment to measure the students’ abilities in applying, synthesising, and presenting the information they have gathered. In Singapore, IT literacy goes beyond just acquiring the skills to use the latest technologies. It now includes a level of IT skills that enables students to acquire an active and independent learning attitude. The education system is seen to be constantly repositioning itself so as to be in sync with the demands of the new economy, providing the students with the “opportunity to synthesise knowledge from various areas of learning and critically and creatively apply it to real life situations” (Ministry of Education: Project work). A clear link can be made here between the development of human capital in the form of cultural
capital, and the expectation for improved economic capital. A look into several schools reinforces this link. Two primary schools and two secondary schools are highlighted to exemplify how schools have incorporated IT into their students’ project work.

Two primary schools incorporating IT into project work are Rulang Primary School and Nan Hua Primary School. In Rulang Primary School, traditional arts and crafts classes have incorporated digital art lessons into lessons. In the art syllabus, the students are required to learn keyboarding and sight reading skills through the Blasterkey music program. After they have learned how to differentiate sounds and tempos made by different instruments, they are given opportunities to compose their own musical pieces (Seng, 2003). The school believes that such activities boost the students’ creativity. In Nan Hua Primary School, 40 primary five school students were chosen to take part in the first PrIEsTa Xperience project. This project integrates project work, innovation and enterprise, and technology to give the students opportunities to “Xplore, Xperiment and Xpress their ideas”. Students are given instructions on how to use instruments—including, handhelds, dataloggers, WebQuests, and the Inspiration 7 program—to carry out their inquiry-based fieldwork activities at Singapore’s Sungei Buloh Nature Reserve. In this context, students are taught how to make observations by using digital cameras to take pictures and videos of the flora and fauna found in the mangrove swamp. Afterwards, they returned to school to carry out research on the mangrove habitat using the Internet. Upon completion, they formulated their own hypotheses based on their findings, and then subsequently returned to the mangrove swamp using their equipment to verify their hypotheses. The project concluded by having the students process their overall findings and present it the form of a concept map using the computer program Inspiration 7. The school believes that this open-ended
project allows students to have hands on experiences by carrying out their own investigations
(Success Stories: Teaching and Learning: PrIEsTa Xperience).

Two secondary schools incorporating IT into project work the Chinese High School and the Crescent Girls’ School. The students in the Chinese High Secondary School, one of the top boys’ schools in Singapore, are given an annual project to complete. They are required to use IT to create innovative inventions. In one group, the students successfully produced an Electronic Link Forum—a form of communication software that includes email, group messages, file-sharing, and other features. They also drew up a business plan and are now negotiating with the Ministry of Education to purchase their product (Borja, 2004). Likewise, in Crescent Girls’ School, one of the best girls’ schools in Singapore, students teamed up with Knowledge Village Pte Ltd and launched a joint project, Project SOAR, to promote the awareness of local Special Olympics Team and their participation in the World Games in Raleigh, North Carolina. The project consists of five main stages—planning, preparation, pre-departure, at the games and post game wrap up. A total of 360 secondary three students, together with the help of their teachers, were involved in the publication of the web site. The rationale for this project is to help students to refine and improve their writing skills and, most importantly, to help them inculcate lifelong learning attitudes toward facing challenges and overcoming limitations (Project SOAR: Special Olympics Singapore).

Critical and creative thinking

The activities carried out by these schools show that there is a strong connection between project work and the idea of critical and creative thinking. As higher-order thinking skills, these skills will enable students to engage critically with problems, to be fluent and innovative in their thinking. The schools are taking steps to nurture their students’ ability to address a problem from
multiple point of views, to be critical in identifying the conflicting issues that are embedded and, subsequently, to generate fluent and original solutions to address given problems. As defined in the context of Singapore, the process of globlalisation calls for a replacement of the one-lesson-fits-all form of education by one that adopts a range of technologically centred teaching approaches and activities. In other words, it has become increasingly important for the appropriate cultural capital to be acquired and, for the government, what this ensures is the production of a wave of creative personnel for the next century.

