

Educating Youth for Entrepreneurship in Work & Life: Experience of a Junior Secondary School Project in Morocco

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Abstract

National education policies around the globe increasingly highlight the need to equip children and youth with entrepreneurial skills, also called “21st century skills,” “employability skills,” “core competencies and others. The present article identifies and analyzes these skills, combining the perspectives of employers and the international development sector, and asserts that education and training can and indeed must work deliberately to imbue students with these. The Entrepreneurial Spirit Development Program (PDEE), developed and implemented for lower secondary students by the USAID/ALEF project in Morocco serves to illustrate what a purposeful personal skills development program might be. The experience generated positive outcomes in terms of students’ social engagement, academic results, school retention and other measures. Finally, a review of the key findings of an independent assessment of the effects of PDEE (Bouhassoune 2011) on students two years after the project ended provides empirical evidence of the effectiveness of such a program on the vocational “maturity” of students, equipping them for productive professional futures.

Introduction

A young person today weighing her or his professional prospects must shudder before the world’s economic realities. Looking at employment statistics, the International Labor Organization (ILO) (2012a, p.11-12) projected a 2012 youth unemployment rate of 12.7 percent worldwide. This is nearly 75 million persons and over twice the overall projected rate of 6.1 percent (ILO 2012b, p. 1). The 2012 Education for All Global Monitoring Report forecasts that by 2020, “An additional 57 million jobs will... need to be created [in South and West Asia, the Arab States and Sub-Saharan Africa alone]... just to prevent unemployment rates from rising.” (p. 191). These figures are even worse in certain regions, notably the Middle East and North Africa, with 2011 youth unemployment rates exceeding 25 percent.

Beyond the numbers is the evolving nature of skills and behaviors required to become productive in the workforce. In addition to skills in information and communications technologies, the global workforce increasingly requires greater flexibility and mobility of employees. Further, youth must secure employment in a context of growing political and social upheaval, diminishing natural resources, high population

growth, the ongoing menace of HIV/AIDS, etc.

The main challenge in confronting these phenomena is to devise policies and implement initiatives permitting every young person to contribute fully and capably to the economic and social life of the community, nation and world. Accomplishing this societal goal is also a very personal matter for each youth, seen largely in the need for each individual to equip him or herself with the skills to find employment and to participate with true agency in the broader social sphere. At the macro level, society should improve its capacity to help youth meet their personal, professional and social aspirations. But the opposite is also true: as youth attain their goals individually, they should be more able and inclined to help society resolve its challenges.

This article asks what type of education societies should provide young people to prepare them for workplace success and to engage them socially and personally. It looks at a five-year project in Morocco that aimed to demonstrate how junior secondary schooling could equip students with “portable and adaptable skills” to serve them in further schooling and later in “real” life.

Of primary concern are the technical, cognitive, and “non-cognitive” skills that youth need to reach these goals. “Non-cognitive” skills, also referred to as “soft skills,” “core competencies” and “employability skills” are those aptitudes and attitudes that individuals summon to utilize technical and cognitive knowledge effectively. These include confidence, communication, problem-solving, planning, teamwork and perseverance. (See the annex for a summary of efforts to define these skills.) Evidence from the workplace, economics and cognitive science suggests that non-cognitive skills are the greatest determinant of an individual’s successful future integration into the workplace and society.

Following is a case study from Morocco exemplifying the nature of education interventions that will help youth master these skills. This case illustrates how non-cognitive skills can be incorporated effectively into formal education, presenting the USAID-funded “Advancing Learning and Employability for a Better Future” (ALEF) project implemented by the Academy for Educational Development (AED) in four of Morocco’s 16 regions from 2005 to 2009.

Educating for Life

Non-cognitive skills matter... a lot. Since the 1990s, a sense of urgency has emerged, first in the so-call “developed” and then in the “developing” world, to ensure a workforce equipped to deal with a rapidly globalizing, increasingly complex economic world. As Riordan and Rosas state, “The interaction of globalization, technological development and changes in the organization of work has resulted in the demand for higher and different skills” (quoted in McGrath 2003, p.20). These new higher order skills are not only valuable at the macro level, as they are essential for competitive national economies, but they are also crucial for the individual worker, as “skills have become

increasingly important in determining an individual's ability to secure a job, retain employment and move flexibly in the labor market."

These arguments have figured prominently in official national and international initiatives. In 1992, Australia's Mayer Committee labored to produce a list of "... skills essential for employment and for personal development, fulfillment, community life and active citizenship" (Gibb 2004, p. 7). These skills comprise "competencies essential for effective participation in the emerging patterns of work and work organization." Furthermore, the Mayer Committee report asserts that "the key competencies are not only essential for participation in work but... also for effective participation in further education and in adult life more generally."

At about the same time, the U.S. Department of Labor issued two reports by the Secretary's Commission on Achieving Necessary Skills (SCANS)—What Work Requires of Schools (June 1991) and Learning a Living (April 1992)—which offer a multi-dimensional set of "skills that... young people need to succeed in the world of work" (SCANS 1992, p. xiii). Similar to the Australian report, the SCANS studies found that the new

...high-performance workplace demands workers who have a solid foundation in the traditional basic academic skills, in the thinking skills necessary to put knowledge to work, and in the personal characteristics that make a worker confident, trustworthy, and responsible. We called this the "foundation" of workplace know-how. But a solid foundation is not enough. High-performance workplaces also require the ability to manage resources, to work amicably and productively with others, to acquire and use information, to understand and master complex systems, and to work comfortably with a variety of technologies. We called these the 'competencies.' (SCANS 1992, p. 6-7)

The Definition and Selection of Competencies (DeSeCo) program of the OECD (Organization of Economic Cooperation and Development) pushed even harder to link such core competencies with work but also with the broader social and personal spheres in which individuals live. Launched in 1997 (DeSeCo 2001, p. 2), Rychen explains the assumptions underlying DeSeCo's non-cognitive competencies: "...they contribute to highly valued outcomes at the individual and societal level in terms of an overall successful life and a well-functioning society; they are instrumental for meeting important complex demands and challenges in a wide spectrum of relevant contexts; and they are important to all individuals" (quoted in McGrath 2003, p. 14).

