Philippine Basic Education System towards the Cultivation of Culture of Entrepreneurship and Innovation

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Abstract

The formation of human capital through quality basic education is crucial in achieving high levels of economic development. It lays the base for general skills that are significant for further education and training. Thus, the government should ensure that the educational system assists learners to adapt to the changing nature of innovation from the very start. This necessitates curricular programs and educational paradigm that will facilitate students with the capability to learn, acquire and apply new skills throughout their lives. A focus shall be geared towards the development of critical and creative thinking skills, and skills for numeracy, communication and teamwork, in addition to domain-specific and linguistic skills.

Any system of education and training should build within people the foundations to learn and develop the broad range of skills needed for innovation and with the flexibility to upgrade skills and adapt to changing economic conditions. For instance, the Philippine educational system should lay the base upon which people can build a culture of entrepreneurship by instilling the attitudes and skills needed for the development of creative agri-based entrepreneurs.

This paper provides perspectives on the potential of cultivating a culture of entrepreneurship and innovation among students. It argues for the crucial role of entrepreneurship and economic education in the development of knowledge, competencies and skills to enable that students appreciate the role of enterprise in wealth, value and employment creation. Utilizing the analysis of data based on the trends and patterns of the results of the National Career Assessment Examination (NCAE) conducted by the Department of Education (DepEd), this paper highlights some points for policies and curricular reforms that will support the process of unleashing the entrepreneurial mindset of the students. Based on the NCAE results, the inclination of graduating high school students is geared towards entrepreneurship. This calls for curricular programs and policies designed for them to confront challenges and opportunities for becoming an entrepreneur and in developing a gainful self-employment career. For instance, policies and strategies that will enhance school-industry partnership, human resource development planning and career guidance and counseling must be put in place. Efforts towards these directions will greatly reduce labor-skills mismatch and unemployment problems.

Keywords : basic education; culture of entrepreneurship and innovation; entrepreneurship education; investment in human capital; National Career Assessment Examination (NCAE); Philippine educational system

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Introduction

It is lamentable to note that in spite of the many curricular reforms to improve the Philippine educational system, its performance indicators are dismal. These continue to magnify a situation where a declining number of Filipino students have gained the mastery and competency for basic education. Learning indicators paint a disturbing picture for the country's investment in human capital and its bid to produce a highly skilled labor force that will spell a big difference in a competitive global economy.

The Department of Education (2010) cites that the passing rate in school year 2009-2010 National Achievement Test (NAT) for Grade 6 pupils was low at 69.21%. In school year 2004 to 2007, achievement rates in mathematics, science and English for Grade 6 pupils ranged from 53% to 61%. (Table 1). In high school level, the NAT passing rate for high school in school year 2009-2010 has declined to 46.38%, from 46.64% in 2006-2007, with an MPS in math declining to as low as 39.05% (Table 2).

Table 1. Elementary National Achievement Test (NAT) Mean Percentage Scores, by subject: National

Subject	SY2002-03 Grade IV	SY2003-04 Grade IV	SY2004-05 Grade VI	SY2005-06 Grade VI	SY2006-07 Grade VI
Achievement Rate (MPS)	…	…	58.73	54.66	59.94
Mathematics	44.84	59.45	59.10	53.66	60.29
Science	43.98	52.59	54.12	46.77	51.58
English	41.80	49.92	59.15	54.05	60.78
Hekasi	…	…	59.55	58.12	61.05
Filipino	…	…	61.75	60.68	66.02

*National Achievement Test (NAT), for elementary level, were given in Grade IV in SY 2002-2003 & SY 2003-2004 and in Grade VI in SY 2004-2005 to SY 2006-2007; MPS - Mean Percentage Scores.

Source: National Education Testing and Research Center (NETRC) as cited by the Department of Education.

