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T20 ARGENTINA 2018
THINK 20

BRIDGES TO THE FUTURE OF EDUCATION: POLICY RECOMMENDATIONS FOR THE DIGITAL AGE

Content

Opening remarks

This book represents one of the many efforts and contributions the T20 has produced during this year. We are very honored of having assumed this leadership responsibility between CIPPEC and CARI.

We have gathered colleagues from think tanks, political leaders, representatives of international organizations, business leaders and members of other G20 engagement groups fostering a collaborative enterprise to provide policy solutions for countries' leaders. This has been mainly done through policy briefs, international summits and workshops with a strong emphasis on collaborative work.

During the last few months we have witnessed new risks for the stability of institutional arrangements, while technological transitions keep giving way to several social, economic and political transformations around the world. This complicated scenario leaves many behind, who lack the means and opportunities to adapt to a changing economy and technological revolution. In this context, countries are growing more socially fragmented, bringing about deep skepticism regarding expert knowledge.

The T20 Argentina has opened a new opportunity to show the world the contribution and power of think tanks and multilateral organizations. It has enabled us to have a proactive attitude for the future, to collaborate with colleagues from different disciplines and countries and show the importance of cooperation in order to adopt changes for the welfare of humankind.

Our work has been organized around ten Task Forces seeking to debate topics of a global importance, aiming to support the G20 process by discussing and producing policy recommendations. We intend to offer technical knowledge at the service of the world's population and the growth of countries by providing innovative content and new paradigms.

As T20 members, we have challenged ourselves to think, to produce evidence, and to look for new solutions in order to achieve an economically prosperous, environmentally sustainable and socially inclusive future. Education has joined the G20 and T20 agenda for the first time in their history.

Among its many policy briefs, "The Future of Work and Education for the Digital Age" Task Force has produced recommendations that articulate different dimensions of education policy and technology-driven transformations. We hope this first set of educational policy briefs inspire subsequent T20 editions to consider education policy as a key dimension that must be considered if we are to foster this prosperous future.

José María Lladós
Executive Director of CARI

Julia Pomares
Executive Director of CIPPEC

Acknowledgements

This publication is the outcome of a collective effort. During 2018 many people and organizations have been actively involved in the T20 process. This book reflects their hard work and commitment.

In the first place, we would like to thank the co-chairs of the T20 task force "The Future of Work and Education in the Digital Age": Martín Rapetti, Economic Development Program Director at CIPPEC; Dennis Görlich, Head of Global Challenges Center at Kiel Institute for the World Economy; Fen Osler Hampson, Distinguished Fellow and Director of the Global Security & Politics Program at CIGI; Jeffrey Sachs, University Professor and Director at the Center for Sustainable Development of The Earth Institute of Columbia University; and Samir Saran, President of the Observer Researcher Foundation.

Within this task force, the production was organized in six interrelated themes: i) new social contracts for the digital age; ii) global norms for new work relations in online platforms; iii) measuring the digital economy and its impact on labour; iv) technology and economic development; v) teaching and learning 21st century skills and; vi) education financing. This work resulted in 14 policy briefs[1] that condense policy recommendations for the G20. We could only publish a small selection of this fruitful production. This book compiles only those policy briefs that address education.

We highly appreciate the encouragement of Julia Pomares (Executive Director, CIPPEC) and José María Lladós (Executive Director, CARI). Policy briefs revision and editing would have been impossible without the coordination of the T20 Policy and Research Team led by Martín Rapetti, Pablo Ava and Leandro Serino. The practical and restless work from Iván Matovich, T20 education coordinator, and

[1] This work can be found at: https://t20argentina.org/policy-briefs/

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We are also very grateful to those institutions that supported authors who have actively participated in the policy briefs here presented: Ceibal Foundation (Uruguay), CIPPEC (Argentina), Colombia National University (Colombia), Dublin City University (Ireland), Getulio Vargas Foundation (Brazil), GRADE (Peru), Hiroshima University (Japan), the Institute of Education of University College London (United Kingdom), Japan International Cooperation Agency (Japan), RTU Ltd (United Kingdom), Sophia University of Tokyo (Japan) and SUMMA (Chile). Many other think tanks and research centers have participated of this Task Force and we highly appreciate their enthusiasm and contributions.

Finally, special thanks to *Fundación Santillana*. This book could not have been published so quickly without the interest that Miguel Barrero Maján showed in this process, José Liñán and the constant orientation and assistance of Nilda Palacios.

Alejandra Cardini
Director Education Program CIPPEC

Task Force co-chair of
"The Future of Work and Education
for the Digital Age"

About the T20

The T20 is one of the G20's engagement groups, where representatives of different civil society stakeholders take their demands and proposals to G20 countries. It gathers think tanks and leading experts from around the world to produce concrete policy recommendations. During 2018 the T20 is co-chaired by the Argentine Council for International Relations (CARI) and the Center for the Implementation of Public Policies for Equity and Growth (CIPPEC). More information here: https://t20argentina.org

Prologue

For a long time in human history, education was considered a luxury good, been monopolized by a few elites who had the privilege to access and expand the knowledge frontier according to their own discretion. Notwithstanding, since the establishment of democratic systems and, most recently, the Declaration of Human Rights, this view has changed dramatically. Today, education is mostly perceived as a public good, rising before the eyes of the disfranchised as a path for liberation and change. The promise of education has become synonymous of better opportunities including higher incomes, better health, increased social cohesion and overall wellbeing.