Heckman (2008) has been at the forefront of research that demonstrates empirically the value of "non-cognitive" or "soft" skills. Working in the United States, Heckman compared the professional and personal life circumstances of adults who acquired high school credentials through the Graduate Equivalency Diploma (GED) program with those who completed the full high school cycle as well as with dropouts. While tests show that

the GED earners are as knowledgeable as their counterparts who completed high school, their earnings resemble those of dropouts (Heckman 2008, p. 11). Similarities between dropouts and GED recipients as compared to high school completers extends to other measures as well: “...when you consider all kinds of important future outcomes – annual income, unemployment rate, divorce rate, use of illegal drugs – GED recipients look exactly like high-school dropouts, despite the fact that they have earned this supposedly valuable extra credential, and despite the fact that they are, on average, considerably more intelligent than high-school dropouts” (Tough 2012, p. xviii).

What the GED graduates miss, Heckman and others have concluded, is the quality of ‘stick-to-it-iveness,’ what Tough (2012) refers to as “grit,” that compels an individual to persist at a task even if challenging or unpleasant with the knowledge that there is a tangible, valuable reward at the end. For many, school represents just such a challenge. Second are the specific “non-cognitive” competencies and attributes that are taught or acquired in school, including confidence, respect, communication (written, oral, symbolic, etc.) and learning strategies. Holzer (1997, quoted in Lerman 2008) found that test scores account for little of the variation in earnings among workers as compared with other attributes and skills. Summarizing these traits from a survey of 3,200 employers in major U.S. metropolitan areas, Holzer concludes that “such personal qualities as responsibility, integrity, and self-management,” were “as important as or more important than basic skills” (p. 25). (I found similar results in a less formal survey of employers in Morocco.)

The conclusion across the literature is that school systems routinely fail to produce graduates with the competencies needed for success in work, society and home (see for example, SCANS 1992, p. xvii; Lerman 2008; Riordan and Rosas, in McGrath 2003). While the responsibility for fostering these competencies does not fall fully on education systems, the prominence of schooling in most children’s lives suggests that education can play a major role. Further, helping youth cultivate their “non-cognitive” competencies at school may sometimes even be necessary, such as when a child has not acquired these during early childhood or to compensate for “adverse early environments” (Heckman 2008, p.27). The later the home or school acts to equip the child with such competencies, Heckman adds, the more costly.

Nelsen warns even more provocatively that “the social skills learned at school are not necessarily useful at work and may even be counterproductive” (1997, quoted in Lerman 2008, p. 26). He refers here to the sorts of “factory” skills that SCANS (1992, p. 19) attributed in 1992 to the “Schools of Today” and identified as a reliance on memory over problem-solving, individual work and routine repetition. The focus on such skills may contribute to a silencing of curiosity and enthusiasm, a crushing of initiative, a nervous respect for authority, a dulling of self-confidence and a narrowly defined ideal future, among other things. Nelsen illustrates how students may be “mis-trained” for “real” life by the extreme lengths to which schools go to prevent students from sharing work and answers—“cheating”—while consultation and collaboration with peers is fundamental in the common workplace. Anticipating what education can and should do to foster non-

cognitive competencies, it might first be asked what precisely do employers mean by these?

Identifying non-cognitive skills and entrepreneurship. As noted (see discussion of SCANS, the Mayer Report and DeSeCo above), some governments have worked to identify a universal set of personal competencies and attributes that allow individuals to translate cognitive and technical knowledge and skills into productive performance, whether in work or social settings (Dugger, Durlauf & Heckman 2012, p. 4; Gibb 2004, p. 30; McGrath 2003, p. 14). These efforts might be seen as social skills homologues of national, technical skills boards that operate in many countries. Other researchers, notably from organizations such as the International Labor Organization, the Education for All movement and NORRAG, caution against defining core competencies universally. They assert, instead, that such lists are highly context-specific (McGrath 2003, p. 9; Iwamoto & Hoffman, quoted in McGrath 2003, p. 26; Riordan and Rosas, quoted in McGrath 2003, p. 23). However, it is argued here that such competencies and attributes may include both context-specific and universal elements. Local communities or societies can customize such lists, adding or subtracting traits or imbuing specific items with contextualized interpretations and applications. Indeed, the articulation of generic skills locally or nationally may help a society or education system reflect on what it wants its children to learn.

Annex A provides four lists of key competencies. Gibb (2004, p. 8) has identified the common elements of these and other lists as:

1. “*Basic/fundamental skills*: such as literacy, numeracy and technology;
2. “*People-related skills*: such as communication, teamwork and customer service skills;
3. “*Conceptual/thinking skills*: such as collecting and organizing information, problem-solving, planning, learning-to-learn, innovative thinking and creatively;
4. “*Personal skills and attributes*: such as being responsible, resourcefulness, flexibility, time-management and self-esteem;
5. “*Business skills*: such as innovation skills, entrepreneurship and management;
6. “*Community skills*: such as civic or citizenship knowledge and skills.”

Iwamoto and Hoffman (in McGrath 2003, p. 24) refine the list even further, “group[ing] life skills into three categories: cognitive, personal and inter-personal.” Adding a fourth, “practical skills,” their list mirrors the highly influential Delors Report (UNESCO 1996), which condenses the ultimate purpose of education into four pillars:

1. Learning to know
2. Learning to be
3. Learning to live together

4. Learning to do

Recalling that skills are, in part, contextual, it seems most useful to consider the criteria for identifying such items. According to the Mayer Committee, items should be “essential” to individuals’ gaining, keeping and advancing in employment (1992, cited in Gibb 2004, p. 9). They should not be occupation- or industry-specific but rather cross-cutting, “equip[ing] individuals [for] a wide range of social settings” as well as for the effective “application of [technical] knowledge and skill[s].” Finally, such personal competencies can, and indeed should, be learned and be “amenable to credible assessment.”

A vital cross-cutting skill, and the focus of this paper, is entrepreneurship, which might be characterized most simply as the collection of abilities and attitudes to articulate an ambition and to plan and act to achieve this. Saras Sarasvathy’s (2001) research on entrepreneurship effectively reduces a number of related traits into the single notion of “effectuation,” which she defines first by its inverse, “causality.” Causality begins “with a pre-determined goal and a given set of means, and seek[s] to identify the optimal – fastest, cheapest, most efficient, etc. – alternative to achieve the given goal” . “Effectual reasoning,” she contrasts,

does not begin with a specific goal. Instead, it begins with a given set of means and allows goals to emerge contingently over time from the varied imagination and diverse aspirations of the founders and the people they interact with. While causal thinkers are like great generals seeking to conquer fertile lands (Genghis Khan conquering two-thirds of the known world), effectual thinkers are like explorers setting out on voyages into uncharted waters (Columbus discovering the new world) (p2).