(Adapted from Maligalig and Albert , 2008)

Table 2. Secondary National Achievement Test (NAT) Mean Percentage Scores, by subject: National

Subject	SY2002-03 1st Year	SY2003-04 4th Year	SY2004-05 4th Year	SY2005-06 4th Year	SY2006-07 2nd Year
Achievement Rate (MPS)	…	44.36	46.80	44.33	46.64
Mathematics	32.09	46.20	50.70	47.82	39.05
Science	34.65	36.80	39.49	37.98	41.99
English	41.48	50.08	51.33	47.73	51.78
Filipino	…	…	42.48	40.51	48.89
Araling Panlipunan	…	…	50.01	47.62	51.48

*National Achievement Test (NAT), for secondary level, were given in 1st Year in SY 2002-2003, in 4th Year in SY 2003-2004 to SY 2005-2006, and in 2nd Year in SY 2006-2007; MPS - Mean Percentage Scores.

Source: National Education Testing and Research Center (NETRC) as cited by the Department of Education.

(Adapted from Maligalig and Albert , 2008)

When Filipino students' educational achievement is compared with the performance of other countries in standardized international test, the result is unsatisfactory. For instance, out of the 45 countries that participated in the 2003 Trends in International Mathematics and Science Study (TIMSS) Test, the Philippines ranked 41st in Math and 42nd in Science. In 2008 TIMMS advanced mathematics category, the country was ranked at the bottom rank (NCES, 2003; Mullis, et al. 2009). Basic educational performances also reveal low completion and survival rates and high incidence of drop-out. Out of every 100 children enrolled every year, only 66 students will hurdle elementary education, 42 will complete high school diploma and only about 14 will finish a college degree. DepEd (2010) admits that this "…quality of education is reflected in the inadequate preparation of high school graduates for the world of work or entrepreneurship or higher education." As magnified in labor statistics, 80% of the unemployed are 15-34 years old. High school graduates account about 70.9% of the unemployed (Table 3). The mismatch between college education and labor market further exacerbates the inefficiency of human capital investment. For instance, at least a fifth of agriculture, forestry and natural resources (AFNR) graduates in the workforce are jobless, which may be a cause for concern, particularly since this is nearly three times the unemployment rate for the whole country (Camacho, et.al, 2011). Again, DepEd acknowledges that the unemployment is largely accounted for by the skills shortage of graduates "…such as problem-solving, initiative and creativity, and, to a lesser extent, gaps in job specific technical skills" as described by employers in a 2009 World Bank Philippines Skills Report.

Table 3. Unemployment Statistics in the Philippines, 2010

Description	Proportion Unemployed	Total
15-24 years old	51.5%	80.6%
25-34 years old	29.1%	
High School Graduates	33.1%	70.9%
College Undergraduates	19.3%	
College Graduates	18.5%	

Source: NSO Labor Force Survey, as cited in DepEd (2010)

Any system of education and training is crucial in achieving high-levels of economic development and social transformation. The formation of human capital through quality basic education equips people with the foundations to learn and develop the broad range of skills needed for innovation and with the flexibility to upgrade these skills and adapt to changing economic conditions. Basic education lays the foundation for general skills that are significant for further education and training. Thus, the government should ensure that the educational system assist learners to adapt with the changing nature of innovation from the very start. This necessitates curricular programs and educational paradigm that will facilitate students with the capability to

learn, acquire and apply new skills throughout their lives. For instance, the Philippine educational system should lay the base by which people can enhance a culture of entrepreneurship by instilling the attitudes and skills needed for the development of creative agri-based entrepreneurs.

This paper provides critical perspectives of the potential of cultivating a culture of entrepreneurship and innovation among students. It argues for the crucial role of economic and entrepreneurship education in the development of knowledge, competencies, skills and attitudes to enable the students cultivate an entrepreneurial mindset and appreciate the role of enterprise in wealth, value and employment creation from as early as pre-school to higher education levels.

Based on the trends of results of the National Career Assessment Examination (NCAE) conducted by the Department of Education, the paper highlights some notes for policies and curricular reforms supportive in the process of unleashing the entrepreneurial mindset of the students. Based on the NCAE results, the inclination of graduating high school students are geared towards entrepreneurship. This calls for curricular programs designed to enable them to confront challenges and opportunities of becoming an entrepreneur and in developing a gainful self-employment career. Strategies that will enhance school-industry partnership, human resource development planning and career guidance and counseling must be put in place. Efforts towards these directions will greatly reduce labor-skills mismatch and unemployment problems.

