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ADAPTABILITY AND ITS DISCONTENTS: 21ST-CENTURY SKILLS AND THE PREPARATION FOR AN UNPREDICTABLE FUTURE

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ABSTRACT: In recent years, the idea that the future is inherently unpredictable has gained considerable currency in educational policymaking. In this paper, we seek to critically examine and analyze the implications that stem from embracing this concept of the future. To do so, we focus on current discussions of 21-century skills, and more specifically on the work of the OECD. First, we offer a brief introduction to the prevailing conceptualization of the future as uncertain and risky, and the ensuing emphasis on the development of skills needed to adapt to this increasingly volatile future. We then explain why the emphasis on future uncertainty leads to conceptualizing education as adaptation, while disregarding the importance of the past. We argue that this results in an impoverished conception of education and the skills it should develop. Next, we focus on how the idea of an unpredictable future marginalizes the role of values in education. We maintain that this not only leads to a narrow vision of education, but also undermines the cultivation of skills heralded by 21st-century skills frameworks. We conclude by offering some remarks on the importance of attention to the past and values as the basis for a meaningful vision of education.

Keywords: future, 21st-century skills, adaptability, values, OECD, education, philosophy, policy

1. INTRODUCTION

At its core, education is characterized by a preoccupation with the future. Despite the notable lack of agreement concerning the aims of education (e.g., social mobility, personal development, workforce readiness, democratic citizenship), it is almost taken for granted that education should be geared towards preparing children for their lives as adults (Zipory, 2016). The future-orientation of education not only animates the realities of everyday schooling; it also characterizes discourse on policy and research in education. A salient policy expression of current views and concerns regarding the role that education should play in preparing for the future is foundin the discourse on the development of 21st-century skills or competencies. These terms, most commonly used to capture the set of skills that students need to develop to succeed in the future, have come to

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play a central role in global educational policymaking (e.g., Care, 2018; Gordon *et al*., 2009; NRC, 2012; OECD, 2018c; World Economic Forum, 2015).

Over the last two decades, countless papers, articles, and policy documents by both national governments and international organizations, have been published on this issue (Voogt and Roblin, 2012). Some of these, such as the *ATC21S – Assessment and Teaching of 21st-Century Skills* (Griffin and Care, 2015), *Education for life and work: Developing transferable knowledge and skills in the 21st century* (NRC, 2012); and the OECD's *Better Skills, Better Jobs, Better Lives* (OECD, 2012), have proved to be highly influential and have led to the rebranding of the aims of schooling as the cultivation of 21st-century skills. Though in practice, most educational systems are still structured around discipline-based curriculums, 21st-century skills have come to occupy the position of the forward-looking alternative to the prevailing knowledge-based approach.

In this paper, we seek to critically examine the concept of the future that underlies the current discourse on the development of 21st-century skills and competencies and analyze the implications of adopting it. While our argument applies to this phenomenon broadly construed, our examples mostly derive from the work of the OECD, and more specifically, the OECD's *Skills Strategy* and the *Education 2030* initiative. We chose the OECD as our focus for several reasons. First, the OECD has played a vital role in developing and advancing the idea that education should be geared towards developing skills for the future. Second, the work of the OECD on this issue has proved to be highly influential, and the organization's approach to this matter has been embraced by various educational stakeholders and found its way into many reports and reform plans. Finally, the OECD offers a relatively nuanced and philosophically rich conception of the future and its relation to education. In many ways, it can be seen as developing the most advanced and self-conscious skill strategy. We do not, however, confine our investigation to the work of the OECD. In order to provide a broader and more international perspective, we also draw on the *ATC21S* (Griffin and Care, 2015), a multinational collaboration of six countries (Australia, Singapore, USA, Costa Rica, Netherlands and Finland) and three corporations (Cisco, Intel and Microsoft). We also refer to the European based *Key competence in Europe: Opening Doors for Lifelong Learners across the School Curriculum and Teacher Education* published by the Center for Social and Economic Research (Gordon *et al*., 2009).[1]

The article proceeds as follows. The first two sections serve as a background to our inquiry. We begin by explaining and examining the rationale that guides the idea that the future is uncertain and risky. In the second section, we survey and analyze the ensuing emphasis on the development of 21st-century skills needed to adapt to this increasingly unpredictable and volatile future. We then proceed to highlight two central implications of this conceptualization of the future. In the third section, we discuss how the emphasis on future uncertainty

leads to view education as adaptation, while disregarding the importance of the past. We argue that this results in an impoverished conception of education and the skills it should develop. In the fourth section, we focus on how the idea of an unpredictable future shapes the role of values in education. We maintain that despite growing recognition of the importance of values in 21st-century skills frameworks, the appeal to broad and vague values, as well as their diminished role compared to skills, not only narrows the educational endeavour but also undermines the cultivation of the skills heralded in 21st-century skills frameworks. The fifth section illustrates why focusing on skill development without sufficient attention to the past and normative issues is problematic. We then suggest that one possible way to better integrate normative question and the past in skill strategies is to replace the image of the future as utterly unpredictable with the idea that it could be influenced by education. We conclude the article by offering a brief summary of our arguments.