Sarasvathy finds that “all entrepreneurs begin with three categories of means: 1) “Who they are – their traits, tastes and abilities;” 2) “What they know – their education, training, expertise, and experience;” and, 3) “Whom they know – their social and professional networks” (Sarasvathy 2001, p. 3). The focus on planning that characterizes the causal thinker is surely a valuable talent and orientation when moving towards execution. Yet, this contrasts starkly with “effectual reasoning, [which] lives and breathes execution. Plans are made and unmade and revised and recast through action and interaction...” (p. 3). Formal schooling, when it works well, is masterful at cultivating causal thinkers. However, it fails abjectly at cultivating effectual thinkers. Curricula typically set a goal of student mastery of a specific body of information and skills, the achievement of which is tested. The student who opts to explore beyond the curriculum as well as within, exercising diverse methods of inquiry and discovering diverse solutions or conclusions—i.e., how we learn in the “real” world—may be viewed as disobedient, disruptive or even stupid. Typically, the penalties against trying, failing and re-trying in

formal education are so severe that any natural inclinations a student might have towards entrepreneurship risk being nipped at the bud.

Upon receiving the Nobel Prize for Medicine, Sir John Gurdon evoked a vivid illustration of this phenomenon, using this spotlight ostensibly to denounce the science education of his youth. Quoting from a report from his school schoolmaster, Dr. Gurdon shared, “I believe Gurdon has ideas about becoming a scientist; on his present showing this is quite ridiculous; if he can’t learn simple biological facts, he would have no chance of doing the work of a specialist, and it would be a sheer waste of time, both on his part and of those who would have to teach him” (The Guardian 2012). In many schools, it may be assumed, most students conform to the standard expectations lest they suffer the consequences of shame, exclusion, low grades or being labeled stupid, recalcitrant or “a waste of time”. What might schools do instead to cultivate rather than squelch entrepreneurial ambitions, spirit, talents and actions?

Fostering non-cognitive skills and educating for entrepreneurship. As noted, education systems generally enforce conformity and measure success with tests of knowledge and cognitive skills. Concern with a student’s ability to apply these skills and knowledge is usually limited to technical problem-solving, comprehension and analysis. Yet, there is great need for a different set of skills, knowledge and behaviors; what Heckman (2008) calls “non-cognitive” skills but are also called “core competencies,” “soft skills,” “21st Century Skills,” “employability skills,” “life skills” and “entrepreneurial skills,” among others.

Many avow that these skills cannot really be taught, that they are innate and environmentally cultivated (McGrath 2003, p. 11; Bohoney et al. 2011, p. 8), while others, such as Heckman (2008), assert that they can and must be taught. Certainly it is questionable whether an education or training system can “create” an entrepreneur, but isn’t the crucial question really whether schooling can help “natural” entrepreneurs recognize and develop their existing talents? Furthermore, as suggested above, it is important to consider the degree to which conventional schooling trains entrepreneurship *out of* a young person. The message from 20 years of research and reports from governments and international agencies is that schools must produce graduates who “actively construct knowledge for themselves,” are equipped and inclined to participate in “cooperative problem-solving” and possess and can deploy “skills learned in [the] context of real problems” (SCANS 1991, p. 19). According to the 2012 Global Monitoring Report, *Youth and Skills: Putting education to work* (2012), “Employers want assurances that young people applying for jobs have at least strong foundation skills and can deploy their knowledge to solve problems, take the initiative and communicate with team members, rather than just follow prescribed routines” (p. 187).

A review of the literature reveals essential steps to achieving this: 1) introducing the needed competencies into the instructional program, using two main variants (see below); 2) equipping teachers with the skills, orientation, materials and time to deliver or integrate such instruction; and 3) integrating non-cognitive competencies into formal

education assessment. Heckman (2008, p. 12) exhorts education policymakers to start cultivating communication, problem-solving and perseverance in children as early as pre-school, while others suggest the need to include such skills at all levels and in all types of education and training (Gibb 2008; McGrath 2003; Riordan and Rosas, in McGrath 2003; SCANS 1992; Bohoney 2012). Lerman (2008) expresses this view starkly: "...public policymakers and education and training practitioners [must] recognize and address the multidimensional nature of skills, the variety of learning approaches (including the value of contextualized learning), and the desirability of close links with employers and the workplace" (p. 23).

Two general instructional approaches, or variants, have emerged regarding non-cognitive skills and competencies. First, "embedded" instruction (cf., Gibb 2004; McGrath 2003) entails building opportunities for students to practice their technical knowledge, skills and generic competencies in work-like or social applications simulated in a formal learning setting. Related more directly to the formal curriculum, this may resemble "student-centered" or "inquiry-based" pedagogy. Students ask questions, work in groups, solve complex problems, conduct independent research, discover and defend diverse solutions, and so on. Embedding may also engage teachers in "drawing outside the lines" of the formal curriculum, employing more project-based learning and expecting students to exercise their full range of skills, cognitive and non-cognitive, by combining disciplines, working over more lengthy periods and, often, with greater contact with the "outside" world. Students can also gain 'reverse' learning advantages, strengthening their cognitive learning, when, for example, their academic lessons are embedded within exercises built around their non-cognitive competencies (SCANS 1992, p. 16). Reflecting this synergy, Heckman (2008) states with near poetry: "Skill begets skill; motivation begets motivation. Motivation cross-fosters skill and skill cross-fosters motivation" (p. 14). "Learning a living" (SCANS 1991) should not be linear (a sequential, often disassociated accumulation of information and skills), or encapsulated (knowledge separated by disciplines, Maths, Biology, Geography, etc.) but should purposefully reveal and guide students to practice connections to life outside the classroom.

The second common approach to education for non-cognitive competencies involves self-contained courses or programs. These may take the form of a class or activity devoted directly to cultivating entrepreneurial, workplace or social skills. This was the case with ALEF, though ALEF also promoted an embedded strategy. They can also operate as extra-curricular programs, or clubs, in which there is less instruction and more practice, though often with faculty mentorship. Examples include student government, peer counseling, environment clubs, student-run cultural activities, awareness campaigns and so on.