Cultivating a Culture of Entrepreneurship and Innovation through Basic Education

The development of human resource through human capital investment, particularly in education is crucial for it has an important link and consequences in harnessing innovative capacities and entrepreneurial activities. Empowering firms and people to innovate relies not only on broad and relevant education, but also in building-up a wide variety of skills starting from early childhood and basic education system up to the entire educational ladder. At young age, "…children are intrinsically inquisitive. During this stage, the individual's penchant for exploration should be encouraged and heightened through training in mathematics and the sciences, complemented by exposure to critical thinking, analysis, and synthesis" (The Philippine National Innovation Strategy, 2007). As Wilson (2008) argues, "…the earlier and more widespread the exposure to entrepreneurship and innovation, the more likely it is that students will consider entrepreneurial careers at some point in the future."

Human capital enhances the quality of labor and efficiency of employees. It equips firms and people with the skills to innovate. It gives rise to new knowledge and skills, thus, causing an innovation-led entrepreneurship to swiftly proceed. Firms create new ideas that propel new levels of innovation, and they apply this knowledge and the resulting technologies, products and services in the workplace. Innovation requires a wide variety of skills, as well as the capability to learn, adapt or retrain.

It is believed that entrepreneurial skills, attitudes and behavior can be learned, and that exposure to entrepreneurship education throughout an individual's lifelong learning path, starting from early age – is imperative in order to prepare "future leaders for solving more complex, interlinked and fast-changing problems" (World Economic Forum, 2009). In a "lifelong learning model" of entrepreneurship, the US-based Consortium for Entrepreneurship Education presents five developmental stages. In the early stage, each person must acquire entrepreneurial skills and knowledge (Figure 1). In the next stages, one seeks to specialize and become entrepreneur. In each stage, programs and activities are experienced through built-in or stand-alone courses. For example, at the earliest stage, students at the basic education level are exposed to the rudiments of an economy and enterprise ownership. At an early age and with inquisitive and exploring minds, students are be imbued with the "positive perception about the feasibility and desirability of entrepreneurship…and psychological attributes associated with entrepreneurial activities" (Kourilsky & Walstad, 1998; Walstad & Kourilsky, 1999; Charney & Libecap, 2000; Nakkula, 2004 in Daniel and Kent, 2005). With basic learning competencies and prerequisite skills, they realize career options and economic opportunities.

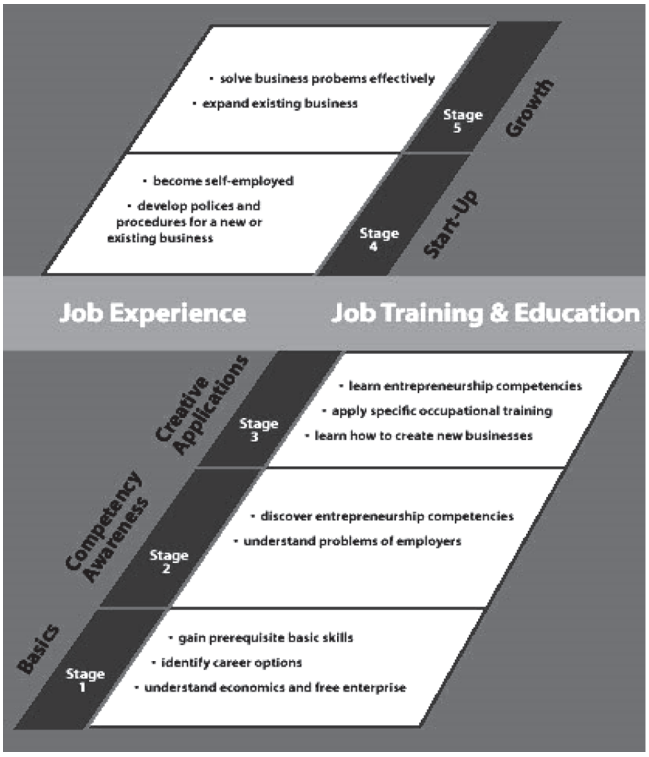

Figure 1. Life-long Learning Process Model of Entrepreneurship

(Source: Adapted from Consortium for Entrepreneurship Education, in http://www.entre-ed.org/Standards_Toolkit/nurturing.htm)

As a “lifelong-learning process,” the formation of innovative skills thrives well in an enterprising economic environment where livelihood and employment are created and when economic growth is further catalyzed (Filion, 1994; Gorman, 1997; Consortium for Entrepreneurship Education, 2007, in Bridges, 2008) It should, therefore, involve greater government attention and support with greater collaboration from various sectors stakeholders across disciplines and institutions.