Yet, the shift in global discourse and practice has not materialized these outcomes everywhere. Through national and international evaluations and other accountability systems, we know that many countries and economies are not ensuring quality education for all, as established in the "Incheon 2030 Declaration", included in the Sustainable Development Goals approved at the General Assembly of the United Nations in 2015. In some cases, Education has indeed become a path for change, allowing citizens of all backgrounds to access schools, learn and build skills throughout the life span. On the other hand, some other millions of children and youth still walk the path without the necessary tools to realize their potential amid economic, political and social strife.

The risks related to this unfortunate situation are not only associated with the unfulfilled right to quality education, but also with the emergence of the fourth Industrial Revolution or what became known as the future of work. With the growing automation and robotization initially in the developed world, but increasingly even in less affluent economies, human labor has been substituted by machines or algorithms.

New jobs will certainly be created, but not for the same people. This demands that governments and communities

act with a sense of urgency, since the competences required to prosper in this new environment will certainly be different than those prevalent today.

Regardless of setbacks, the global community continues to commit to the ideal expressed in the Declaration through documents such as the Millennium Development Goals and Sustainable Development Goals, which are new expressions of this shared vision. It is in this context that Think Tanks are coming together and trying to address the huge challenge of helping countries to fulfill the 2030 Education agenda on access, completion and quality while ensuring that 21st century skills are delivered to all in each and every school.

Policymakers, educators and civil society organizations in different countries are trying to ensure that those commitments are met. However, it is necessary to join forces with them, especially in the developing world, as they struggle with the multifaceted and complex task of addressing the right to education of children, adolescents and adults.

Challenges faced by governments in the field of education are indeed complex and demand a myriad of well-crafted policies and programs to ensure that all citizens can access, learn and build skills throughout their lives. Most importantly, it calls upon global expertise and collaboration. Think Tanks and research groups can fill the knowledge gaps by bringing their own evidence and expertise on existing best practices and positive divergences to inform the debate and achieve the shared vision.

The knowledge produced by global networks might become a powerful way to build this dream because of their ability to synthesize and generalize knowledge from different contexts and experiences and to contribute with novel frameworks and insights for collective action. If we aim to bring about change to scale and ensure that people walk the path of liberation everywhere, these efforts must continue and be improved upon. And this book, published by T20 in collaboration with *Fundación Santillana*, is a synthesis and a report of such efforts.

To achieve the shared vision and truly realize the promise of education, we must work together to think in novel ways and tackle the educational "challenges of the past" - which still hunt the lives of several thousands of children and youth worldwide -, while mitigating the unforeseeable challenges of the future.

Claudia Costin
Director of the Center for Excellence and Innovation in Education Policies
Getulio Vargas Foundation

Introduction

Argentina's G20 presidency has changed the role of education policy within this leading forum. This is the first time that Education is included as a working group in the G20 history. This decision has had direct effects in the T20, the G20 engagement group that develops policy recommendations through different thematic Task Forces.

Education systems and policies usually focus on local perspectives. This is an exceptional opportunity to open a global discussion about the future of education among experts and policy-makers. Task Force 1, "The Future of Work and Education for the Digital Age", has undertaken this challenge. We aimed to produce education policy recommendations based on a vision that stands for education as a key dimension of policy agendas for global development. Since the first working session at the "Inception Workshop: Vision and Strategies for 2018", Task Force members have agreed on considering education of crucial importance, as it equalizes opportunities, strengthens democracies and contributes to economic growth.

This vision is aligned with United Nations' Sustainable Development Goals. More specifically, SDG number 4 seeks to "ensure inclusive and quality education for all and promote lifelong learning" (United Nations, 2017). Universal access to quality education is meant to play a key role in creating a more inclusive, just and equitable world. Achieving these goals is only possible through long-term advocacy. Its consideration within the T20 agenda is an important step forward, as it allows discussing the future of education systems and policies from a global and collaborative perspective.

Under these premises, this Task Force has addressed two very different challenges. On one hand, education policy recommendations seek to deal with a XIX century challenges still present in many regions and countries across the world: access and learning. As UN indicators show, primary

education in developing countries has reached a 91% enrolment rate, but 57 million children remain out of school. Most of them, live in Sub-Saharian Africa, Southern Asia and conflict-affected areas. Enrolment rates in secondary education are even worse: 84% for lower secondary education and 63% for upper secondary education (United Nations, 2017). At the same time, recommendations have also aimed at the so called "learning crisis": many children attend school, but they do not go through deep learning experiences. According to UNESCO's Education for All Global Monitoring Report, 130 million children attend primary school, but they are unable to read, write and do basic mathematics (2014).

On the other hand, this Task Force provided policy recommendations that aimed at analysing XXI century opportunities emerging from the new relation between technological change, employment and education. The digital age has opened perspectives towards traditional education; these have raised new questions about curriculum, teacher development, certifications, among many other dimensions of education policy. Furthermore, Task Force members have identified opportunities to articulate new digital technologies with alternative learning ways that might enhance pedagogical practices and improve outcomes. Such ideas have also considered States' role and equity matters.

These two challenges need to bridge old and unsolved educational problems with new opportunities. We must not address them as a two-phase process, but as a complex scenario where new technologies might contribute to imagine the future of education. In other words, digitalization and technology-driven changes might provide education systems with tools to foster inclusion, quality and gender and socioeconomic equity.

With these challenges in mind, this task force has approached education by producing policy briefs in four different areas. Although they are here theoretically separated, many links can be traced among them.

