Twenty First Century Skills: A Bermuda College Perspective

Barrington Brown

Abstract

Today's learners need 21st century skills. The current digital era has nuanced the skills required for post-compulsory education, the workplace, and active citizenship. Twenty-first century skills, however, are perceived differently in these contexts. Moreover, they are not always understood by the general public. This mini-study summarises the thinking in the literature on 21st century skills. A case study involving Bermuda College was used to gather information about which 21st century skills were viewed as important and why. Content analysis guided treatment of the data. The findings illustrate a unique and valuable perspective — a framework that depicts a number of skills important for 21st century Bermuda.

Twenty First Century Skills: What Might They Be?

For our people to succeed in the 21st century we must ensure that our people have 21st century skills. (Throne Speech, Bermuda, 2011)

Declarations similar to that made in the Throne Speech on the matter of 21st century skills have been made by numerous dignitaries and civil servants and can be found in education strategies in jurisdictions around the world. The importance of a country's populace possessing 21st century skills cannot be understated, not least because the 21st century is already here.

But what are 21st century skills? Ask this question of any two educators in Bermuda — and presumably educators the world over — and you could get very different answers. What of education ministers, curriculum developers, IT personnel in education, librarians, and counsellors? Would there be a broader range of answers? Arguably, one's professional responsibilities will shape the response(s) provided. That said, each of these roles is invested in learner success. Surely then, it is important to know which skills people in these roles consider important for the 21st century. Dr Derek Tully (in Hall 2012) hints at the importance of congruent thinking among people in key positions in education. He argues that "it is vital for us to ensure that our educational system is geared to producing the skills for our 21st century."

Some idea of how 21st century skills are perceived in Bermuda can be found in several sources (MOED 2010a, 2010b, 2013; Hall 2012; NTB n.d.). These national reports and initiatives opine that 21st century skills are important to young people and adult learners, but stop short of describing the skills and their utility. Becky Ausenda (in Hall 2012) provides one possible reason for this. She asserts that "it's a tricky to deliver an education system that equips young people for the future when we don't know what the future holds." Notwithstanding this caveat, several studies refer to 21st century skills as competency in one or more of the following: critical thinking; problem-

solving; communication; technical literacy; social and cross-cultural awareness; collaboration; and several other curricula goals and self-actualised outcomes (ATC21S 2013; Partnership for 21st Century Skills 2013).

To provide an additional viewpoint based in Bermuda, this mini-study targets the views of Bermuda College employees on the 21st century skills they deem important. The study begins by summarising the literature that defines and characterises 21st century skills. The review revealed a number of skills frameworks that listed similar and different skills. These frameworks are used as a backdrop against which to present a Bermuda College perspective. Two overarching questions frame the findings: 1) state three 21st century skills important for learners to acquire; and 2) provide a reason as to the importance of each 21st century skill. The findings brought into focus a framework that illustrates the skills important for 21st century Bermuda and reveals that the isomorphic views of Bermuda College employees are in concert with the thinking in the literature. In concluding, the suggestion is made that 21st century literacy can be viewed as a number of nuanced skills that are reciprocal relationships.

Defining 21st Century Skills

Leading up to the new millennium and since then, several large-scale initiatives and many independent authors have been active in making the case for 21st century skills. Yet a concise definition is difficult to find. The Great Schools Partnership (GSP n.d.) posits that a benchmark is still in the making. It continues that 21st century skills are not easy to define and have not been officially codified and categorised. The definitions in the literature, GSP argues, are fragmented and generally localised. Nonetheless, there is significant overlap in the many ways that 21st century skills are defined in the literature.

Some of the thinking in the literature aligns 21st century skills with building experience through discovery and exploration. Such definitions strike a chord with Kolb's Experiential Learning theory, in that a 21st century skill, once attained, can be applied to a range of similar situations. The category *Learning and Thinking Skills* in P21's[1] Framework for 21st century learning is a prime example, in that learners *"need to know how to keep learning — and make effective and innovative use of what they know."*

Alternative thinking in the literature relating to 21st century skills leans towards competencies in technology, the workplace and as citizens. Sondra Stein, national director of Equipped For the Future (EFF),[2] ties 21st century skills to adults being able to "compete in the global economy, to exercise the rights and responsibilities of citizenship" and "to participate fully in their children's education" (Stein 2001: 4). The US Federal 21st Century Workforce Commission (2000) identifies 21st century skills as thinking, reasoning, teamwork, and proficiency in using technology. For its part, the Organisation for Economic Cooperation and Development (OECD) associates 21st century skills with "a stock of information-processing skills … and 'generic' skills … and the ability to … weather the uncertainties of a rapidly changing labor market" (OECD 2013: 46).