In the Philippines, nearly 30% of students in primary level and 43% in high school in 2004 stated lack of personal interest as the reason for not attending school. This is followed by reasons cited by students such as high cost of education and looking for work and employment (Table 4). Entrepreneurship education can be very instrumental in encouraging these types of students to stay in school, build their creativity and self-confidence, and finish their education. It can encourage students to engage in productive entrepreneurial activities and look forward to a better future (Network for Teaching Entrepreneurship-NFTE website). In the United States, NFTE reveals that more than 80% of youth and school-based children cite that “they would not have dropped out if school were more relevant to real life.” NFTE responded by “providing life-relevant learning that engages young people and keeps them in school.” It demonstrates “why math, writing, reading and research skills are important, using a hands-on approach that incorporates all of these skills into the development of an original business plan.”

Table 4. Reasons for Not Attending School, National Level: 2002 and 2004

	Primary		Secondary	
	2002	2004	2002	2004
Not currently in school (persons)	715,650	750,474	704,707	896,325
Reasons for not attending school (%)				
Cannot cope with school work	12.1	10.5	4.1	3.3
High cost of education	14.8	15.0	27.4	26.8
Illness/ Disability	6.6	7.7	6.8	6.3
Lack of personal interest	29.0	29.4	38.2	43.0
Schools are far/No school w/n brgy	9.3	8.0	2.7	2.9
Employment/Looking for work	0.6	1.1	12.5	9.2
Finished schooling	0.2	0.0	0.0	0.1
House keeping	0.8	0.7	3.1	3.8
No regular transportation	1.2	0.5	0.2	0.3
Others	25.3	27.0	5.0	4.2

Source: Maligalig and Albert’s (2008) computations using data from APIS 2002 and 2004.

However, in spite of the potential benefits of developing entrepreneurship at an early age, basic educational systems do not give so much weight on entrepreneurship education (Rushing and Kent, 2000). In the Philippines, for instance, Habito (2010) laments that “…schools gear our students to look for jobs, rather than create jobs, after they graduate.” They are led to be content to merely earn an income, rather than create

wealth. Past surveys have shown that the common students' dream is to land a job in a well-paying multinational firm, when they should be dreaming of setting up their own enterprise and creating new jobs for others. Entrepreneurship need not just be inborn; it can be learned. Entrepreneurship values may be imparted as early as grade school; entrepreneurship skills can then be taught in high school…We should be reorienting our education from employment to entrepreneurship." In the United States, based on a Council for Economic Education (CEE) study revealed that "entrepreneurship is less emphasized and therefore less integrated into the curriculum of the states. Nineteen states include the subject of Entrepreneurship in their K-12 educational standards, and four states require Entrepreneurship to be included as a component of a high school course, usually Economics, required for graduation." As argued by Daniel and Kent (2005), this is strengthened by the fact that the learning skills and competencies are usually assessed based on conventional evaluation methods and measures of educational performance which do not realistically account for creative thinking and entrepreneurial skills of students.

Moreover, most curricular programs are congested with designs and content written by educators that are mainly based from or have biased for "traditional disciplines" and, therefore, may not have a full grasp and appreciation of the "operations and benefits of the market system and importance of entrepreneurship" (Daniel and Kent, 2005).

Cultivating Entrepreneurial Spirit: The National Career Assessment Examination (NCAE)

Implemented in 2006, the National Career Assessment Examination (NCAE) was conducted to guide senior high school students in the Philippines in pursuing the most suitable career track after graduation. The examination serves as a career direction scheme by assessing the aptitude and potentials of the students whether to take a four-year collegiate degree program or a vocational-technical course, or pursue a career on entrepreneurship. In contrast with the National College Entrance Examination (NCEE) which was discontinued in school year 1994-1995, NCAE also assesses aptitudes on vocational-technical and entrepreneurial skills, interest inventory and nonverbal ability. NCEE only measured general scholastic aptitude and inclination to pursue college education. In essence, NCAE serves to minimize the problem of unemployment, underemployment and labor market mismatch of skills.