Delivering such programs successfully, even in what one might consider the best of circumstances, depends substantially on the abilities, availability and motivation of teachers and of others assigned or volunteering to do this. Teachers and facilitators are doubly challenged. For one, they must be equipped and inclined pedagogically to do more than just deliver a standard package of content and skills. Rather, they must create

situations and provide tools, information and support for students to work alone or in groups to acquire new knowledge and hone their skills to apply academic and practical knowledge in meaningful, durable ways (cf., Association for Education Communications and Technology (AECT) Definition and Terminology Committee 2004, p. 3). The ALEF Entrepreneurial Spirit Development Program described in the following section showed that introducing a non-academic, non-evaluated course with facilitated, student-centered learning both equipped and inclined many teachers to adopt these pedagogic strategies in their formal lesson delivery as well.

Two, and likely more problematic, teachers must feel competent and confident enough to guide their students in acquiring and practicing both academic and non-cognitive knowledge and skills in ways that relate meaningfully to workplace requirements and applications. The ‘closeness’ of the application of these competencies to “real-life” circumstances becomes more acute in secondary education and especially in technical and vocational training, where it may be particularly difficult for teachers who may not have worked outside schools to replicate real world circumstances and facilitate real world experiences. Indeed, Callan, quotes “one departmental head [who] believed that too much was being expected of teachers today by some industries.... ‘We just don’t know how to teach... this wish list of employer skills’” (cited in Gibb 2004, p. 60).

Teachers in many countries struggle to meet already ambitious curricular goals and thus find little space to add new learning aims and content (McGrath 2003, p. 11). Even when convinced of the value of such elements, the pressures imposed by education authorities and advisors to stick to the curriculum can make it costly to a teacher’s career to teach them. Rather, teachers commonly avoid straying from the official curriculum so as not to “punish” their students (or face a revolt from parents) by risking to compromise their examinations results, which tie directly to the official curriculum. Sensitive to this pressure, several researchers and practitioners note that any prospects for integrating non-cognitive skills into the school curriculum will depend on their incorporation into formal assessment mechanisms (McGrath 2003, p. 11; SCANS 1991, p. 17; SCANS 1992, p. 15; Gibb 2004, p. 19). Yet, even if a government were to do this, there is the difficulty of actually measuring such capacities (Gibb 2004, p. 15; Gibb 2004, p. 64). For example, how exactly does one assess confidence, teamwork, perseverance, independent learning or any other such skill or attribute in a reliable manner and with commonly applied instruments? It is crucial to note, however, that this challenge has been met by some, as exemplified in the work of Bouhassoune (2011) discussed in the next section.

Fortunately, the introduction of non-cognitive skills into learning, whether embedded or as stand-alone programs, need not be a “zero-sum” outcome, but rather can lead to even greater mastery of academic lessons. This outcome characterized the ALEF Entrepreneurial Spirit Development Program (PDEE) in Morocco. Participating teachers found that PDEE provided students with concrete learning skills and clear ambitions for their lives beyond school, motivating them to study harder and better. Paradoxically, adding PDEE to the learning program (along with the partner Relevance Pedagogy

model)¹ helped economize classroom time as students learned their formal lessons quicker and better. From at least one parent's perspective, shared in a public forum attended by a provincial head of education of Casablanca: "My daughter has shown such gains in her confidence, her communication and her problem-solving that I would be happy even if she were to come home with poorer grades," which, it should be noted, was not the case. In fact, annual reporting from across the sample of schools where Relevance Pedagogy and PDEE were successfully introduced showed that students uniformly improved performance in their academic studies while also demonstrating gains in personal competencies. Following is the case of the Entrepreneurial Spirit Development Program along with a review of its impact on students' "vocational maturity."

Promoting Entrepreneurial Education in Morocco

While averting its own "Arab Spring," the Kingdom of Morocco shares the considerable regional challenge of preparing its youth for economically productive, socially engaged roles in national and global life. The country's national youth unemployment rate at the start of 2012 was about 30% (Arabian Gazette 16 May 2012), compared to an overall national rate of 9.9%. Perhaps more alarmingly, the rate exceeded the 29% estimated rate for the Middle East and North Africa (ILO 2012a, p. 43)—similar to Tunisia's and greater than Egypt's (25%) (The Economist 2011), two countries at the core of the "Arab Spring." Certainly other factors played into the upheavals of 2011 and 2012, and Morocco's remaining relatively unscathed may be attributable more to other factors. For example, the King and the democratically elected government reacted in proactive ways that seemed to satisfy both the broad population and the youth. Also, the country's many years of significant economic and social investment likely had a positive impact. Yet, the promise of these investments remains tenuous due in large part to Morocco's continued struggle with education. For example, Morocco has a gross tertiary level participation rate of just 13%, fourth lowest among 12 fellow Arab States and just over half the regional average of 24% (UNESCO Institute for Statistics 2012, p. 122). How does Morocco convert its many public, private and international investments into productive operations and broad development when its workforce remains under- and inappropriately educated?

It is important to note that this skills shortfall is not the result of disinterest or neglect. On the contrary, Morocco has invested heavily in education and training. At ALEF's inception, the government devoted 26% of the national budget to education. In 1999 it launched a far-reaching education and training reform, to which it re-committed in 2008 with a highly publicized "Emergency Plan" to redouble the reform efforts. The reform document, the "National Charter for Education and Training," states in its first

¹ The Relevance Pedagogy model employed by ALEF provided teachers with concrete instructional strategies by which to enrich students' learning of the official curriculum by linking lessons directly to content and skills drawn from the local context.

article that the national education system “... aims to create a virtuous citizen, one who is a model of rectitude, moderation and tolerance, is open to science and knowledge, and imbued with the spirit of initiative, creativity and enterprise” (translation by the author) (Government of the Kingdom of Morocco 1999, p. 6). Among the more strategic shifts called for was the deliberate preparation of students for the workplace. Adopting a “Competency-Based Approach,” education and training were expected to “retrofit” their programs to the precise needs of the employment sector while also producing engaged, tolerant members of society².

Despite some real progress, the Charter’s brilliance did not translate fully into instructional programs or classroom practice. Looking at education, several factors seemed to confound the country’s efforts. Prominent among these were widespread poverty, lingering corruption and still maturing decentralized administrative structures. Together, these factors deprived the reform of the resources, a universally shared vision and the consistent commitment and authority to make the pedagogic and administrative decisions required to make the Charter a reality. Also influential were the persistent vestiges of a colonial system that still emphasized classical, ‘teacher-driven’ instruction, the object (at least implicit) of which was to winnow out all but the best students, who were once-upon-a-time guaranteed civil service jobs. Instead, the education reform aimed to maximize the number of children who succeeded so they could fill productive roles especially in the private and non-governmental sectors and to engage fully and tolerantly as citizens in a context that seeks to balance the traditional with the modern. However, putting the reform into practice continues to pose a challenge.