2. Unpredictable Future

Over the last few decades, the image of the future as uncontrollable and unpredictable has gained considerable currency in all areas of life, from the exact sciences to common popular beliefs (Innerarity, 2012). Challenging the long-accepted Enlightenment conception that the future can be controlled and predicted, the idea of an unpredictable and uncontrollable future also found its way into the heart of current educational policymaking. The OECD, for example, takes as its point of departure for its current approach to educational policy that 'the future is inherently unpredictable' (OECD, 2016). Moreover, this concept of the future is the driving force behind countless reforms and policy papers that focus on the preparation for the 21st-century (e.g., Griffin and Care, 2015; OECD, 2005). In this section, we further examine the idea that the future is unpredictable and discuss its underlying rationale.

The ability to control and predict the behaviour of systems, be it society as a whole or a small physical structure, highly depends on the degrees of order in them. When there is no order and systems are chaotic, they can neither be controlled nor predicted (Geyer and Rihani, 2012). On the other hand, ordered systems that have fixed patterns and regularities tend to be more manageable and foreseeable. The Enlightenment and modernity brought with them the assumption that social systems have an underlying order, some basic laws of conduct (Taleb, 2007). Although it was not always held that the underlying order of the system could be revealed, it was believed that through inquiry, we could get closer to understanding it. This belief, which is the guiding principle of scientific research, was also accompanied by the idea that the future can be shaped or determined. Relying on this line of thought, the OECD educational policy in the 1960s and early 1970s, for example, was based on trying to tailor education to the future needs of society (Papadopoulos, 1994). It focused on

educational planning that relied on data analysis and was supposed to improve the ability to know and control the future.

From the end of the 19th century, however, developments in science started to undermine the idea that the world in general and society, in particular, could be understood in terms of ordered systems. Darwin's theory of evolution, quantum mechanics and many other significant theories led to the view that disorderly elements are an integral part of most systems. What stands at the core of this change of perspectives is a realization that most systems are open rather than closed, namely most systems are prone to the influence of external elements. It was recognized that the more systems have ill-defined boundaries and are influenced by multiple interacting variables, the more disorderly they tend to be (Radford, 2008). Since social organizations have these features, they increasingly came to be seen as less predictable and controllable then has been traditionally held. This is also strengthened by the fact that the social system is composed of human beings that often act in unexpected ways.

Nevertheless, the growing recognition of the disorderly elements in systems, and especially the social system, did not lead to the view that it is chaotic and has no order at all. The conception that took centre stage is that of partial order in which orderly and disorderly elements reside side by side (Morrison, 2008). In most systems of this sort, we find patterns and direction, but these can change as a result of reactions to external events. For example, we tend to think of the social system as susceptible to change that comes from the inventions of new technologies which are considered to be external to the system (Nye, 2006). The result of embracing this conception of a partial order is that the future becomes highly unpredictable. While we can find existing patterns, we cannot know how things will change because they are influenced by exogenous elements.

If we return once more to the OECD's educational policy, we can see how this conception of partial order and the future plays out. Following the economic crisis of the 1970s, the OECD abandoned efforts of educational planning. By the late 1980s, the idea that education should prepare for an unforeseeable future becomes evident in the OECD reports and by now has come to dominate the OECD discourse (OECD, 1989). The recently published highly significant skill strategy states that 'Given the rapid pace of change in today's world,' there is no escape from the 'need to navigate this complexity, face uncertainty, and adapt to this rapidly changing landscape' (OECD, 2019a, p. 18). On the other hand, however, the OECD still looks for patterns in current and future developments. An important aspect of the latest OECD educational project, *Education 2030*, is an attempt to identify the key trends that are bound to influence society in the upcoming years and demand an educational response (OECD, 2016, 2019b). We have here an approach that recognizes that both order and disorder exist in the system. Nevertheless, since the two can and do often interact, and such interaction decreases order, the future is commonly portrayed as essentially unpredictable.

Moreover, the unpredictability currently attributed to the future can be distinguished from that of the past in significant ways of which three will be discussed here (Rosa *et al*., 2013). First, the pace of change is considered to be much faster. This is evident, among else, in the acceleration of technological and social change that we witness today (Innerarity, 2012). As a result, because we move so fast, the future becomes increasingly unpredictable. Second, unlike past times, our inability to predict the future is mainly regarded as the consequence of human actions. If in the past, the future was perceived as unpredictable primarily because of natural events such as plagues, earthquakes or droughts, at present, it is technological and scientific advancements that make the future unpredictable. The influence that people have on the world and not the world on people is now seen as the main reason for our inability to predict the future (Mythen, 2004). Finally, the future is seen as involving high degrees of risk. According to Beck (1992), through technological and scientific advancement humanity now manufactures unprecedented ecological, social, political and individual uncertainty and risk. It is claimed that today human-made risk is created faster than ever before, has wider consequences and spreads more rapidly (Rosa *et al*., 2013). In the job market, for example, technological innovations lead to a greater risk that people lose their jobs (Beck, 2000).