Firstly, this task force has identified the importance of addressing skills development since the very beginning of life. Evidence shows that early childhood development has substantial effects in subsequent education levels. In this regard, we recommend governments to support measures that make systemic approaches sustainable; to initiate and support joint learning looking at Early Childhood Development, Education and Care (ECD/ECEC) initiatives across G20 countries; and to embrace and support systemic approaches to ECD/ECEC governance, policy implementation, and evaluation. In "It takes more than a village. Effective Early Childhood Development, Education and Care services require competent systems", Mathias Urban, Alejandra Cardini and Rita Flórez Romero explain that it is necessary to support multi-dimensional networks of all actors involved in developing and providing ECD/ECEC services at all levels of government: local, regional and national. This requires cross-national exchange and networking between policy makers, practitioners, ECD/ECEC advocates, and researchers in order to make successful and forward-looking approaches to holistic ECD/ECEC services in the global south.

Secondly, this Task Force has considered the emerging opportunities and threats that technology-driven transformations have introduced in the education field. Recommendations are focused on the value of knowledge and skills as well as digital-tools development for better articulation between different dimensions of education policy.

On one hand, Cristobal Cobo, Alessia Zucchetti and Axel Rivas reflect on non-formal learning, third-space literacies and alternative mechanisms for certification. In regard of these educational paths, they try to answer one of the most interesting questions in this book: "Are these alternative forms of learning a threat in terms of equity and established educational traditions or an opportunity for expanding the right to education?". According to these authors, such educational paths must be considered by education policy as they emerge throughout the world aiming to prepare youth for entering the job market. They recommend to facilitate, support and promote the

diversification of learning, upskilling and reskilling opportunities along with flexible certification mechanisms. Furthermore, they sustain that G20 should encourage international organizations and national governments to provide more flexible ways of recognizing prior qualifications regardless of where they were developed.

On the other hand, Claudia Costin and Allan Jales Coutinho also reflect about education, technology, in a context of rapidly changing economies and new labour market developments. Their work asks for those ways in which future inequalities within and among countries could be diminished by closing the Education-Workforce Divide. Authors explain that high-order cognitive skills, such as creativity and critical thinking, will face a burgeoning demand as a result of digitalization and technological innovations. Under these conditions, they suggest that education systems must integrate unforeseeable social and work demands into schools' practices to ensure that students, especially those from impoverished backgrounds, develop the skills to participate in their local economies and democracies. Thus, they propose to develop "supporting functions" - based on digital technology- at the highest levels of government in order to enable G20 countries meeting timely and equitably needs and aspirations of children and youth while facing market changes. In this context, they suggest that equal emphasis must be allocated to competency-based curriculum reforms, teacher professional development and evaluation mechanisms.

Thirdly, this task force has developed recommendations on education financing. This topic stands as a clear priority within the G20. Policy recommendations on this issue address not only the question about the amount ("how much?") of financing, but also complex allocation mechanisms and equity challenges.

Regarding this topic, Javier González, Santiago Cueto Caballero, Alejandra Cardini and Bárbara Flores analyze the relation between resources allocation and learning levels in Latin America and the Caribbean (LATAM). They describe how these are still insufficient and unequally distributed. Authors suggest that G20 leaders should encourage governments to invest more per student due to the high social rates of return of education; this investment should prioritise the early years. They sustain that such investment should be implemented by differentiated subsidies according to the socioeconomic status of students, in order to ensure equitable quality education and to improve the inputs distribution across schools. According to this work, policy-makers should parallelly encourage mechanisms to recognise and implement pedagogical practices which have proved to be effective to improve students learning.

Furthermore, Yoshida, Hirosato and Tanaka follow a similar argument by relating education financing, inclusion, equity and learning outcomes; they focus such analysis on UNESCO's Sustainable Development Goal 4, "Quality Education". This work suggests that G20 leaders should advocate and collaborate to ensure that education policy frameworks, accompanied with a broad-ranged major reform agenda, become realistic and feasible plans of action. According to authors, this becomes particularly important for policy-makers' viewpoints, when considering overall volume of work, timeframe, sequencing, and budgetary implications. Moreover, in terms of education policy assessment, they propose G20 countries to work internationally in order to move beyond the identification of enabling factors even if they may provide useful hints for targeting investment ("what" to invest in); these should be combined with knowledge on practical process and methods of learning improvement ("how" to achieve results).

Although compulsory education funding appears as a clear priority among G20 countries, post-compulsory education could also take advantage of technological change to improve its financing mechanisms. In the last policy brief, Fletcher and Grainger show a growing body of evidence on the efficacy of specific funding mechanisms in particular circumstances. As they sustain, it is not easy for policymakers to learn from the experience of other countries. However, there is a risk that mistakes will be expensively and wastefully repeated. Thus, Fletcher and Grainger propose to develop a trans-national

resource that would enable those responsible for this sector to rapidly collect and collate information from different countries and to develop a systematic analysis against agreed criteria. This will allow policymakers to evaluate the appropriateness of any specific financing mechanism.

Before moving forward to policy briefs, we would like to mention that this task force identifies intersectional vacancies between gender and education that need to be addressed in next T20 editions. It is necessary to produce recommendations to deal with parity in enrolment in all educational levels as well as with subtle forms of gender inequality, such as women under-representation in education leadership positions or misrepresentation of gender in textbooks, among other very important issues. Some of these aspects have been addressed by W20 Engagement Group in its policy brief "Education & Employment" (2018). Among some of its recommendations, authors claim that G20 countries must guarantee that every girl and boy in compulsory school age has access to a high-quality education and comprehensive sexual education (CSE). In addition, G20 countries should encourage young and adult women to pursue and continue tertiary studies in areas of advanced technology and in those key subjects that are driving the digital transformation, disrupting society, and creating a risk for increased social exclusion.