Excellence in learning remains the goal, but despite the stated policy of “competency-based” instruction, the system’s formal examination process, which drives teaching, targets with laser focus the acquisition of a precise and uniform body of knowledge. This stands in stark contrast to the acquisition of knowledge with know-how—the ability to apply one’s knowledge and skills to “do” things—envisioned by effectuation and the non-cognitive competencies discussed above. Excellent schools do produce excellent graduates with excellent mastery of the curriculum, but according to employers, educators, and other analysts from across Morocco, graduates tend to be grossly ill-equipped to apply this knowledge effectively and to perform productively in a professional setting.

Since the mid-2000s, Morocco has devoted a considerable level of attention to this

² The Competency-Based Approach, which the ALEF project supported in the agriculture sector, entails a sequence of scientifically rigorous steps, which can be summarized as follow: 1) a comprehensive, participatory identification with individual sectors of industry of the many skills sets and knowledge required to perform effectively; 2) the translation of these skills and knowledge into curricula, textbooks, assessment criteria and tools and other instructional materials and approaches; 3) an assessment of the resources (human, physical and pedagogic) of individual institutions to deliver the new, competency-based curriculum; 4) physical and material investments to adapt the institutions to the new curricula; and 5) teacher training, support and recruitment to ensure institutional capacity to deliver the curriculum successfully. The Ministry of Education envisioned a similar process for education, but this really never happened.

situation, with several international and national actors undertaking efforts to introduce the concepts, behaviors and practices of “life skills” and entrepreneurship into formal and non-formal education and training³. Over recent years, related efforts, dubbed here as “Education for Entrepreneurship,” seemed to grow at an accelerating pace, and to benefit from greater clarity in purpose and strategic collaboration. All seem to be concerned with the basic objectives of helping youth and other marginalized populations become more economically independent and raising the quality of Morocco’s workforce. In the non-formal education sector, most entrepreneurship programs have focused on delivering specific business skills—basic accounting, marketing, market analysis, etc.—to trainees who have recently completed training in some productive skill such as rug-weaving, computer repair, plumbing or argane oil production. Training has also covered strategies to find and keep jobs, such as crafting resumes and drafting letters of employment, networking, interview techniques and workplace expectations.

School-based programs were newer and scarcer, despite explicit reference to preparing students for the workforce in the National Charter of Education and Training. In most cases, Education for Entrepreneurship efforts in schools have emphasized an “introduction to the world of work” approach, with private businesses orienting K-12 schools towards specific professions in order to alert them to options other than the classic (and severely diminished) civil service arena. These efforts are supported by official career guidance advisors within the Ministry of Education structure who cover all middle and high schools. However, while the training of these agents is rigorous, they tend to operate with few tools, limited resources, minimal support and usually little recognition. Other programs have aimed to engage students more actively in specific entrepreneurship activities, both economic and social, and at both school and university levels. Yet, these are rare as well, and virtually all occur in Casablanca, Morocco’s economic capital. Educating for entrepreneurship in Morocco’s formal vocational training programs has also been largely missing from the curricula, which many acknowledge to be particularly detrimental to students and the workplace⁴.

A School-Based Education for Entrepreneurship Initiative in Morocco

ALEF’s Entrepreneurial Spirit Development Program (PDEE) represents an important innovation in school-based programs to foster entrepreneurial competence among students⁵. Developed and piloted by ALEF in collaboration with the Ministry

³ An illustrative list of such initiatives includes the programs of the Education for Employment Foundation, Junior Achievement (Al Injaz, in the Arab region), Students in Free Enterprise (now, Enactus), PlanetFinance, the Moroccan Network for Entrepreneurial Education and the *Centre des Jeunes Dirigeants*.

⁴ The USAID/ALEF project did support the Ministry of Agriculture to introduce an Entrepreneurial Spirit Program into about a dozen of its almost 50 post-secondary agriculture training institutes.

⁵ The description and analysis of PDEE derives from an internal ALEF report prepared by Naima El Medkouri.

of National Education during the last three years of the project, PDEE reached students of each of the three years of junior secondary school, officially covering ages 12 to 14. An extracurricular program, PDEE comprised 18 two-hour modules for each of the first two years and nine two-hour modules for the third year. (The third year curriculum was shortened to accommodate students' preparations for the end-of-cycle national assessments). Most schools chose to conduct one module per week. PDEE aimed to develop students' personal skills in areas such as problem-solving, confidence, communication and teamwork and to contribute to their career orientation, an official goal of the junior secondary instructional program. Implemented ultimately in 56 schools and reaching 10,061 total students (45% girls) from four of Morocco's 16 regions (Bouhassoune 2011), the program evolved over a three-year period, adding a grade level each year so that by the end, the original cohort of 5,317 (1,897 girls) students from 26 schools had covered all three modules. Program delivery fell primarily to teachers across all subjects, with other school staff and even district education personnel also leading classes. While participation was voluntary for students and teachers, almost all eligible students took part with virtually full attendance. Perhaps even more remarkable was the commitment of the 288 teachers to the program, with 51 women, representing almost six from each school. By the project's end, about 80 percent of the total teaching force from participating schools were represented. Further, 56 guidance advisors (four women) provided technical supervision and support to the schools and teachers (Medkouri 30 November, 2012, personal correspondence).

PDEE featured student-centered, interactive, play-based pedagogic strategies (*une pédagogie ludique*), placing teachers in the role of learning facilitators who engaged students, usually in small teams, in a combination of practical activities aimed to consolidate their knowledge of themselves and their immediate and extended context in order to cultivate personal competencies. The essential aim of PDEE was to permit students to 1) articulate precise ambitions for themselves, as well as for their group and community; 2) elaborate a plan to pursue their ambitions, including identifying the competencies, resources, networks, actions, etc. they would require to do this; and 3) undertake and/or orchestrate the necessary decisions and actions to accomplish their plans and reach their goals. Within PDEE, students set relatively modest, attainable ambitions; but the idea is that by working through the three large steps, particularly as the ambitions become progressively more 'ambitious,' students have the opportunity to hone their confidence to be ever-increasingly bold and effective in setting and achieving goals as they move through youth toward adulthood in their academic, professional, social and personal lives.