The future unpredictability we have to deal with, then, is seen as profound, human-made and involving a high degree of risk (Giddens, 1990). It is to this conception of the future as risky, and not of the future as simply unpredictable, to which education is exceedingly demanded to respond. Again, OECD's *Education 2030* reflects this by stating, in one of its opening remarks, that we must prepare for a world that is 'increasingly volatile, uncertain, complex and ambiguous' (OECD, 2018d, p. 2). Once, however, this conception of future is embraced, something must be done in order to prevent the future's potentially detrimental effects. At present, the most prominent strategy offered for facing the perils of an uncertain future, both within and outside the world of educational policy, is to equip individuals with the right set of skills. It is to this subject that we now turn.

3. Skills for the Future

Over the last decades, the development of individuals' skills or competencies has become a preferable way among policymakers to protect against the risks posed by an unpredictable future. For instance, the recently published updated OECD skill strategy states that 'Important elements in developing adaptability include making sure people acquire the right mix of skills, use them effectively at work and in everyday life, and continuously update them throughout their lifetimes' (OECD, 2019a, p. 18). It adds that 'to ensure that countries are able to adapt and thrive in a rapidly changing world, everyone needs access to opportunities to develop and maintain strong proficiency in a broad set of skills'

(OECD, 2019a, p. 41). The burden of developing these skills is placed primarily on education. As the OECD states: in a world with an uncertain future, 'education can make the difference as to whether people embrace the challenges they are confronted with or whether they are defeated by them' (OECD, 2018d, p. 2). It is increasingly held today that it is up to education to protect and enhance our well-being by instilling the cognitive, metacognitive, emotional, social, practical, and physical skills needed to navigate in an uncertain future (OECD, 2018c).

When, however, one looks across the literature on educational skills and competencies it becomes clear that the use of these terms suffers from lack of conceptual clarity and consistency (Gordon *et al*., 2009; OECD, 2005).[2] In the OECD *Education 2030 project*, skills are defined as the 'ability and capacity to carry out processes and to be able to use one's knowledge in a responsible way to achieve a goal' (OECD, 2018c, p. 3). Competency is understood by the OECD as a broader term that 'involves the mobilization of knowledge, skills, attitudes and values in a range of specific context to meet complex demands' (OECD, 2018b, p. 3). In the *ATC21S* report, skills are conceptualized as 'the abilities, skills and processes that curriculum frameworks are designed to develop in students and which are a focus for learning' (Binkley *et al*., 2012, p. 37) and the term competencies is not used consistently. *Key Competences in Europe*, for its part, uses the term competence rather than competencies. It points to the inconsistent interpretations that the term receives in different European frameworks and defines it as 'a proven ability to use knowledge, skills and personal, social or methodological abilities, in work or study situations and in professional development' (Gordon *et al*., 2009, p. 39). Somewhat similarly to the OECD, skills are defined as 'the ability to apply knowledge and use knowledge to complete tasks and solve problems' (p. 39). Although, as we can see, the terms 21st-century skills or competencies do not have an agreed-upon definition, over time various authors have identified common characteristics of the different frameworks.

Broadly stated, the various frameworks for developing 21st-century skills, highlight three categories: thinking skills (e.g., critical thinking, problem-solving, decision making), social, emotional and civic skills (e.g., communication, collaboration, leadership, social responsibility), and digital skills (e.g., information literacy, media literacy, ICT literacy) (e.g., OECD, 2018c; Salas-Pilco, 2013; Trilling and Fadel, 2009).[3] What is the impetus for these changes in the aims of education? 21st-century skills are understood as mainly stemming from the digital revolution taking place at the turn of the 20th-century. The automation of many routine tasks, together with the growing complexity of a globalized and technologically-rich economic landscape, entail 'a shift away from more narrow job-specific skills toward broader, more analytic general skills … from hierarchically fixed activities to autonomous work in processual and cooperative work settings.' (Mayer and Solga, 2008, p. 2). Individuals are

now demanded to engage in complex, self-directed and interpersonal endeavors, which demand flexibility and decision making (National Research Council, 2012; Young and Chapman, 2010). The skills that were previously demanded of only a small portion of the workforce – mainly managers and professionals – are now becoming vital aspects of everyday life in knowledge-rich societies. Importantly, not only are the demands of everyday life becoming more complex, but it is also harder to predict what will be required of individuals in the future, thus highlighting the need for skills that will allow individuals adapt to new conditions (Kay, 2010; Kirschner and Stoyanov, 2020).

These changes create the need for two types of skills: (1) Core or perennial skills and (2) contextual skills (Dede, 2010; Van Laar *et al*., 2017). Whereas contextual skills are more practical in nature and centred on capabilities that are in demand in light of recent technological developments, core skills are introduced partly as an antidote to future unpredictability and risk. Core skills are not limited to a specific domain of knowledge or practice and are associated with higher-order skills that are intended to support conduct in a variety of unpredictable and constantly changing contexts (Larson and Miller, 2011; Voogt and Roblin, 2012). The idea that education should develop core skills like critical thinking is, of course, not new and extends all the way back to ancient Greece. However, in traditional forms of schooling, so the argument goes, the cultivation of such skills happens largely as a side-effect of engagement with more specific content matter or practical skills (Rotherham and Willingham, 2010). In contrast, in the discourse on 21st-century skills, it is held that due to the current changing technological, economic and social landscape, core skills should be taught (and assessed) more intentionally and thoughtfully, and that their cultivation should become the central aim of schooling (Griffin and Care, 2015; Kay, 2010). It should be noted that over time, researchers have argued that this approach should not come at the expense of engagement with disciplinary knowledge, but should rather reflect a deeper and more active engagement with it (e.g., Dede, 2010; Jaros, 2018; National Research Council, 2012; OECD, 2018b). Nevertheless, in educational policy, the opposition between the traditional knowledge-centred curriculum and the alternative skill- and competence-based approaches, plays a significant rhetorical role in advocating for 21st-century learning. In policy documents, the development of core skills is often introduced as a reconceptualization of the aims of education: an alternative to the prevailing model of education as the acquisition of knowledge in well-defined domains together with the development of basic skills such as reading and writing (Larson and Miller, 2011; Voogt and Roblin, 2012). Moreover, on a more practical level, while in traditional approaches skills stem from existing knowledge and disciplines, when dealing with 21st-century skills, a reversal of order takes place: first, the skills are devised and then it is examined how they can be developed through different subject matters (Hipkins, 2018).