Last but not least, it is important to remark that this book is the result of joined efforts amongst diverse think tanks and research centers. It is the first step of an incipient network of organizations that has worked together in the T20 process but will keep on collaborating in the future. This is the first time that Education is included as a working group in the G20 history. It is our responsibility to work together so it is not the last one.

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THINK 20

The Future of Work and Education for the Digital Age

It takes more than a village. Effective Early Childhood Development, Education and Care services require competent systems

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Alejandra Cardini (CIPPEC)
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Abstract

There is a global consensus about the importance of high quality early childhood development, education and care (ECDEC) programmes. Increasingly, the systemic characteristics of early childhood programmes are recognised by policy makers and international bodies. This 'systemic turn' has created new challenges. Education, primary healthcare, nutrition, children's rights, social cohesion, equality and other aspects that contribute to the ECDEC system are often grounded in different, and not necessarily matching, conceptualisations, understandings, terminologies and accepted practices. Bringing them together in a *Competent System* (Urban et al, 2012) requires coordinated approaches to governance, resourcing, professional preparation, and evaluation that embrace complexity.

Challenge

Early childhood development, education and care (ECDEC) has rightly gained a prominent place on national and international policy agendas. In recent years a broad global consensus has emerged that ensuring access to high quality early childhood development, education and care programmes is one of the most effective policy tools countries can employ to impact both individual and collective (i.e. national) well-being and educational achievement. Children learn and make significant experiences from birth, long before they enter formal schooling.

The importance of the earliest years of human life as a 'critical period' (Woodhead, 1996) is recognised not least through the inclusion of early childhood in the frameworks of lifelong learning, encompassing all stages of education, in Goal 4 of the Sustainable Development Goals (SDGs). One of the targets of Strategic Development Goal 4 (Education) is to ensure, by 2030, '*that all girls and boys have access to quality early childhood development, care and pre-primary*

education so that they are ready for primary education' (https://www.un.org/sustainabledevelopment/sustainable-development-goals) [1]. While there is a strong focus on formal education in SDG 4, it comes with a clear understanding that educational achievement and lifelong learning are embedded in, and dependent on, contextual factors that impact a child's holistic development from the very beginning of their life.

However, early childhood development, education and care programmes do not exist in a vacuum. The fact that they are embedded in complex social, cultural and political systems and, despite being of global concern, the upbringing of young children is an inevitably *local* practice. This raises fundamental questions that can only be addressed through democratic debate of all stakeholders within countries, and at all levels of government. As John Bennett, writing for the Organisation for Economic Co-operation and Development (OECD) puts it, early childhood policy is '*deeply influenced by underlying assumptions about childhood and education: what does childhood mean in this society? How should young children be reared and educated? What are the purposes of education and care, of early childhood institutions? What are the functions of early childhood staff?* (OECD, 2001, p. 63)

Moreover, caring for, and educating young children comprises physical, emotional, cognitive, social, cultural and spiritual aspects from birth (Cardini et al., 2017).

It has to be welcomed that the systemic characteristics of early childhood programmes are increasingly recognised by policy makers and international bodies.

[1] As the 2017 SDG report states, 'Pre-primary education is, in fact, considered an important part of a holistic and robust educational system' (United Nations, 2017, p. 24). Participation in 'pre-primary or primary education in the year prior to the official entrance age to primary school' (ibid) has increased to around 9 out of 10 children in Europe, Latin America, the Caribbean and North America; the rate in the least developed countries remains much lower (4 out of 10).

Countries in both the global north and south are increasingly adopting policy frameworks that address early childhood from a holistic perspective (Cardini & Guevara, in press). Examples include the *European Union Quality Framework for Early Childhood Education and Care* (Working Group on Early Childhood Education and Care, 2014) and the *Comprehensive Care Strategy De Cero a Siempre* in Colombia (Republic of Colombia, 2013). These documents (and similar approaches in a growing number of countries) urgently require new and effective approaches to governance, resourcing, professional preparation and evaluation at all levels of the early childhood system. They also point to the need – and possibility – for shared learning from, with, and between policy and practice initiatives in the global south and north.

This need for a 'systemic turn' has created new challenges. Education, primary healthcare, nutrition, children's rights, social cohesion, equality and other aspects that contribute to the ECD/ECEC system are often grounded in different, and not necessarily matching, conceptualisations, understandings, terminologies and accepted practices. The need to coordinate not only within one professional system (early education) but across several professional and disciplinary systems in ECD adds to the complexity of the task. Bringing them together in a *Competent System* (Urban, Vandenbroeck, Van Laere, Lazzari, & Peeters, 2012) that ensure practices, knowledge and orienting values are shared between actors with a wide range of professional and disciplinary backgrounds, and across all levels of the system requires coordinated approaches to governance, resourcing, professional preparation, and evaluation that embrace complexity. This policy brief identifies such possibilities and suggests a course of action that should be taken by governments of G20 countries in order to build effective, holistic, and sustainable support systems for young children and their families.

Proposal

Supporting the systemic turn in early childhood development, education and care

The acknowledgement that access to high quality early childhood development and care services from birth is an important precondition for educational achievement (and therefore a critical factor for achieving SDG 4) is supported by a strong body of research evidence and, increasingly, by policy makers and international ECD/ECE advocates (World Bank, 2011).