The program grouped the non-cognitive skills into four domains of abilities and attributes to foster in students:

1. *Entrepreneurial competencies*, including initiative, perseverance, creativity, a sense of risk, resilience, ambition, learning and discovery...;

2. *Personal attributes*, including self-confidence, a critical spirit, a sense of responsibility, respect for others, timeliness, sharing, curiosity,...;
3. *Managerial competencies*, including problem-solving, goal-setting, planning, decision-making, management, negotiation, compromise, leadership, “followership,”...; and
4. *Social competencies*, including collaboration, cooperation and consultation, networking, communications, flexibility in roles, empathy...

PDEE held firmly that not only do all students have the potential to be entrepreneurial but that an entrepreneurial spirit and basic competencies are vital to future success, whether professional, personal or social, and that these competences can and should be fostered via education. Acknowledging that many contest the ability to “create” an entrepreneur, the program does not believe that every student should or could become a businessperson. Rather, the idea relates more to the French notion of *entreprendre*, to undertake, referring to an individual’s confidence, ability and motivation to specify an ambition, and to develop and carry out a plan to achieve this. Such competencies are universally sought by employers.

The three-year program builds progressively from a focus on the individual toward the broader world, and from the student’s present to her/his future, while honing the child’s competencies in all four dimensions. The first year (PDEE 1) helps each child perceive her/his personal qualities, his/her strengths and weaknesses, aptitudes, likes, areas of comfort, ambitions, etc., and to deepen her/his knowledge of the world s/he inhabits, beginning with the school and moving to the broader community. The specific themes for the first two years of PDEE appear in Table 1.

Table 1. Themes from PDEE 1 and PDEE 2

PDEE 1	PDEE 2
<ul style="list-style-type: none"> • Discovering the school • Creativity • Choices • The world of work • Discovering oneself 	<ul style="list-style-type: none"> • World of entrepreneurship • Notion of work • Concept of a profession • One’s own aptitudes and ambitions • Challenge of originality • Professional success • Reasons for and consequences of dropping out of school

PDEE 2 also engages the students in groups to design, plan and implement a financial or social entrepreneurial activity. In the third year (PDEE 3), students’ continue to operate an enterprise while also thinking more strategically about their professional aspirations and, particularly, a “personal plan” by which best to prepare to achieve this goal. A sample of the “enterprises” students undertook within PDEE 2 and 3 includes:

school canteens; student clubs; the sale of basic school supplies; raising funds to help classmates from poor families; school “beautification” and improvement; the production and/or sale of various items, such as key chains, agendas, decorative items and plants; and campaigns against things such as cheating, drugs, dropping out of school and sloth.

The impacts of PDEE were appreciated almost from the start, evident not just in the students but in the participating teachers and the overall schools. Very quickly, teachers, administrators, parents and even the students themselves perceived significant positive changes among the students, reported in observations to both ALEF advisors and Ministry of Education officials during informal school visits, as well as in the more rigorous, regular “reflection workshops” that ALEF organized with PDEE facilitators. These results were most noteworthy in terms of students’ capacity and willingness to:

- express themselves freely, offering and defending opinions, posing questions, challenging each other and their teachers with respect, and listening carefully and critically;
- take initiative, consult and collaborate with peers and be creative;
- reason and project themselves into the future with a clarity of purpose and a plan; and
- respect themselves and others and assume responsibility for their actions, in the classroom and at school and home more generally, which teachers, students, administrators and parents saw most concretely in a dramatic decrease in cheating, greater assiduity studies, heightened classroom attention and participation, and improved grades.

Additionally, teachers provided many moving testimonies of cases of students whose lives were profoundly changed by PDEE. Perhaps most impressive was the story of a girl who had seen her father murder her mother and had not uttered a word since, until she finally felt able to express her emotions following an exercise that engaged students in deciding what they would want with them if shipwrecked on a deserted island. Many teachers reported students’ abandoning plans to drop out after the module on that topic, perhaps supported in their decision when their higher-performing classmates committed to helping them with their studies.

Several teachers testified further that their participation in PDEE evoked a much deeper appreciation of their students as individuals with their own viewpoints, knowledge, talents and goals. The PDEE methodology also provided a much clearer understanding of the student-centered, competency-based approaches about which teachers had been learning for years, offering concrete techniques to apply these and the motivation to do so. As a result, many teachers reported adapting PDEE’s interactive methods into their delivery of the formal curriculum.

During ALEF, the many positive results associated with the program led the Director of Education for the province of Ben M’sik, in Casablanca, to introduce PDEE into all

eleven middle schools under her jurisdiction, accomplished with very little assistance and no resources from the project. Similarly, four additional schools in the Meknès-Tafilalt region adopted the program independently (Medkouri 2012, personal correspondence). Toward the project's end, the Ministry of Education decided to incorporate PDEE into the national junior secondary school program, though opting for a shortened version to accommodate the pressures of a very full curriculum on the teachers who would need to deliver it. UNICEF, in agreement with the Ministry of Education, developed and piloted a similar program for the final year of primary school. Unfortunately, a change in leadership within the Ministry resulted in abandonment of the plans to generalize PDEE.

Still, even if the program did not persist, its impact on students did. In his Master's thesis, Mohammed Bouhassoune (2011) provides insight into one prominent aspect of the effects of PDEE on students from the Oriental region⁶ two years after completing the course⁷. Specifically, Bouhassoune addresses the impact of PDEE on the "vocational maturity" of the students in these programs. He defines vocational maturity as the collection of competencies and attitudes that a person possesses and employs to make and act on decisions concerning a future profession and/or career (p. 23).

In his study, Bouhassoune assesses and compares the vocational maturity of 159 PDEE "graduates" in three upper secondary schools (156 students, of whom 96 were girls) and two professional training institutes (three students, one girl) to 159 students (94 girls and three in professional training) in three other upper secondary schools and the same training institutes who had no such experience. At its essence, Bouhassoune defines

Table 2. Statements of Vocational Maturity

Concerning the statement...	% students answering "False"	
	PDEE (n=159)	Non-PDEE (n=159)
"I don't know what is necessary to enter the profession that I hope to exercise."	72.3%	22.6%
"I remain undecided concerning a preferred profession."	53.3%	17.6%
"I don't know much about what is required to practice a trade."	50.1%	3.8%
"As long as I am at school, I will not bother thinking about an eventual profession."	61%	38.4%
"Most of the time, it is purely by chance that one chooses one profession over another."	69.2%	8.8%
"The choice of a profession is important since it determines how much money you will eventually earn."	48.4%	11.3%

⁶ Oriental was one of the four target ALEF regions, located in the northeast of the country.