To gain a deeper understanding of how 21st-century skills' function within educational approaches, it is useful to examine the origins of this notion. The roots of the current appeal to 21st-century skills can be found in policy documents developed across the Western world throughout the 1980s and 1990s (e.g., the Key Skills framework in the UK and the Secretary's Commission on Achieving Necessary Skills in the US), which stressed the urgent need to develop generic skills, often referred to as core skills, soft skills, transferable skills or employability skills (Hodgson and Spours, 2002; Packer, 1992; Young and Chapman, 2010). Towards the turn of the century, however, the framing of these skills shifted and the view that education should equip students with the skills that will be necessary to face future risks gained traction (e.g., Stuart and Dahm, 1999). The skills themselves did not change substantially, yet they were no longer presented as uniquely dedicated to cultivating a productive workforce. 21st-century skills frameworks aspired to achieve more ambitious goals: determining the overall aims of education as they relate to individual development, and students' maturation into contributing members of their (local, national, or international) community. This is reflected in the growing importance of non-instrumental skills such as empathy, cultural awareness, and social responsibility.

21st-century skills also put a stronger emphasis on the need to adapt to changing and unpredictable circumstances. Thus, it is not only that individuals need more general skills, and that these skills will allow them to react to changes in the workforce, unpredictability (and risk) are presented as characteristic of social life as a whole. This is reflected in the addition and centrality of skills such as innovation, flexibility and adaptability. These skills highlight how education is intended to mitigate the risks of an unpredictable future by instilling in students the capacity to react to fluctuating circumstances. The development of core skills focused on innovation and flexibility increasingly becomes today, then, what Facer (2016) terms the 'talisman to ward off future danger.' It is widely held that with the right skills, people and societies can be protected against the risk embedded in continuous technological, economic and social change. Viewing education, however, as primarily having to develop skills that will permit individuals to cope with an uncertain future, has far-reaching implications, and it is to these that we now turn.

4. A FUTURE-WITHOUT-PAST

The acceptance of the view that the future is inevitably unpredictable and cannot be controlled can potentially stir a passive reaction. When facing high degrees of complexity and uncertainty, just waiting for things to unfold and be made clearer is a rational course of action (Innerarity, 2012). The conviction that the future is not only unpredictable but also risky, however, renders this passive course of action highly unfavourable in educational policy. Since today, as we

have seen, it is commonly assumed that the more time passes the greater the risk the future poses, a more active way to respond is sought for. At the heart of most, if not all, educational plans designed to deal with the unpredictability of the future is found the idea that there is a need to try and acquire in advance the tools that will facilitate our adaptation to an unforeseeable future. Consequently, rather than undermining the view of education as preparation, the inevitable unpredictability of the future then *accentuates the need for preparation*.

Paradoxically, by relinquishing the possibility of predicting the future, approaches that focus on the development of 21st-century skills actually intensify the notion of education as preparation. In contrast to Aesop's ant, which can prepare for the winter, the 21st-century child-ant does not know what winter will look like in the future (both metaphorically and literally). Hence, she must prepare even more intensely – preparation for the unknown is a far more demanding task. Importantly, this is not only a quantitative increase (more time, more resources, etc.), it is a qualitative shift – preparation for an unknown future determines not only the knowledge and skills children must master, it also potentially encompasses the entirety of children's education (and lives, one could say), including broader competencies and character qualities. The nature of education itself is, therefore, redefined. But how can we best prepare for the unknown?

The most common course of action in educational policy has been, as we have seen above, to provide students with the skills necessary to adapt to unknown and changing environments. In order to better appreciate the implications of this almost taken-for-granted approach, we will briefly compare it to the traditional model of education as the acquisition of knowledge in well-defined domains together with the development of basic skills (Care, 2018; Dede, 2010; NRC, 2012). The 'traditional' emphasis on basic skills and knowledge acquisition can be viewed as an effort of *preservation* – passing down the skills, knowledge, and values of past generations. In light of future unpredictability and risk, however, the attempt to preserve the past is conceived as ineffective because it is ill-suited to meet the challenges of a rapidly changing world. In this respect, 21st-century skills can be understood as replacing the centrality of preservation with an emphasis on *adaptation*. A concern with the future legitimates sidestepping the past. While most 21st-century skills frameworks, especially the more nuanced ones discussed in this paper, seek to complement rather than replace the existing engagement with the past, we suggest it is theoretically productive to first contrast these two approaches. Later, we will demonstrate how the conceptualization of the future as uncertain and risky undermines attempts to reconcile productive engagement with the past.