Increasingly, countries in both the global south and north are beginning to adopt *systemic* approaches to developing early childhood development, education and care services. Examples include programmes that are designed to provide health, nutrition, early education as well as a range of other supports for young children from birth, their families and communities. Programmes are framed, at policy level, by intersectoral and interdepartmental approaches to governance, implementation and evaluation. For instance, the European Union has adopted *Council Conclusions* that emphasise the need for *systemic approaches to professionalising the early childhood workforce* in its 28 member states (Council of the European Union, 2011). In Latin America, some countries are developing new, intersectoral and holistic public policy approaches to early childhood development, education and care systems, e.g. *Uruguay Crece Contigo* (http://crececontigo.opp.gub.uy/), *Chile Crece Contigo* (http://www.crececontigo.gob.cl/) and *De Cero a Siempre* (http://www.deceroasiempre.gov.co/). Moreover, the **World Bank**, as part of is SABER initiative (*Systems Approach for Better Education Results* - http://saber.worldbank.org/), recognises that 'ECE exists within a larger [social, cultural and political] context' and points to the importance of coordinated ECD approaches that span 'education, health, protections and social welfare', requiring 'both horizontal and vertical coordination' (Powers & Paulsell, 2018).[2]

The increasing recognition that early childhood development programmes require systemic, cross-sectoral approaches (i.e. *Competent Systems*) in order to be effective has to be welcomed. However, such recognition will have to be matched with proactive measures at the levels of policy, practice, professional preparation and research.

Research into early childhood systems commissioned by the European Union has shown that *Competent Systems* (Urban, Vandenbroeck, Van Laere, Lazzari, & Peeters, 2011; Urban et al., 2012) require matching relationships, communication and coordination between all levels of an early childhood system:

- **Individual** *(educators, teachers, childcare workers etc.)*
- **Institutional** *(e.g. preschool settings)*
- **Inter-institutional** *(e.g. preschool settings and professional preparation, various child and family services in the community, practice and research)*
- **Governance** *(e.g. strategic planning, policy formulation, regulation, resourcing, implementation and evaluation)*

Relationships in and between the levels of a *Competent System* unfold in three interconnected dimensions:

- **Knowledge(s)**

[2] The existence of these policy frameworks marks important progress towards integrated systems. However, for them to affect sustainable change governments will have to address two main challenges: 1. Ensure a 'strong and equal relationship' (Bennett) between ECDEC and the compulsory school system. 2. Adopt participatory implementation strategies that avoid inappropriate 'top-down' processes. These are still prevalent in national policy documents, for instance in expressions like 'bajar la política a los territorios' (De Cero a Siempre).

- **Practice(s)**

- **Values**

At all levels of a *Competent System*, actors require a sound body of *knowledge* (e.g. about the purpose and aims of ECDEC, about children's rights, democracy, about the importance of addressing diversity, equality, and social justice). At present, individual and institutional actors with different roles and professional backgrounds often operate on the basis of distinct bodies of knowledge (e.g. pedagogical, medical, legal, administrative). Shared knowledge and understanding across the entire system is the precondition for the development of shared and matching *practices*. If, for instance, national policy frameworks expect practitioners to work with children and families in rights–based, non-discriminatory, culturally appropriate and participatory ways, matching practices are required by administrators, by local, regional and national policy makers, in professional preparation, evaluation etc. Systemic and rights-based practices (at all levels of the system) develop on the basis of shared orienting values. It is a crucial task to enable systematic encounters and democratic dialogue between all stakeholders in order to raise awareness of own and others' values, and to work towards a shared orientation towards rights, equality, and social justice for all children and families.

The need to coordinate not only within one professional system (early education) but across several professional and disciplinary systems in ECDEC adds to the complexity of the task. Education, primary healthcare, nutrition, children's rights, social cohesion, equality and other aspects that contribute to the ECD/ECEC system are often grounded in different, and not necessarily matching, conceptualisations, understandings, terminologies and accepted practices. Bringing them together in a *Competent System* requires targeted action at systems level that G20 governments should seek to provide.

G20 governments can and should take decisive action, taking a three-pronged approach: upporting the systemic turn in early childhood development, education and care

I. Initiate and support measures that make systemic approaches sustainable

In order to build sustainable and effective early childhood development, education and care services, G20 governments should:

1. Systematically develop national (i.e. State) policy frameworks and strategies that reach beyond electoral cycles and policies of a specific government. In order to be sustainable, the frameworks need to be strong enough to resist changes in government and administration;

2. proactively initiate, support and resource ***multi-dimensional networks*** of all actors involved in developing and providing ECD services at all levels of government: *local, regional and national;*

3. systematically take into account and build on the capabilities, desires, aspirations and needs of *all* families and communities. Integrated ECDEC programmes should always aim at empowering and supporting, never at supplanting families;

4. always conceptualise and develop ECDEC programmes and services as *universal* services for all children and families in order to avoid stigmatisation of services targeted at disadvantaged groups as *services for the poor*. Within a universal system additional resources can and should then be allocated according to specific needs (*progressive universalism*);

5. support a *systemic qualification framework:* shared approaches to professional preparation, qualification,

and continuous professional development across all practitioners and professionals working with young children, families and communities including (but not limited to) health workers, childcare workers, educators and teachers;

6. initiate processes to include the roles, competences and professional profile of ***facilitators*** for such networks into the professional role profiles of ECD/ECEC personnel, and initiate, commission and adequately resource '***systems research*** [that] looks beyond evaluation of *individual* programs and policies (beyond "proximate causes" of child outcomes)' with a view on how to take systemic ECD/ECEC approaches to scale (Powers & Paulsell, 2018).