⁷ Bouhassoune defended his study *The Vocational Maturity of Students Who Benefited from a Program to Support Their Career Orientation* in June, 2011 for his Diploma as Inspector in Career Guidance and Education from the national Center for Guidance and Planning in Education in Rabat, Morocco.

vocational maturity as the collection of competencies and attitudes that a person possesses and employs to make and act on decisions concerning a future profession and/or career (p. 23). Overall, he found sizable and significant differences between the two groups, with the PDEE “graduates” demonstrating much greater vocational maturity (2011), deriving this conclusion from three separate instruments.

Capturing just a small sample of the total items of Bouhassoune’s first instrument, Table 2 shows the sizable and significant advantages that PDEE graduates possess in terms of thinking purposefully and tactically about their eventual work, which should equip and motivate them much better to plan, make choices, take actions, handle challenges and disappointments, and generally persevere to attain their professional goals. The results of a vocational aptitude test (RIASEC), adapted from Holland (1985), reveal similarly strong advantages for the PDEE graduates, including in confidence and clarity concerning their eventual choice of a trade. Bouhassoune concludes that: “...these students better identified their aptitudes, their interests, their desires and their personality traits and committed to a long-term self-view. Thus, they showed themselves to be less susceptible to external obstacles and to be able to confront these” (Bouhassoune 2011, p. 62; author’s translation).

The last instrument allowed Bouhassoune to assess the effects of PDEE’s specific guidance functions, measuring knowledge of the workplace, ways to prepare for a profession, and other career guidance notions. He found that PDEE students were significantly more informed about work in general and of the range of options in particular. They were much more likely to report having a good idea of the profession they hope to pursue: 79.2% versus 24.5% (Bouhassoune 2011, p. 81) and almost 50% more likely to indicate that they wanted to choose a profession themselves (p. 83). A full 85.5% aspired to complete their studies and earn a diploma versus 65.4% of non-PDEE students while over twice the non-PDEE sample aimed to find work at the end of the school year (19.5% versus 8.8%) (p. 88).

In sum, students who participated in the ALEF-supported entrepreneurial skills and spirit development course exhibited significantly more of the non-cognitive competencies sought by employers and policy-makers as identified in the first part of this article. At the same time, PDEE beneficiaries demonstrated the effects of these skills and attributes in their current lives as students and in their ‘vocational maturity’ as they looked towards their professional future. Already they were making meaningful decisions to achieve their goals.

Conclusion

Aspiring to secure both a favorable position within the global marketplace and stability within its borders, Morocco is investing heavily in its economic and social infrastructure. New major ports, beachfront developments, agriculture schemes, extensive highway construction and other infrastructure projects represent just some of the efforts.

All of this is highly vulnerable, however, to weaknesses in the national education and training systems in terms of both access and quality.

Despite the adoption of a very forward-looking national education and training reform, the system as a whole remains heavily burdened by the vestiges of a colonial model established to graduate only a small, elite group of persons, weeding out the masses by operating a dense, knowledge-heavy academic program. While the size of the educated population is admittedly growing, Morocco still has one of the least schooled populations in the larger Arab region (World Bank 2008). To meet its goals, Morocco now needs not only to educate its masses, but to do so with a rich mix of knowledge, know-how and a full assortment of entrepreneurial skills.

The Entrepreneurial Spirit Development Program of the USAID/ALEF project provides a solid case that such skills can be integrated into the middle school curriculum and that doing so generates measurable benefits for the students. The Bouahssoune study demonstrates this empirically in terms of students' vocational maturity. Not considered by Bouahssoune, but also important, were the considerable positive impacts perceived in students' academic motivation and performance as well as their overall demeanor and sense of community. While evidence of these latter outcomes is largely anecdotal, it does suggest other positive gains from programs such as PDEE. While modest in scale, the experience was convincing enough for the Ministry's leadership to decide to introduce the program nationally and extend it down into the primary school.

In Morocco, as in much of the world, the employment sector and broader society are becoming more active and more precise and vocal in demanding more of the education and training system. In this context, there are increasing and concrete examples of effective, replicable, and scalable education strategies by which to meet these requirements. Unfortunately, the commitment to decisions to formalize such strategies within the education system seems to remain elusive, an indictment that might also pertain to many countries. Perhaps all need more entrepreneurial education leaders.

References

- Ahmed, M., in World Economic Forum, "Addressing the 100 Million Youth Challenge: Perspectives on Youth Employment in the Arab World in 2012" [http://www3.weforum.org/docs/WEF_YouthEmployment_ArabWorld_Report_2012.pdf] (Accessed 30 November 2012).
- Arabian Gazette. (16 May 2012). "30% of Morocco's Urban Youth Unemployed, says World Bank report." [<http://arabiangazette.com/morocco-youth-unemployed-report/>] (Accessed 28 November 2012).
- Association for Educational Communications and Technology (AECT) Definitions and Terminology Committee. (2004). "The Definition of Educational Technology." (Pre-publication draft of a book chapter.) Bloomington, IN: Author.