When taken to its logical conclusion, an important consequence of looking to an unpredictable future and equating education with adaptation is that it disregards significant educational possibilities and constitutes a very limited reaction. If students are mainly equipped with the tools to adapt, it means

that, for them, not only the future but also the present become overpowering. The future is perceived as uncontrollable and education is reduced here to nothing more than a tool to respond to existing realities, forgoing the *cultivation* of students' capacity to shape the world they inhabit. Although in practice many might not ascribe to such a view of the present or education, it is often tacitly embraced when such a strong emphasis is placed on the skills necessary to adapt as it is commonly done in contemporary 21st-century skills frameworks.

Aware of this limitation, some proponents of 21st-century skills have sought to attenuate this state of affairs. For instance, in its new *Education 2030* project, the OECD has taken a step in this direction by arguing that 'Education can equip learners with agency and a sense of purpose, and competencies they need, to shape their own lives and contribute to the lives of others' (OECD, 2018d, p. 2). This is a valuable addition that takes the work of the OECD a critical step beyond the prevailing focus on adaptation. The recognition that once it becomes the present, the future can be shaped adds an important dimension to education and potentially a new set of skills to be learned. This addition, however, does not change the general approach embraced and education remains future-oriented, while the past, which stood at the centre of traditional education, is being marginalized. Indeed, very few, if any, programs that focus on 21st-century skills actually engage with the past. For example, the ATC21S report states that knowledge of past events and movements can contribute to good citizenship (p. 55), but the significance given to the past in general and this statement in particular in the report is negligible and quickly lost in the need to deal with the present and prepare for the future. Yet, we want to argue that even a future-oriented perspective has much to gain from placing emphasis on the past. To understand why we first need to see what leads to the marginalization of the past in these programs.

A central characteristic of our age, writes Russo (2005), is an accelerating disassociation from the past. Moreover, the past itself is being marginalized as it is increasingly seen as irrelevant for present and future concerns. The ideas of accelerating change and an unpredictable future undoubtedly spur it as they suggest that there is a radical break between the past and the future. Such a break, if it indeed exists, means that engagement with past knowledge, values, and traditions has very limited value towards preparing for the future. Accordingly, it is currently commonly assumed that due to the rapid pace of change and its unpredictability, the knowledge and skills accrued in the past and that are still relevant today are very likely to be irrelevant to future conditions (Trilling and Fadel, 2009; World Economic Forum, 2015). Within most frameworks relating to 21st-century skills, the past is not completely erased, yet the main educational effort is to cultivate skills (or traits) that do not embed one within an existing human tradition, but rather allow children to adapt to any possible context. One rarely finds in them discussions on subjects such as

literature or history. But, *venturing to prepare children for the future without engaging with the past* has significant drawbacks.

When education is future-oriented and the emphasis is placed on developing skills needed to respond to it, education loses one of its most central roles – handing down the thought and traditions of earlier generations. In this respect, the focus on adaptation comes at the expense of the aspiration to shape the present in light of values and ideas developed in the past. Here there is a risk not only that significant knowledge or values will be lost but also crucial skills. There are many human activities whose value is grounded in tradition and demand the development of specific skills to enjoy them (Throsby, 2001). For example, in order to fully enjoy and appreciate the worth of classical literature, mathematics or complicated philosophy, people often need first to learn about them and develop the skills to engage in them. Traditionally, a primary aim of education has been to provide students with the experience, training and skills required to value and enjoy such activities. Without engaging with the past and tradition, however, their value cannot be appreciated as they might not be immediately appealing. In looking forward and not back, then, and by creating a clear break between the past and future, there is a risk that the skills needed to preserve such activities or the skills embedded in them will be lost. The outcome of this might be the disappearance of vital skills and activities that have a unique human value and had so far been an indispensable part of education. Thus, the attempt to develop a set of skills that will be relevant to any possible future, and which are not rooted in any specific conception of the past, imposes unintended and problematic limits to our conception of skills. Namely, the skills taught must be justified by their instrumental value to children's capacity to adapt to new circumstances. However, as the future is viewed as unpredictable on the one hand, and perceived as a sharp break from the past on the other, such skills are actually limited to those skills that increase flexibility while sidelining more substantial goals, objectives and skills we inherit from the past. Disconnection from the past also changes the normative framework in which education takes places. It is to this subject that we now turn.

5. On Value-free Adaptability

The importance attributed to values in frameworks advocating the cultivation of 21st-century skills has constantly increased over the past 20 years. As mentioned, 21st-century skills emerged on the basis of vocationally-oriented frameworks, and it is therefore not surprising that they sidestepped the thorny question of the place of normative conceptions and values in education. Even today, however, despite growing awareness of the importance of values, this trend continues and many, if not most, frameworks focusing on 21st-century skills attempt to separate and avoid discussions on values. This happens for at least two political reasons.