Besides project work, the education ministry is also adopting the “problem-based learning” (PBL) strategy in schools. This approach is centred on curriculum development and an instructional system that “simultaneously develops both problem-solving strategies and disciplinary knowledge bases and skills by placing students in the active role of problem-solvers confronted with an ill-structured problem that mirrors real-world problems” (Ho & Toh, 2001, p. 71). Through PBL, students build substantial knowledge bases when they form hypotheses, refine and enlarge what they know. They are required to collaborate with their classmates, articulate their thinking during discussions, and to carry out self-directed study. In line with this, different schools are providing a range of learning experiences for their students to cultivate these abilities. In Gongshang Primary School, a team of four Primary 6 pupils carried out an experiment entitled “Battery Craze” to find out whether non-rechargeable alkaline batteries have more stored energy than fully charged rechargeable batteries (A report on the Investigative Project for Science Fair held at the Singapore Science Centre from 24-27 Sept 2003). Likewise, in Rulang primary school, robotics was introduced in 1999. The basis for introducing robots is to increase the students’ interest in science and technology and to cultivate in them independent learning, problem-solving and creative thinking skills. The students are required to use the Lego
Mindstone Kit to assemble and to programme a robot. In addition, they have to conduct research, set up a webpage, and to build team spirit to take part in the National Junior Robotics Competition.

**Lifelong learning skills**

It is evident that IT is extensively focused in Singapore’s schools in the areas of research and development. IT has become instrumental in creating and providing hands-on experiences to encourage students to seek for new information. Education has taken a different form, no longer confined to the four walls of the classroom. In perspective, a globalised economy may no longer require merely static facts. Instead, the shift is toward mastering concepts and skills, in an ongoing fashion. Over time, reskilling and additional professional development is expected. As stated in the mission of the Singapore education service:

> The mission of the Education Service is to mould the future of the nation, by moulding the people who will determine the future of the nation. The Service will provide our children with a balanced and well-rounded education, develop them to their full potential, and nurture them into good citizens, conscious of their responsibilities to family, society and country (Mission Statement).

The present role of education is to “mould the future” of Singapore by providing students with “a balanced and well-rounded education” so that they can reach their “full potential” to become great assets for the country. To the government, human assets are defined as active learners who will enquire, question and search for solutions both within and outside the classroom. Ultimately, students must be transformed into independent learners and possess the aptitudes to learn how to learn at all times. Continuous in-employment training will increase the employability and competitiveness of Singaporean workers.
Converging educational and economic trends

As noted, the government’s current stand is to engineer a group of critical and creative thinkers who possess life-long learning skills; skills necessary to allow the country’s workforce to expand into the area of biomedical research studies, an area highly reliant on information technology. Since 2000, Singapore has worked to become the Asian hub for biomedical research. To refocus its economy, the government has pledged to spend an estimated $4-billion over five years to develop the biomedical industry. Much of the money will be spent on persuading Western pharmaceutical and research companies to move to Singapore (Jen, 2001). To house and support the scientists and technicians contributing toward these research efforts, a hotel and condominium will be built around the vicinity of the Buona Vista Science Hub, which is comprised of Biopolis and Fusionpolis. The S$300 million Biopolis is a research site and a centre for biomedical sciences in Asia and the world. Fusionpolis is an art and animation centre that experiments with media and technology. The idea is to locate creative people from various disciplines in one big complex.

Corresponding with the nation’s need to create a substantial pool of scientists and researchers, the education ministry also launched the Science Research Programme to equip the first-year junior college pupils with an aptitude for science and the opportunity to participate in research projects under the guidance of lecturers from the National University of Singapore. The programme involves a science seminar, which enables students to explore areas of scientific research with other students (Ramanathan, 1999). Singapore’s increasingly technology-intensive industrial development has been supported by significant government initiatives in technical human resource development and infrastructural investments (Wong, 2001). Hence, “strong new initiatives to promote technological capability—a greater provision of education, efforts to
nourish creativity, and higher R&D spending—are now underway” (Huff, 1999, p. 13).

Therefore Singapore’s schools are positioning themselves for this new demand. Together with tertiary institutions, the National Science and Technology Board works toward enhancing the training of undergraduates and postgraduates to give them a grounding in science and engineering for a career in R&D (Cheong, Chua, Hor, Lim-Teo, & Ramanathan, 1999).