Both sets of thinking can be found in Bermuda's literature. The government's vision for the 21st century school leaver is that they "act responsibly as local and global citizens' and "be productive, act ethically, and be life-long learners in the 21st century" (MOED 2010a). The One-Stop Career Centre initiative aims to upskill Bermudians for the *'new realities'* of 21st century Bermuda.[3] The *new realities* spoken of by Minister Kim Wilson are defined more fully in the National Training Board's (NTB) National Training Plan. The report surmises that employers are looking for Bermudians that have "good interpersonal skills, and … who are intelligent and analytical" (NTB n.d.: 13), and, can demonstrate "soft skills" (NTB n.d.: 14).

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[1] *The Partnership for 21st Century Skills (P21) was founded in 2002 as a coalition of the business community, education leaders and policymakers to position 21st century readiness at the center of US K-12 education and to kick-start a national conversation on the importance of 21st century skills for all students.*

[2] *Equipped For the Future (EFF) began as a National Institute for Literacy effort to improve the quality of and results from the adult literacy, basic skills and lifelong learning systems in the US.*

[3] *http://plp.bm/taxonomy/term/401*

This body of definitions – or characterisations – of 21st century skills seemingly translates into a range of cognitive and applied competencies that underline learning and performance in education, society in general, and the workplace. To accept one definition in place of another – or only part thereof – would: (i) distil the knowledge-set defining 21st century skills; and (ii) narrow the focus within which to identify the skills important in the 21st century. Both of these outcomes are pivotal to this study.

Skills for the 21st century

So, specifically, what is a 21st century skill? See Table 1 for a list and comparison of skills identified by a trio of initiatives that, when viewed collectively, span several jurisdictions and target school-age pupils, college students, and adults.

Table 1: **Skills Frameworks**

AT21CS	Partnership for 21st Century Skills	Content Standards (Stein)
ICT Literacy	Information Literacy	Learn through Research
Communication	Media Literacy	Use Information and Communication Technology
Citizenship	ICT Literacy	Convey Ideas in Writing
Life and Career	Communication and Collaboration	Speak so Others can Understand
Personal and Social Responsibility	Creativity and Innovation	Listen Actively
Creativity and Innovation	Critical Thinking and Problem Solving	Advocate and Influence
Learning to Learn	Initiative and Self-direction	Cooperate with Others
Collaboration	Flexibility and Adaptability	Read with Understanding
Information Literacy	Social and Cross-Cultural Skills	Solve Problems and Make Decisions
Critical Thinking and Problem Solving	Productivity and Accountability	Take Responsibility for Learning
	Leadership and Responsibility	Reflect and Evaluate
		Guide Others
		Observe Critically
		Use Math to Solve Problems and Communicate Plan
		Resolve Conflict and Negotiate

With such demographics, one might expect to see life, curriculum, interpersonal, applied, vocational, and non-cognitive skills in the mix. The three skills frameworks exhibit differences in emphasis, but are generally consistent with each other.

The Partnership for 21st Century Skills (P21) identified 11 skills important for college and workplace readiness[4](see Table 1). From among these skills, the team deduced a set of core competencies dubbed as the 4Cs: critical thinking, creativity and innovation, communication and collaboration. The 4Cs, P21 argues, exemplify the skills necessary to experience academic and life success (P21 2013). Several other articles refer to skills similar to the 4Cs in describing

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[4] *P21's skills framework and characterisation of 21st century skills are internationally acclaimed and widely used. Full details available at http://www.p21. org/storage/documents/p21-stateimp_curriculuminstruction.pdf*

the competencies for success in the 21st century. Many of these are anecdotal rather than formal research-based studies. Generally speaking, however, references to communication skills emphasise writing for wider audiences and with a broader remit, thus using information and communication technologies in some way. Collaboration skills – usually for the purpose of developing collective intelligence – are mentioned in the context of assisting, suggesting, accepting, and negotiating through technology-mediated interactions with others. Critical thinking skills tend to be framed with the objective of processing, parsing, and creating hypotheses, generally using more varied information. Creativity and innovation skills are least often referred to in the 21st century skills literature. When they are, adding meaning through innovative design and using imagination to produce contemporary ideas with the aid of emerging technologies are the descriptors used.