- [http://ocw.metu.edu.tr/file.php/118/molenda_definition.pdf] (Accessed 27 November 2012).
- Bohoney, J. et al. (2011). *The Entrepreneurship Toolkit – Successful Approaches to Fostering Entrepreneurship*. Arlington, VA: Weidemann Associates, Inc.
- Bouhassoune, M. (2011). *La Maturité Vocationnelle Chez les Elèves Ayant Bénéficié d'un Programme d'Aide à l'Orientation: cas de l'expérience du PDEE dans l'AREF de l'Oriental*, a master's thesis submitted to the *Centre d'Orientation et de Planification de l'Education*. Rabat, Morocco.
- Dugger, R., Durlauf, S. & Heckman, J. (2012). "The Role of Human Capability in Reframing the Global Development Agenda." New York: Human Capital and Economic Opportunity Working Group, Institute for New Economic Thinking.
- Delors, J. (1996). *Learning: The Treasure Within*. UNESCO: Paris.
- The Economist. (2011). "Young, Jobless and Looking for Trouble." 3 February, 2011
[http://www.economist.com/blogs/shumpeter/2011/02/youth_unemployment] (Accessed 30 November 2012).
- Gibb, J. (Ed.). (2004). *Generic Skills in Vocational Education and Training*. (Research readings.) Adelaide, Australia: National Centre for Vocational Education Research (NCVER), Australian National Training Authority.
- Government of the Kingdom of Morocco. (1999). *Charte Nationale d'Education et de Formation*. Rabat: Author.
[<http://www.tlfq.ulaval.ca/axl/afrique/maroc-charte-educ.htm>] (Accessed 27 November 2012).
- Heckman, J. (2008). "Schools, Skills and Synapses," Discussion Paper Series No. 3515. Bonn, Germany: Institute for the Study of Labor (IZA).
- HOLLAND, J.L. (1985). "Self-Directed Search," Odessa, FL.: Psychological assessment Resources Inc.
- ILO. (2012a). *Global Employment Trends for Youth 2012*, Geneva: Author.
[http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/publication/wcms_180976.pdf] (Accessed 30 November 2012).
- ILO. (2012b). *Global Employment Outlook*, April.
[http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_elm/---trends/documents/publication/wcms_179663.pdf] (Accessed 30 November 2012).
- Lerman, R. (2008). "Are Skills the Problem? Reforming the Education and Training System in the United States." Kalamazoo, MI: W.E. Upjohn Institute for Employment Research.
- Maclean, R. & Wilson, D. (Eds.). (2009). *International Handbook of Education for the Changing World of Work*. New York: Springer-Verlag.
- McGrath, S. (Ed.). (2003). "Skills for Life and Work," Paper No. 8, Debates in Skills Development, Bonn, Germany: Working Group for International Cooperation In Schools Development, Network for Policy Review Research and Advice on Education and Training (NORRAG).
- Ministry of National Education, Higher Education, Professional Training and Scientific Research, Morocco. (1999). *Charte Nationale d'Education et de Formation*. Rabat: Author.

- [http://www.dfc.gov.ma/dfc/images/pdf/Charte_Nationale.pdf] (Accessed 1 December, 2012).
- Organization of Economic Cooperation and Development. (2001). “Definition and Selection of Competencies: Theoretical and Conceptual Foundations (DeSeCo) – Background Paper.” Bern, Switzerland: Swiss Federal Statistical Office.
- Sample, I & Jha, A. (2012). “Nobel Prize Won by Briton Written Off in his Teens by a Science Teacher.” *The Guardian*. 8 October.
[<http://www.guardian.co.uk/science/2012/oct/08/nobel-prize-briton-science-teacher>] (Accessed 27 January 2013).
- Sarasvathy, S. (2001). “What makes entrepreneurs entrepreneurial?” (Self-published). Seattle, WA: School of Business, University of Washington.
- Secretary’s Commission of Achieving Necessary Skills. (1991). *What Work Requires of Schools – A SCANS report for America 2000*. Washington, D.C.: U.S. Department of Labor.
- Secretary’s Commission of Achieving Necessary Skills. (1992). *Learning a Living: A Blueprint for High Performance – A SCANS report for America 2000*. Washington, D.C.: U.S. Department of Labor.
- Tough, P. (2012). *How Children Succeed: Grit, Curiosity and the Hidden Power of Character*. New York: Houghton Mifflin Harcourt.
- The Economist. (2011). “Young, Jobless and Looking for Trouble.” 3 February, 2011 [http://www.economist.com/blogs/shumpeter/2011/02/youth_unemployment] (Accessed 30 November 2012).
- UNESCO/UNEVOC. Paris: Author.
[http://www.unevoc.unesco.org/tvetipedia.0.html?&tx_drwiki_pi1%5Bkeyword%5D=occupational%20standard#_note-1] (Accessed 26 November, 2012).
- UNESCO. (2012). *Youth and Skills: Putting Education to Work, Education for All Global Monitoring Report*. Paris: UNESCO Publishing.
- UNESCO Institute for Statistics. (2012). *Global Education Digest 2012 – Opportunities Lost: The Impact of Grade Repetition and Early School Leaving*. Montreal
[<http://www.uis.unesco.org/Education/GED%20Documents%20C/GED-2012-Complete-Web3.pdf>] (Accessed 30 November 2012).
- Wibrow, Bridget. (no date). *Employability Skills – At a Glance*. Adelaide, Australia: National Centre for Vocational Education Research, Department of Education, Employment and Workplace Relations.
- World Bank. (2008). *The Road Not Traveled – Education Reform in the Middle East and North Africa*. Washington, D.C.

ANNEX A. Sample Lists of Key Generic Competencies

McClelland 1973 (cited by Dawe, in Gibb 2004, p. 71)		
1. Self-control	8. Self-confidence	15. Organizational commitment
2. Flexibility	9. Expertise	16. Information seeking
3. Analytical thinking	10. Conceptual thinking	17. Achievement motive values
4. Concern for order	11. Initiative	18. Interpersonal understanding
5. Customer service orientation	12. Impact and Influence	19. Organizational awareness
6. Relationship building	13. Directiveness	20. Developing others
7. Teamwork and cooperation	14. Team leadership	
SCANS 1991		
<u>Workplace competencies:</u>	<u>Foundational Skills:</u>	
1. Productive use of resources (time, money, materials, personnel,...)	1. Basic skills (literacy, numeracy, communication,...)	
2. Interpersonal skills (teamwork, lead, negotiate,...)	2. Thinking skills (decision-making, problem solving,...)	
3. Information (acquire, evaluate, organise,...)	3. Personal qualities (responsibility, self-esteem, integrity,...)	
4. Operation of and within systems (social, organisational, technical,...)		
5. Technology (use, selection, maintenance,...)		
Mayer Committee 1992 (in Gibb 2004)		
<u>Key competencies:</u>	<u>...assessed at three performance levels:</u>	
1. Collecting, analysing and organising information	1. Competent following of instructions	
2. Communicating ideas and information	2. Selection of the appropriate methodology and resources to achieve the desired outcome	
3. Planning and organising activities	3. Creation of new approaches to achieving a specific outcome or improved outcome	
4. Working with others and in teams		
5. Using mathematical ideas and techniques		
6. Solving problems		
7. Using technology		
DeSeCo 1997 (in Gibb 2004)		
<u>Three assumptions:</u>	<u>Three types:</u>	
1. Contribute to highly valued outcomes at the individual and societal levels	1. Functioning in socially heterogeneous groups	
2. Instrumental for meeting important complex demands and challenges in a wide spectrum of relevant contexts	2. Acting autonomously	
3. Important to all individuals	3. Using tools interactively	