Harker (1990) explained that “the main interplay between the systems of ‘education’ and ‘production’ is the conjunction between formal education and jobs” (p. 103), which provides an explanation to the heavy investment in life sciences: the government perceives it to be the fourth pillar of Singapore’s manufacturing sector complimenting electronics, chemical and engineering. Along with the active life science industry, Singapore is developing a research programme in the biological, medical and pharmaceutical fields. Three initiatives are being implemented to meet this goal:

a. Increasing the number of scientists, technicians and medically trained personnel in the Life Science field;

b. Encouraging the growth of more research centres or schools in the Life Sciences; and

c. Fostering an active research programme in Life Sciences to create economic opportunities and enhance the career prospects for scientists working in this field. (T. K. Y. Tan, 2000, p. 41)

These initiatives clearly identify the government’s plan to emphasise and sustain the research and development industry. Attracting prospective students into the life sciences years in advance is just one way that the National University of Singapore is working with the government to help to turn the country into a life sciences hub. Every month groups of prospective students are taken to the NUS science laboratories for field trips (Liu, 2001).
Local educational institutions are also enlarging their domains in science and technology. At NUS, bioscience teaching facilities will be expanded. At NTU, a new biosciences department is being created from scratch. The university has set aside US$40 million to cover the initial costs, and the building will be ready in 2004. At Singapore Polytechnic, new courses in biomedical technology and media will be offered. At River Valley High School, the students are given opportunities to conduct live biology experiments and record experimental data in their new Physics Virtual and Biology Internet Labs that were built in 2002. This school was selected to be the Centre of Learning for Science and Technology and therefore the education ministry has installed facilities such as an Analytical Chemistry, a Microbiology Laboratory, a Tissue Culture Laboratory and a Molecular Biology Laboratory in the school (Science Department). At Clementi Town Secondary School, students were sent to a workshop on the nature of DNA and how its potential application in Genetic Engineering. This workshop allowed the students to have hands-on activities on modelling DNA Structure and isolating DNA from plant material (Life Science @ CTSS). At Raffles Girls’ School, one of the top girls’ schools in Singapore, the restructured curriculum now offers life sciences to all students (Leow, 2000).

THE COMPLEXITIES IN THIS EXPANSION

The process of globalisation has definitely expanded the present Singapore education system to one that is more flexible and broad-based. Most noteworthy is that the restructuring offers students a variety of choices and options for pursuing their education. Besides investing extensively in science subjects, other reforms are set to begin to facilitate this shift. Starting in 2005, under the Direct School Admission (DSA) Exercise, seven schools will be offering the Integrated Programme (IP). This program will enable students entry into Junior Colleges directly without having to sit for their GCE O level Cambridge Examination. In addition, a sports school
was recently established in 2004. At the same time, NUS High School is also due to open later in the year to provide students with a special aptitude for maths or science to specialise in these areas. In 2007, a school for the arts will be available. Alternative curricula and qualifications, as well as privately funded secondary schools, will also soon be made available (Reply by Mr Tharman Shanmugaratnam, Acting Minister for Education on Schools - A more flexible and broad-based education system). Such diversifications give students with different abilities alternate educational pathways that are not only suitable for them, but will also maximise their potential.

This expansion gives teachers the opportunity to move beyond the school curriculum and to gain up-to-date experiences. Additionally, teachers are encouraged to take up work attachments in external organisations to broaden their perspectives and this work can be done locally or overseas. For example, in a recent exchange programme 16 teachers were selected for a study trip on life sciences and innovation to United States. This was to enhance the teachers’ knowledge by exposing them to various overseas programmes on life sciences. They visited Stuyvesant High School, Franklin Knight Lane High School and Smithtown High School, along with the New York Hall of Science, the Science Museum of Minnesota and the 3M Headquarters (US trip on life sciences and innovation). In this way, education has moved beyond the classroom environment for students and teachers.

While the process of globalisation has led to a new commitment from the government to resource and restructure schools, a question remains: How many students are actually benefiting from the new IT infrastructure, IT activities and project work made available given these policy initiatives? As a whole, the education system seeks to provide all Singaporean students and schools the supports necessary for these new changes. However, at this point, these changes are
not equal and inclusive of all students. In Gongshang Primary School, for example, only a team of four Primary 6 students were chosen to carry out the “Battery Craze” experiment. In Nan Hua Primary school, there were 40 Primary 5 students selected to take part in the PriEsta Xperience project. In Chinese High School, all the boys were given an annual project to complete. However, in Crescent Girls’ School, a total of 360 Secondary 3 students were involved in their website publication. Clearly, the infusion of IT and project work in the curriculum varies from school to school, benefiting certain schools and particular students more than others.