An analysis of the results of NCAE conducted in 2006 and 2007 illustrates that, as seen in Table 5, majority of the high school seniors in both public and private high schools demonstrate interest geared towards entrepreneurship as shown by mean percentage scores (MPS) ranging from 75% to 79%. This is followed by those who are inclined to technical-vocational careers (range: 59%-79%). Those with strong academic inclinations have MPS ranging from 45% to 52%. By all account, the performance of students from private schools is higher than the performance of students from public schools. In its 2007 summary report of the

NCAE, the Department of Education is consistent with the aforementioned trends which presents that "3.76% obtained high General Scholastic Aptitude more apt for pursuing post-secondary or higher education; 54.51% had high Technical-Vocational Aptitude that can be put to productive use in the industry or the world of work; and 58.03% obtained high aptitude in Entrepreneurial Skills for engaging in business and commerce."

Table 5. National Career Assessment Examination Results, in MPS

Particulars	PUBLIC		PRIVATE	
	2006-2007	2007-2008	2006-2007	2007-2008
No. of Examinees	1,007,120	903,527	298,091	319,938
Gen. Scholastic Aptitude	45.35%	45.99%	52.36%	51.83%
Tech Voc. Aptitude	71.70%	59.30%	79.29%	65.73%
Entrepreneurial Skills	75.48%	75.00%	79.81%	78.49%

Source: National Educational Testing Research Center, Department of Education (2007)

Basic Education Curricular Reforms Supportive of Entrepreneurship and Innovation

The above perspectives call for curricular programs and policies designed for students to confront challenges and opportunities of becoming an entrepreneur and in developing a gainful self-employment career. For instance, policies and strategies that will enhance school-industry partnership, human resource development planning and career guidance and counseling must be put in place. Efforts towards these directions will greatly reduce labor-skills mismatch and unemployment problems.

Curricular Policy Reforms. In the current system, basic education is seen by parents and students as training ground in acquiring higher education. This frame of mind assumes that students undergo a basic education curriculum that is only necessary and sufficient to get college or university diploma, a belief that "…falls short of expectations as most students usually have to take remedial and high school level classes in colleges and universities." The Department of Education is in the right direction in implementing the enhanced K+12 basic education program that will adequately prepare high school students not just for post-secondary education but also "for the world of work or entrepreneurship…to start an entrepreneurial endeavour."

In the K+12 model, students will undergo a basic education curriculum consisting of a compulsory one-year Kindergarten and six years of Elementary education. The students proceed with a four-year Junior high school (Grade 7 to 10) and two years of Senior high school (Grades 11 to 12). The last two years consolidate "acquired skills and competencies… and will allow specializations in science and technology, music and arts,

agriculture and fisheries, sports, **business and entrepreneurship**" (DepEd, 2010).

Integrate Entrepreneurship in Basic Education Curriculum. With the new K+12 basic education program now in place, entrepreneurship education must be introduced and integrated. Teaching modules, syllabi and expected learning skills and competencies in each grade and year level must be carefully studied in order to introduce and integrate basic concepts of entrepreneurship in a manner that is effective, enjoyable and practical for students to easily appreciate. For instance, entrepreneurial literacy should be included as a complementary to current standards for reading and math literacy. A focus shall be geared towards the development of critical and creative thinking skills, skills for numeracy, communication and teamwork, in addition to domain-specific and linguistic skills. These should take into account the background of students, local and institutional context in which entrepreneurship operate. Entrepreneurship lessons should "…focus on learning 'for' rather than 'about' entrepreneurship" and should be crafted with more depth and rigor "to ensure that entrepreneurship courses, materials and research are of high quality…" (World Economic Forum, 2009).

The integration should culminate when students take Social Studies IV–Economics in the fourth year of their Junior years, specifically, when the topic centers on financial literacy, the study of firm, factors of production and the economic roles and functions of entrepreneurship. Parker (2005) provides a number of questions for discussions about the economics of entrepreneurship: "How many jobs do entrepreneurs create? Are small entrepreneurial firms more innovative than large corporations? Do tax cuts stimulate entrepreneurship? How successful are loan guarantee schemes in providing credit to new enterprises? Which entrepreneurial ventures are most likely to survive and grow? Why do entrepreneurs work so hard for so little pay? Does entrepreneurship cause economic growth? Should governments encourage or discourage entrepreneurship?"