II. Initiate and support joint learning from and with forward-looking ECD/ECEC initiatives across G20 countries

ECDEC contexts and needs of diverse communities differ widely in individual countries and across the G20 group. Countries have developed a wealth of approaches to meet the needs of these diverse communities. While life situations of young children and their families and communities are always specific, concrete and local, there are also shared experiences across country contexts, and increasingly across the global south and global north. They include often traumatic experiences, e.g. with migration and displacement, marginalisation and exclusion of minority and indigenous groups, poverty, malnutrition and other issues affecting the wellbeing of young children. Even in the most affluent G20 countries an increasing number of children are growing up under conditions that some (arrogantly and entirely inappropriately) still call 'third world conditions'.

Many G20 countries in Europe and North America have attempted to integrate the early education and care aspects of early childhood services, albeit with varying levels of commitment and success. G20 countries in other regions, on the other hand, are operating on a much broader understanding of 'integrated services' that comprise health and well-being, nutrition, education, social cohesion and reconciliation, and equality. Excellent examples for such approaches can be found in Latin America.

Governments should draw on the wealth and diversity of policy and practice approaches within the G20 group and initiate systematic learning:

1. proactively initiate, support and resource **cross-national exchange** and networking between policy makers, practitioners, ECD advocates, and researchers in order to make successful and forward-looking approaches to holistic ECD/ECEC services in the global south accessible to stakeholders in other countries

2. encourage and equip these cross-national initiatives to systematically **explore** possible **shared understandings across differences**, with particular attention to questions of purpose and values that underpin approaches to ECD/ECEC services (e.g. public good vs. private responsibilities)

3. Enable and resource cross-national, cross-professional and cross-disciplinary initiatives to explore and develop shared bodies of knowledge, shared practices, and first and foremost **shared concepts and language**.

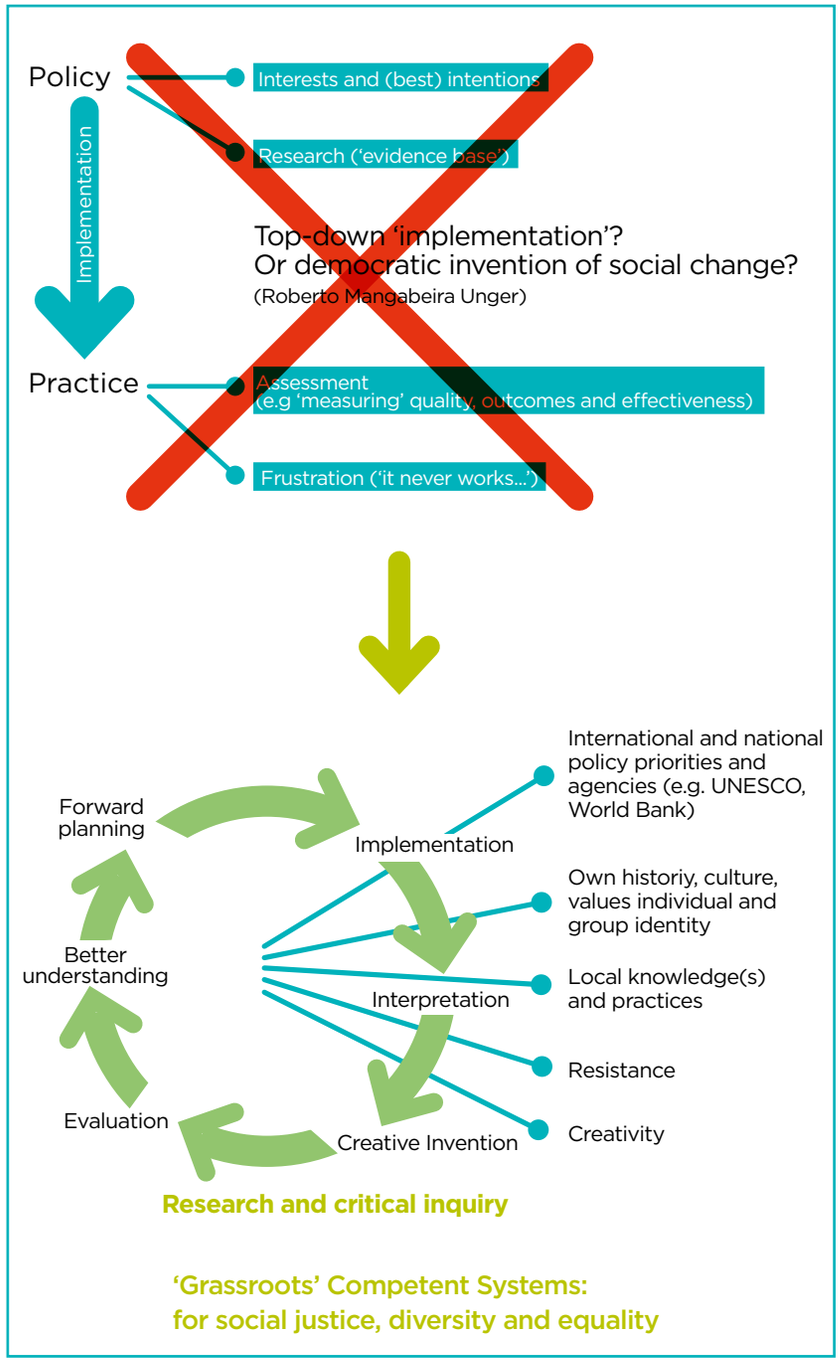
III. Embrace and support systemic approaches to ECD/ECEC governance, policy implementation, and evaluation

Competent Systems require new approaches to governance, policy implementation and evaluation. Overcoming traditional and often simplistic understandings remains a major challenge. Governance theory and systems theory have shown that top-down approaches to policy implementation don't work, and

that the only way to influence ('govern') a complex system is through influencing and shaping its context (Pressman & Wildavsky, 1984; Willke, 1998). However, in ECD/ECEC the standard mode of governance often tends to follow an implicit top-down logic: Step one involves developing policy (often based on research evidence and/or internationally accepted 'best practice'); step two involves devising an implementation strategy ('from theory to practice'). This, ideally, is followed by step three which comprises measures to assess the effectiveness of the policy at ground level.