In truth, better schools like River Valley High School seem to benefit more from this shift as it has been equipped with the best resources. At Raffles Girls’ School, all its students are given the opportunity to experiment with life sciences. Both River Valley High and Raffles Girls’ Schools are top schools in Singapore and are well established over the years. Harker (1990) attributes this inequality to the inherent role of schools in the reproduction of “social and cultural inequalities from one generation to the next” (p. 86). Indeed, the same students that were privileged in the past—given their access to economic, cultural, social, and symbolic capital—continue to accumulate privileges from the policies that drive these new reforms.

In addition, these reforms seem to privilege certain fields and subject areas. As noted, much of the expansion in schools tends to focus on science and technology. As a result, this process seems to benefit students from certain schools, those with access to the new infrastructure and the course work required to use the technology, and subject areas, those who are achieving well in the science and technological areas. Project work, such as robot construction, requires a certain amount of technological know-how. Only students with technological exposure and adequate resourcing are prepared to undertake such work. As a result, elite students are positioned to benefit more from project work, because they are given more opportunities to explore and expand
their capabilities. The focus on life sciences might draw resources away from other important, but perhaps less “desirable” fields. One performing-arts professor believes that the drive for biomedicine is neglecting the arts and humanities. A concern is that students might be “lured” into biotechnology even if they are not particularly interested or adept (Jen, 2001). While authorities claim that Singapore is not focusing solely on life sciences, as the biotech industry is only one pillar of the four pillars of the economy, arts and humanities are not included.

One might question how expansive this educational reform really is. On the one hand, it seems that there is a diversification of options, but in reality this process of globalisation seems to converge in only one direction. Areas, such as literature, seem to undergo the “elimination” process, slowly being removed from the school curriculum. Reports dating back to 2000, had already made note of the possibility of certain subjects losing popularity. As stated in *The Straits Times*, literature is considered “not applicable to life” ("Take it," 2000). A reporter in 2002 claimed that literature is “a dying subject in schools” (Sandra, 2002). These reforms seem to have at least two elimination effects: reproducing the elimination of certain students from the process of schooling and eliminating certain subject areas as well.

**CONCLUSION**

On one hand, Singaporeans are encouraged to venture overseas and to go global: “We need to give them wings, expose them to the world… give them roots, emotional experiences… so even with wings, they will fly all over the world but come back and be a Singaporean in Singapore” (“Young people,” 2004). However, the idea of going global is contentious. While Singaporeans are encouraged to be creative and enterprising, the “wings” that facilitate this flight are gained through certain fields, such as research and technology, information technology and sciences. These areas are perceived to be “lucrative” and potentially enlarge the country’s
economic capital. In other words, only those who possess these narrowly defined “wings” have
the opportunity to progress up the corporate ladder and “all over the world.” Those who lack them are not encouraged or able to go global. Though the education system has diversified to include certain key areas in the curriculum—research and technology, information technology and sciences—not all Singaporeans have the access or capital to excel in these selected fields.

In this new context, humanities subjects such as literature are faced with the “elimination” process given a perceived lack of relevance for economic growth:

Literary path—a path which nowadays, especially in Singapore, seems so far skewed from the super highway of technological, so far removed from the ubiquitous, aspiring route to material success, as to be considered wholly unpragmatic, if not utterly foolish as well (Kwek, 2000, p. 7).

Subjects such as literature are being placed in the “gap” (see Figure 1) due to their insignificant contribution to the society. The convergence and divergence effects of globalisation have a great impact on Singapore’s education system. In one respect, globalisation has led to the broadening of the definition of education and its curricula. Education minister, Tharman Shamugaratnam noted that education needs to restructure to “what the real world looks for.” Its key objective is to prepare kids “for the test of life” (Chua, 2004, p. 33). However, in reality the education system seems to be converging toward particular domains. Only those students who fall into these selected arenas will benefit from these implementations. Those who fall between the gaps are faced with elimination on the basis of the educational restructuring. When academic achievements are tied closely to monetary success, and a lack of the former is perceived to be detrimental to one’s future, it is not surprising that many students are moving into the areas
highlighted by educational reform in an attempt to gain the new cultural capital that the new educational and economic couplet requires.
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Figure 1: Convergence and Divergence pressures
Figure by C.S.K, Chua 2004

Globalisation

Convergence

Divergence

Created a gap for unimportant or insignificant contributions to the globalised economy such as humanities subjects.