First, many of the 21st-century skills frameworks are developed by multinational organizations or even states whose member countries or communities embrace a variety of normative perceptions that are often found in direct conflict (Carroll and Kellow, 2011). By not committing to specific substantive values, these frameworks try to be more widely applicable and prevent the alienation of some members. Second, many 21st-century skills frameworks draw their authority from being presented as evidence-based, scientific and grounded in unbiased data and knowledge (e.g., Binkley *et al*., 2012; NRC, 2012). Adopting clear values, which are almost by definition not regarded as objective, can, therefore, undermine the source of their authority.

There is, however, also a more theoretically substantial reason for the reluctance to commit to values and it is linked directly to the perception of the future discussed in this article. When we speak of future unpredictability today, it also extends to the realm of values (Toffler, 1969). Due to changing conditions, it might very well be that what is highly valued today will look obsolete in a few decades and vice versa. One needs only to observe the changes in public perceptions of same-sex marriage to understand how such shifts can take place (Rosenfeld, 2017). Under conditions of future unpredictability, an education that is committed to current values is, therefore, questionable because it might equip children with beliefs that quickly become outdated. Moreover, the aforementioned notion that the past no longer serves as an appropriate guide to the future because there is a radical break between them undermines the significance of most of our present values as these normally reflect our collective past experience regarding how best to live (Bell, 2004). The unpredictability of the future, then, pulls the rug underneath normative commitments to values and aims in education. If we look deeper, however, some other fundamental difficulties with the idea that values can be set aside also emerge. Let us see why.

One of the most appealing attributes of labelling modes of conduct such as critical thinking and empathy as skills is that they are assumed to gain moral value only within the context of their application, as Care and Kim (2018) succinctly state ‘The essence of skills is therefore about generalisability and adaptability’ (p. 67). For instance, a skill such as computer programming can be relatively unproblematically described as neutral – its moral value depends on the ends towards which it is applied. Yet, it is questionable whether any process of learning can be neatly separated from the attitudes students develop towards the task at hand, what Dewey (1938) termed collateral learning. Moreover, in contrast to more practical skills like programming, many 21st-century skills more explicitly include normative components that are not limited to the context of their application. Thus, when collaborating with others, one is required to make a series of complex decisions: How to handle disagreement? When to insist on one’s goal and when to relent? Whose needs and desires should be prioritized in any given instance? Therefore, instrumental behaviours such as

collaboration cannot meaningfully guide conduct when they are not attached to underlying values, because they do not help an individual determine toward what end they should be directed in complex circumstances. Critically, not only are values or dispositions needed to guide the application of specific 21st-century skills, these skills themselves do not exist in isolation. Skills such as collaboration and critical thinking, for instance, can often come into conflict with each other in particular situations and require prioritizing and decision making. Such decisions inherently entail value-laden choices.

Recognizing that skills and values cannot be productively separated, a growing number of 21st-century skills frameworks have recently paid greater attention to values. The growing appeal to competencies instead of skills reflects this change. For example, as mentioned in the second section, competencies in the OECD framework refer to a combination of knowledge, skills, attitudes and values, when the latter are defined as 'the guiding principles that underpin what people believe to be important when making decisions in all areas of private and public life' (OECD, 2018a, p. 3) and attitudes as dispositions 'to react to something or someone positively or negatively' (OECD, 2018a, p. 3). However, the mere acknowledgement of the complex nature of these behaviors is not sufficient, there is a need to look closer at the role of values in relation to skills. The OECD and the ATC21S model serve as interesting cases here, because they make an explicit and intentional effort to highlight the role of values and their connection to skills.

Among the various approaches to 21st-century skills found in educational policy, the ATC21S still offers the most detailed account concerning the interplay of skills, knowledge, attitudes, and values (Binkley *et al*., 2012). This framework was developed as a synthesis of the leading 21st-century skills frameworks of the time and outlined ten key skills. Then, on the basis of these skills, researchers identified for each skill the relevant knowledge, skills and attitudes/values/ethics, which were defined as the 'behaviors and aptitudes that student exhibit in relation to each of the ten skills' (Binkley *et al*., 2012, p. 2). Thus, the skills themselves are the starting point for this analysis, whereas values and knowledge are needed for engaging meaningfully with these skills. The fact that values are secondary to skills, rather than motivating and underlying their use, is emblematic of 21st-century skills frameworks.

Moreover, a closer look at the specific values identified further clarifies their status. The vast majority of these attitudes/values do not offer indications concerning towards what ends skills should be utilized, but rather are intended to support their implementation: openness, persistence, self-monitoring, a critical approach, and of course adaptability and flexibility (Binkley *et al*., 2012, pp. 37–58). The most normatively laden value is an openness to, and respect of, cultural diversity. While important, this value is characterized mostly by abstaining from committing to any guiding values and is not significant when introduced without being embedded within a more comprehensive moral

outlook. Thus, these values tilt heavily towards a *performance-orientation* centred on an efficient implementation of skills, rather than offering the *moral* underpinnings that could guide students in determining the ends towards which these skills should be used (Dishon and Goodman, 2017).

A similar shift towards explicitly engaging with values has taken place in the work of the OECD. The concept of skills is still found at the heart of the OECD strategy for coping with future uncertainty, but skills are no longer seen as standing on their own. In contrast to past policy documents, in the OECD's most current projects, skills are presented as connected to knowledge, attitudes, and values, which are defined as 'the guiding principles that underpin what people believe to be important when making decisions in all areas of private and public life' (OECD, 2018a, p. 3). The OECD (2019a) new *Skill Strategy* clearly states that 'Building effective skills entails the mobilization of knowledge, competencies, attitudes and values to meet complex demands' (p. 61).