Not only are such models overly simplistic; they lend themselves to inappropriately and evidently ineffective technocratic approaches aimed at *managing* professional performance *regulating* autonomous professional practice and *measuring* only predetermined outcomes.

Competent Systems in ECD/ECEC thrive on the *agency* of all actors and stakeholders: children and families, practitioners, community leaders ('elders'), scholars, administrators, policy makers all shape the early childhood system through their everyday (inter-)actions. Inevitably, they all bring their own readings and interpretations of national policy frameworks into the picture. Herein lies a tremendous opportunity to make use of what the Brazilian author Roberto M. Unger (2005) calls *democratic experimentalism.* In consequence, G20 governments should proactively encourage the shift from linear ('top-down') approaches to ECD/ECEC policy making and implementation to circular processes that systematically connect policy development, implementation/interpretation at local and regional level with careful systemic evaluation that feeds back into the policy making cycle.



1. **Initiate**, resource and document **ECD/ECEC policy-practice cycles** that follow and build on successful documented examples, e.g. the *Centres of Innovation* programme in New Zealand and the current *Centres of Excellence* initiative in the Province of Ontario, Canada

2. From national government level, initiate and support the development of **local ('grassroots') ECD/ECEC Competent Systems**, drawing on existing expertise, e.g. in Colombia (Ruta Integral de Atenciones)

Initiate, commission and **resource systemic, participatory evaluation** of local processes in the context of national ECD/ECEC policy frameworks.

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T20
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THINK 20

The Future of Work and Education for the Digital Age

Redesigning education landscapes for the future of work: third-space literacies and alternative learning models

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Abstract

Technology-driven transformations are redefining the role of education, the value of knowledge and skills. Non-formal learning, third-space literacies and alternative mechanisms for certification are emerging throughout the world, aiming to prepare youth for entering the job market.

If non-formal mechanisms continue to expand, the role of the State, other actors and the G20 in education also need to be reassessed. This includes dimensions such as regional and global articulation, regulation, certification of non-formal education, among others.

The scope of the policy brief is to provide recommendations to bridge the gap between schooling, learning and employability at a global scale.

Challenge

Educational systems are facing diverse challenges worldwide. Some of those still respond to long-term needs such as increasing global access to education for all and across all levels; reducing dropout and securing completion of mandatory schooling. But there are many challenges that define a new educational landscape: the definition of the curricular priorities in a changing world, the development of new skills, the non-formal or third-space literacies (beyond school and home) in a digital decentralized environment, the role of the State promoting equity in the face of large inequalities and the digital divide.

The past two decades have also witnessed the cross-cutting transformation brought by ICT and the Internet first, followed by the integration of digital technologies across the economy and society. As automation and artificial intelligence increasingly permeate and transform the labour market, they redefine several areas. The role of education in human capital

formation (World Development Report, 2018, p.40), is one of those, along with the structure, institutions and mechanisms that have been in place for addressing societal needs.

Across every region and regardless of countries' Human Development Index (HDI) or the Gross Domestic Product (GDP), knowledge, skills, learning and schooling are being redefined. Knowledge has an increasing value as a currency; however, its relevance is linked to what an individual is able to do with that knowledge. Critical skills in today's society are also facing an accelerated process of relevance and redefinition.

This landscape requires to analyse and address interrelated factors as the increasing distance between formal education (i.e. at secondary level) and the labour market needs, the need to provide flexible and lifelong learning opportunities for upskilling and reskilling the workforce, as well as rethinking the relevance and future role of formal education, learning and knowledge.

In this context, non-formal learning, third-space literacies (beyond school and home spaces) and alternative mechanisms for upskilling and certification are emerging throughout the world, specially across technology-oriented areas such as coding, online services, technical support, etc. E-learning and blended learning services, as well as open educational resources and massive open courses are designed or implemented beyond formal education settings and as such, they do not necessarily issue traditional or recognized forms of certification (see Gibson et al 2015), technical or academic degree. While these models are not new, their popularity and relevance have exponentially grown. Moreover, the latter appear to be more effective than formal educational mechanisms for securing employability and preparing youth for entering a demanding and increasingly competing job market, especially in technology and ICT-related fields.

Proposal

The landscape of education is much more diverse, complex and dynamic than it was when the first alternative online learning models emerged. Although some of the third space literacy examples referred to in Table 1 are initiatives oriented to benefit those who are learning in deprived environments, others are not. Therefore, it is important to assess and understand if those opportunities can be considered as alternatives to formal education and what challenges they present for educational equity. The changing landscape briefly described here requires a redefinition of the role of the State and other actors in educational policy-making to guarantee an expanded vision of the right to education beyond formal and traditional learning.

Are these alternative forms of learning a threat in terms of equity and established educational traditions or an opportunity for expanding the right to education? Should the State use, control, regulate or replace new institutions that provide learning opportunities beyond the traditional context of education? How can the State guarantee educational quality in this context?