Looking beyond the 4Cs, EFF identified a set of skills important for the 21st century workforce. Termed *content standards,* the skills reflect a general list of basic academic and applied competencies considered necessary for productive employees, and "the skills adults need to move themselves, their communities and the nation into the 21st century" (Stein 2001: 2). Testimony of the relevance of these skills is their presence in adult education and training programmes in several industries. In Bermuda, workforce development initiatives (e.g., Bermuda Employment Council (BEC) *WorkReady Programme*[5], Bermuda Department of Workforce Development,[6] Bermuda Hospitality Institute (BHI)[7] and Cisco Academy at Bermuda College) have sought to incorporate many of the Content Standards. Cristina McGlew (2102) of Cisco asserts that "the Cisco Academy marks a major milestone by preparing students for 21st century opportunities" (CISCO 2012). Preparation for the 21st century workplace must equip new entrants with advanced skills such that they can be *"productive, creative workers"* (ATC21S 2010: 1). Local businesses in Bermuda will benefit from a 21st century workforce that is empowered to innovate and contribute to sustainability (Hall 2012).

The idea that new competencies are required for effective citizenry in the 21st century is recognised by the Assessment and Teaching of 21st Century Skills (ATC21S) Working Group (see Table 1). Categorised as *Ways of Living*[8] by ATC21S, the skills (citizenship; life and career; and personal and social responsibility) are intended to equip one to be able to address matters of concern in civic life. Civic competency is more likely to involve analysing economic and political information, assessing bias, interacting via digital forums on social agendas with diverse groups (ATC21S 2013). The idea of social accountability can be found in the profile suggested for the 21st century Bermudian, who will be a "responsible global citizen, risk taker, [and] ethical individual" (MOED 2010b: 37). Like ATC21S, however, P21 does acknowledge that fully functioning members of society must also be technically savvy. Digitised content and digital tools have contributed to the reimaging of citizenship skills, making 21st century civic life more nuanced (P21 2013). A case in point is *iLegislate*, a mobile app available in the App Store and used by the US government to connect and seek feedback from members of the community.

Overall, the literature reveals that there is a broad range of skills necessary for successful functioning in the 21st century. This study holds that there are good reasons to know which 21st century skills are perceived as important among Bermuda College employees: (i) to gain insight into the tacit beliefs about skills for success in 21st century Bermuda; and (ii) to present a 21st century skills framework that depicts a Bermuda College perspective.

A case for 21st century skills

With the goal of determining the 21st century skills deemed important by Bermuda College employees, a research design that is qualitative in orientation and has a case study as the main strategy was selected. A small[9] group was purposely selected (e.g., lecturers, counsellors, line managers, human resources staff, librarians). Such personnel

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[5] *http://bec.bm/workready*

[6] *http://www.gov.bm/portal/index.pt/?open=512&objID=778&mode=2&in_hi_userid=2&cached=true*

[7] *http://www.bhi.bm/website/?page_id=2318*

[8] *http://atc21s.org*

[9] *(n=15)*

are deemed information-rich (Patton 1990). An interview or a self-report survey was used to gain insight into each respondent's views relating to (i) three 21st century skills important for learners to acquire; and (ii) reasons for the importance of each 21st century skill.

The basic ideas of manifest content analysis guided treatment of the data. Emergent coding and category formation returned groups of skills that exhibited similar characteristics: most activities in life are the result of a culmination of skills and not independently applied skills. Coding for existence indicated the presence of salient notions amid each respondent's reasons for why a 21st century skill was considered important. Neither latent meaning nor numerical significance was factored. Seated within Constructivist principles, the aim was to identify – but not postulate – connections between the symbolic messages among respondents' views (Creswell 2003). Using manifest content analysis to identify and infer connections among discrete salient notions is perceived as less valid than applying latent content analysis. Zhang and Wildemuth (2009), however, argue that the strength of the coder's[10] existing knowledge of the coding process and subject matter increases the likelihood of validity of the findings.