Train Teachers. At the heart of mainstreaming entrepreneurship education in basic education curriculum are the teachers placed at the forefront of cultivating the entrepreneurial mindset of the students. Students will be inspired to pursue an entrepreneurship career if teachers possess the mastery in imparting knowledge and in enhancing their creative and critical thinking skills. Gatchalian's (2010) study has shown that "…students assign the highest importance to the personal qualities of entrepreneurship educators (e.g. human and motivating, etc.) and teaching methodology and delivery (e.g. innovative and interactive) among other qualities (e.g. educational attainment). Entrepreneurship educators ascribe most importance on personalized, experience and project-based learning. However, they assert that this teaching practice should be complemented by a manageable class size, program support facilities and teaching skills enhancement (e.g., mentoring, etc.) among others."

This, therefore, requires massive investment and support for training of teachers. As emphasized in the World

Economic Forum (2009), teachers "may need training in either or both the experiential pedagogy and the business content. The training curriculum may be as extensive as the underlying curriculum for students." In order to start building-up a critical mass of entrepreneurship teachers, teacher education institutions (TEIs) should redesign their curricular programs by developing a series of courses, internship and pre-service teacher-training activities that concentrate on the pedagogy of teaching innovation and entrepreneurship in basic education level.

Stronger Linkage with Industry and Business Sectors. The Department of Education, while embedding entrepreneurship education into the basic education curriculum, should establish stronger linkage and collaboration with the industry and business sectors that can mentor, nurture, support and enhance the entrepreneurship-based experiential teaching methods and learning process of teachers and students. Part of the linkage should be the exposure of students to starting and growing enterprises, business offices, factories and laboratories which showcase practical training, real-life work conditions, occupational and entrepreneurial environments. Entrepreneurial schools, colleges and universities can help provide training for teachers, development of new curricula, and mentorship for students. Creativity and innovation on the part of educators and other partners are critical.

Enhance Entrepreneurial Mindset through Career Guidance and Counselling The Department of Education, which conducts the annual National Career Assessment Examination (NCAE), should lead a concerted effort, in coordination with the Department of Labor and Employment (DOLE), Technical Education and Skills Development Authority (TESDA) and Commission of Higher Education (CHED), in instituting highly integrated, accessible and well-systematized career guidance and counseling system that will drive students towards careers that will hone their potentials and cultivate their entrepreneurial abilities. At the forefront of providing career information and counselling are the school guidance officers and counsellors properly trained and professionally adept about the nuances of labor market information, careers and human resource development planning.

Concluding Remarks

Philippine learning indicators paint a disturbing picture for the country's investment in human capital and its bid to produce a highly skilled labor force that will spell a big difference in a competitive global economy. In 2004, nearly 30% of students in primary level and 43% in high school stated lack of personal interest as the reason for not attending school. These continue to magnify a situation where a declining number of Filipino students have the mastery and competency for basic education. The mismatch between college education and

labor market further exacerbates the inefficiency of human capital investment. For instance, at least a fifth of agriculture, forestry and natural resources (AFNR) graduates in the workforce are jobless, which may be a cause for concern, particularly since this is nearly three times the unemployment rate for the whole country (Camacho, et al. 2011).

The implementation of Philippine educational reforms through the K+12 basic education program provides an opportune time to lay the foundation in cultivating a culture of entrepreneurship and innovation among students. Entrepreneurship education is crucial in the development of knowledge, competencies, skills and attitudes to enable them to cultivate an entrepreneurial mindset and appreciate the role of enterprise in wealth, value and employment creation from as early as pre-school to higher education levels. It can be instrumental in encouraging drop-out students to stay in school, build their creativity and self-confidence, and finish their education.

The implementation of the basic curricular reforms embedded with entrepreneurship education will hopefully ensure better lives and quality education infused with lifelong-learning skills and competencies among our students. It can be made more effective and sustainable if policies and strategies are crafted that will enhance school-industry partnership, human resource development planning and career guidance and counseling are put in place. Efforts towards these directions will greatly reduce the incidence of drop-out and poverty, labor-skills mismatch and unemployment problems.

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