Interestingly, despite the acknowledgement of their significance, a search in the OECD library reveals that the organization has very little to say about values. One exception is the *Education 2030* project, which has yet to be completed but already includes an 18-page long document on the importance of attitudes, and values (OECD, 2018a). The document differentiates between personal, social, societal, and human values and even identifies some fundamental values such as respect, equality, integrity, justice, and responsibility. In this respect, the OECD goes beyond other frameworks in its emphasis on values, an effort that is pursued as part of its earlier critique on the economic orientation characteristic of other approaches (Ananiadou & Claro, 2009). These, however, are not well defined and remain vague and general. The emphasis in the document, if there is one, is on values that support flexibility, adaptability and openness, and more specific values, such as respect and justice, are viewed in light of them. As a result, the values that are not only presented as lip service but actually play a role in the overall educational vision are those that (supposedly) enable dealing with the uncertainty of the future. This leaves us with an impoverished and somewhat limited conception of values, but the possibility to do much more than that is excluded by the conviction that the future is unpredictable and cannot be guided by the values of the past.

Not only does the marginalization of values limit the aims of education; paradoxically, overlooking the role of values in the name of adaptability and flexibility to fluctuating circumstances actually undermines the possibility of achieving this aim. Flexibility and adaptability necessitate the capacity for autonomous judgment across changing circumstances. Such autonomous judgement concerning what, and not solely how, one should do, requires a background of overarching morally-imbued guidelines for conduct (Adams, 2006; Johnson, 1998). Whereas the exact manner in which underlying values guide conduct (consciously or unconsciously) has been a matter of heated debate (Kristjánsson, 2013), it is clear that behaviour can never be completely prescribed, and that appropriate action is

situationally determined, and hence includes value-laden judgments. These, in turn, depend on a conception of the past and an attachment to it.

Thus, we argue that 21st-century skills cannot even fulfil the limited view of education as adaptation to unpredictable and uncontrollable circumstances as long as they are not embedded in a well-defined normative framework. Moreover, simply providing a general list of values that support openness, adaptation, and flexibility is not enough. Achieving openness, adaptation and flexibility themselves relies on embedding the cultivation of skills within an underlying moral world-view that supports individuals' capacity to judge how such complex behaviours should be applied in specific circumstances. This, in turn, cannot be achieved without referring to the past.

6. Towards a Relational Account of 21st-century Skills

We have argued that education must not neglect the past and a normative world-view even when it seeks to develop future skills. As MacIntyre (2007, p. 223) famously maintains 'It is rather the case that an adequate sense of tradition manifest itself in a grasp of those future possibilities which the past had made available to the present.' We do not face, then, as it is often suggested, a choice between an education oriented at preservation and adaptation, or between the past and present, but rather must find ways to combine the two productively. This is hardly new, convinced that the world is constantly changing but that the past has value Dewey (1938) asked: 'How shall the young become acquainted with the past in such a way that the acquaintance is a potent agent in appreciation of the living present?' (p. 23). Thus, the challenge presented to educators is how to facilitate engagement with the past that does not lead to its reproduction. Addressing this challenge, we suggest, requires embedding 21st-century skills within the normative and historical context in which they are cultivated.

Take for instance the case of education for citizenship, which has been characterized by a growing emphasis on the need to cultivate a series of 21st-century skills vital for effective participation in the unpredictable and constantly evolving civic sphere, such as critical engagement with sources and research skills, production and circulation of digital materials, and modes of generating dialogue (Ito *et al*., 2015; Kahne *et al*., 2016). Yet, the rise of populist and anti-democratic movements worldwide (Tucker *et al*., 2017) has illustrated how skills in themselves are of very little use if they are not grounded in normative commitments and past experiences. The fact that civic action is pursued on the basis of various 21st-century skills – creativity, collaboration, flexibility – does not mean that it is democratizing. Recently, growing attention was paid to how self-organized individuals and groups utilized the same modes of participation, working creatively and collaboratively to achieve anti-democratic and misogynistic aims (Dishon, 2020). For this reason, it is vital to ground these skills in

normative commitments, as well as sensitivity to the more particular histories, and present contexts, that underlie these modes of conduct.

The cultivation of 21st-century skills should be embedded within local histories rather than generalized models. Even a seemingly benevolent 'skill' such as empathy (OECD, 2018c) often rests on moral decisions such as determining which individuals or groups are to be empathized with (Simas *et al*., 2020). Therefore, its cultivation relies on meaningful engagement with the concrete and complicated relationship between diverging social groups. This, however, is not limited to more normative-oriented skills such as empathy. Even the cultivation of a skill or competency like critical thinking depends on the social, cultural and historical context. Although the OECD and other organizations develop frameworks that are deemed relevant across contexts, cultivating critical thinking in liberal democracies presents different opportunities and challenges compared to an illiberal state such as Singapore (Lim, 2014). How can then, in light of their necessity, the past and normative consideration to be integrated into 21st- skills programs?