Concerns about reliability can also be levelled against studies that use a small sample and rely upon a single research instrument. This study neither seeks to generate theory nor generalise the findings. The findings represent the thinking of Bermuda College employees and not the Bermuda educator community in general. The kind of knowledge generated by small-scale qualitative studies is significant in its own right (Stake 1995; Creswell 2003).

Table 2: **Bermuda College 21st Century Skills Framework**

Categories of Skills	Importance of Each Skill (Excerpts)	Categories of Skills	Importance of Each Skill (Excerpts)
Collaboration	Projects are no longer one man jobs Social graces, cultural knowledge Purposeful discussion Work effectively with others Contemporary education focuses on collaborative projects	Digital	Survival skill | Productive and creative | Embrace digital and open resources | Learn through physical and virtual environments | Research in real time
Social Communication	Interact socially with peers Articulate thoughts Functioning in real and virtual worlds Work in different environments Prepare a global employee	Problem-solving	Everyday life constant trouble-shooting | Evaluate the options and choose the best approach | Universal necessary skill
		Citizenry	Behooves everyone to use it with morality | Awareness of the world | For day-to-day affairs
Analytic and Critical Thinking	Draw new conclusions | Use logic Build own knowledge Apply critical thinking skills Evaluate or assess	Teamwork	Team work transitions in the work-force | Ability to work with others
		Information Handling	Properly research | Understand the difference between a good or not so good resource
Financial Planning	Understanding opportunities and risks | Understanding the relationship between money and personal goals	Discipline	It's in the details | You have to make time

[10] *The author has several years of successful teaching experience and a PhD in Social Science*

The ten skills in Table 2 represent one possible skills framework to depict a range of competencies Bermudians must possess in the 21st century. The included excerpts dimensionalise the reasons why each skill is deemed important. In many noteworthy ways, the respondents' isomorphic reasons align with the ways in which 21st century skills are categorised and characterised in the literature, and with anecdotal evidence as well as skills frameworks derived from formal research (See Table 1).

Beyond dimensionalising each categorised skill, the respondents' excerpts offer clues as to how 21st century skills are in reciprocal relationships. For illustrative purposes, I use three skills and their associated excerpts (italicised below) from Table 2:

(i)   **Citizenry↔Collaboration:** Part of good **citizenry** is *awareness of the world … for day-to-day activities*, which are likely to necessitate **collaboration** skills that promote purposeful discussion and showing *social graces* and awareness of *cultural knowledge*;

(ii)   **Collaboration↔Social Communication:** Etiquette such as *social graces* and *cultural knowledge* are deemed important **collaboration** skills and are also ingredients for *interacting socially with peers, working in different environments,* and *preparing a global employee*, for which purposes **social communication** skills are important; and

(iii) **Digital↔Information Handling:** Effective **digital** skills means being able to *embrace digital and open resources*, for which a critical **information-handling** skill is being able to *understand the difference between a good or not so good resource*.

These three examples signal that successful functioning in the 21st century warrants a skill set that is multimodal in form and function: living in a contemporary society has created new literacy needs. Contemporary literacy is important to learner success and personal and professional development (ATC21S 2013; OECD 2013; P21 2013).

21st century literacy

Needless to say, leading up to and for the earlier part of this millennium Bermuda College employees have – either in a teaching or a supporting role – been equipping the student population with the necessary skills for success in academia, life, and for career advancement. Principally, this has meant focusing on numeracy and literacy, technology, speech, reading, writing, and critical-thinking skills. Since then, literacy demands have changed significantly. Today, some 15 years into the millennium, literacy requires applying a combination of more nuanced skills, as shown in Table 2. This study holds that the skills framework shown as Table 2 goes part way to delineating the scope of 21st century literacy in Bermuda.

To further understand the composition of 21st century literacy requires research that identifies the skills deemed important by the wider Bermuda community: the public and private schools; community education programs; employers; ministers; and national work development initiatives (e.g., Bermuda Hospitality Institute). Research of this nature may yield generalisable descriptions of 21st century skills, which in turn can be used to specify the cornerstones of 21st century literacy that reflects a Bermuda perspective. A national perspective of this order can further empower Bermuda's educator community to teach, produce policy, and devise curricula and training programmes for this millennium.

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