Some authors (e.g., Hipkins, 2018; Jaros, 2018) have tried to develop more nuanced conceptions of 21st-skills than those prevalent in educational policy. One that places greater emphasis on how the past shapes our present context. As long, however, as educational policy depicts the future as radically unpredictable, the tensions discussed in this article can be mitigated but not overcome. We would like to suggest that one possible alternative course of action to deal with the tensions discussed above is that policymakers embrace a slightly different vision of the future that could, we believe, serve as a better guide to educational policy. As we have seen in the second section, the existence of disorderly elements in the social system reinforces a view of the future as unpredictable and uncontrollable. It must be remembered, however, that the social system also contains organized elements. This means that while the future cannot be fully controlled or predicted, it could be influenced (Colander and Kupers, 2016). Since the social system has some order in it, it should be possible to orient it in certain directions by managing selected aspects of it. Education can, of course, play here an important role. Such a view of the future, which assumes that it can be partially shaped rather than viewed as unpredictable, requires us to bring normative discussions back to the forefront. Since the future can be influenced, even if not controlled, it should no longer be seen as disconnected from the past and present but rather as its continuation. In fact, the view of the future as disconnected from the past and present leads to internal contradictions: if the future is unknown, this should, in theory, prevent us from saying anything substantial regarding what skills are instrumentally valuable today, let alone which skills will be needed thirty or even twenty years from now.[4] Since the future can be at least partly determined through educational efforts bringing the past back into the discussion on the future is not only beneficial but essential. It is required for constructing a more coherent picture of future skills.

While the enlightenment ideal that we will increasingly be able to better predict and control the future has been challenged, this should not lead to the opposite conclusion that the future is completely unavailable to shaping through present actions. Looking at the past in order to shape the future might actually make the future less unpredictable than it currently is. We have discussed here how the conviction that the future is inherently unpredictable marginalizes questions of values, but it works both ways. An unwillingness to commit to values also makes the future more unpredictable. Once we embrace certain values (from the past), much can be done to preserve them, thereby rendering the future slightly more predictable then currently thought. Thus, it is imperative to pay closer attention to the ways in which our understanding of the future shapes our actions in the present, and while we cannot control the future, we can control our conceptualization of it, and hence the ways in which it informs our actions in the present.

7. Conclusions

In recent years, an unnoticed revolution has taken place in the conception of the future guiding educational policy. At this revolution's core is found the assumption, which is now almost taken for granted, that the future is growing increasingly volatile and hence beyond human prediction, and in many cases – control. This view, we have tried to show, was accompanied, in turn, by the ascendance of an educational vision centred on the cultivation of 21st-century skills that would allow students to adapt to a rapidly changing technological and social landscape that is supposed to be beyond our current imagination.

In this paper, we brought to the fore two key challenges stemming from this shift. First, we argued that current attempts to broaden the 21st-century skills movement beyond the view of education as the cultivation of skills and to include values, falls short because of how the future is conceptualized. The view of the future as unpredictable, which is accompanied by a conviction that there is a sharp break between the past and future, results in an impoverished view of education. Trying to prepare for the unknown while disregarding the past leads to an education that prioritizes instrumentally valuable skills that are not embedded in existing traditions. Second, and relatedly, the vision of an unpredictable future and the disconnect from the past results in an emphasis on broad and vague values that are not sufficiently grounded in existing and past traditions to guide educational practice. Moreover, we claim that without grounding education in precise and substantive values, an education that aims solely at developing skills fails to fulfil the aims it was intended to achieve – adaptability to a complex and constantly changing world.

The multitude of possibilities characteristic of the digital world implies that adaptability is inherently based on self-direction and decision making. Without

these, adaptability in the face of complex, novel, and ambiguous situations is reduced to mere persistence towards an externally determined end. In turn, the need to make such choices is based on underlying values that allow individuals to choose among competing, and at times conflictual, ends. Therefore, actively engaging with a set of underlying values is not obsolete, but rather becomes an even more important aspect of education compared to previous eras. This lacuna is particularly troubling as future risks are understood as human-made. Hence, conceptualizing education mainly as equipping children with the capacity to attenuate such risks, while ignoring their potential role in reflecting on, and intentionally shaping the technological and social conditions that underlie such risks, represents a very limited and uncritical vision of education. We maintain that greater emphasis should be placed on the past and normative questions in trying to deal with the future. We also suggest that this might productively be done by embracing a conception of the future not as totally unpredictable and uncontrollable but as one that could be at least be influenced by educational endeavours.

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Notes

1 There are countless other reports that focus on the development of 21st-century skills. The ideas in most of them resemble those presented in this paper. There are, nevertheless, some other frameworks, such as those presented by UNESCO (Delors, 1996; Tang, 2015), that take a slightly different perspective on the matter. It will not be possible to examine these within the short scope of this article.

2 It has been argued that the haziness regarding the exact meaning of skills and competencies is actually one of the reasons for these terms' staying power, as they can be used across different contexts and for different ends (Mirra and Garcia, 2020).

3 Some frameworks, such as ATC21S, separate between social and civic skills, as the former are still relevant to job preparation while the latter extend beyond an economic focus.

4 We thank the anonymous reviewer for pushing us to clarify this point.

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