How should the State support these emerging opportunities of third space literacies as platforms that can upskill individuals without diminishing/affecting the role developed by existing formal education institutions?

Vision 1.a

These alternative forms of learning have the potential to facilitate innovation across the educational system and to close the gap between learning, schooling and employability. The State should expand what today is conceived as "educational system"; promote new collaborative, open policies and discussions gathering all stakeholders. G20 has the potential to act as an articulator, leading the process and promoting

the adoption of holistic and comprehensive policies in this new landscape.

Recommendation 1.a

What is at stake is significant. According to McKinsey , "the global economy could face a potential surplus of 90 million to 95 million low-skill workers and a shortage of about 38 to 40 million high-skill workers by 2020"[1]. It we take those figures into account, it is critical to facilitate, support and promote the diversification of learning, upskilling and reskilling opportunities along with flexible certification mechanisms. This requires a holistic approach focused on formal and non-formal education alike, -including but not limited- to promote a higher degree of harmonization of educational systems on a global scale and to foster the development of internationally recognized accreditation mechanisms for informal and non-formal education opportunities[2]. G20 could encourage international organizations and national governments to provide more flexible ways of recognizing prior qualifications regardless of where they were developed.

Exploring the potential of alternative learning models for raising human capital, upskilling and reskilling the workforce, requires all actors -from the State to private companies, civil society and academia- to discuss their respective roles; to generate quality-learning opportunities for acquiring new and market-related skills and knowledge; and to recognize new forms of learning that can eventually enrich future formal and informal education.

[1] Sebastien Turbot, *Education to Employment: Boost Skills, Bridge the Gap*, 2018, [Website] https://www.forbes.com/sites/sebastienturbot/2016/01/28/education-employment-skills-gap/#43ecb0c7641b (accessed the 13th May 2018).

[2] For more information see T20 (2017) *Solutions for the G20,* [Website] http://www.t20germany.org/wpcontent/uploads/2017/07/20_Solutions_for-the_G20_17-7.pdf (accessed the 19th June 2018).

No single actor has neither the capacity nor the resources to address these issues by itself. Moreover, there is a clear risk of having obsolete educational systems unable to respond to societal needs, along with a growing number of low quality or unregulated training opportunities. From this perspective, exploring alternative forms of learning demands adopting novel models of accountability, monitoring and ensuring quality as a way to reconceptualise educational policy.

The State can still play a key role in leading this process, facilitating and opening up its mechanisms and structures to include alternative models. Educational policy-making would need to assess whether regulatory mechanisms that respond to formal instruction would be suitable for alternative learning opportunities. This implies working with the "third space" in education (beyond formal school and home). The State could offer, promote and encourage the adoption of platforms, resources, courses and certificates. This more flexible understanding of what is conceived as education could be a valuable opportunity to expand learning possibilities for the population. The role of public entities should not be limited to "producing" contents, but making them available for a larger sector of the population. The State should redefine its role by mixing production of digital education, buying author rights of digital content to ensure equity and public access, and define long-term dynamic strategies that create platforms to circulate new forms of education and certification.

One of the key challenges is how to ensure that resources provided by the State as an expanded form of public digital education are high-quality and also relevant to support knowledge and skills development that address labour market needs. Top-down (e.g. government quality or certification agencies) but also bottom-up (e.g. employers' associations, alumni association among other forms of crowdsourcing accountability) mechanisms of credibility and transparency are needed.

In this context, the G20 is well-positioned to act as an articulator, leading States through the redefinition process of education systems, employability and the labour market. The experience of the T20 since the German Presidency in 2017, highlights the need and relevance of promoting the adoption of comprehensive and flexible labour market policies; facilitating skills transfer, recognition and validation; fostering the development of alternative and non-formal education opportunities for youth; and closing the distance between formal schooling and employability (T20, 2017; IMF Annual Meetings, 2017).

Vision 1.b

In the 21st century it is essential to develop a broad set of skills and competencies. Flexible learning opportunities can respond to this need and easily adapt to a changing job market and rethink the role of education in an increasingly complex society. What kind of curricular vision and priorities should be promoted?

Recommendation 1.b

Broadly speaking but particularly in the most conservative educational models, most learning experiences have been primarily focused on the acquisition and memorization of contents (discipline-based), which only offer a reduced dimension of learning experience. Only if a broader perspective is adopted, it will be possible to include a larger set of capabilities which play a critical role in terms of employability as well as an opportunity to enhance a more democratic citizenship.

Today's formal education should learn from the flexibility and adaptability that informal learning offers, otherwise the risk of obsolescence is significantly high. At the same time, informal learning is fragile and tends to be private-driven. The State should explore different paths to institutionalize new learning environments and to promote the principles of equity and inclusion in particular for securing quality educational interventions for underserved and under-skilled communities, as well as for youth who are outside formal education systems as stated by the work of the T20 in the area (T20, 2017).

At least, two possibilities should be explored simultaneously. For one side, it is required to diversify the public offer of educational resources and self-administered learning experiences in order to go far beyond the formal settings. On the other side, it is necessary to assess how the formal system promotes, updates and recognizes the so called 21st century skills in the curricular frameworks and implementation resources (platforms, courses, printed books, teachers' guides and training, etc). Additionally, it is critical to promote continuous skills development and a dynamic redefinition of curricular priorities in a changing world. Curriculum areas of ministries of education play a key role in this chapter.

Vision 1.c

It is time to adopt new parameters and tools for validation and recognition. It is necessary to move away from traditional forms of classifying and certifying learning (formal, non-formal, informal)[3] towards new ways of valuing learning.

Recommendation 1.c

"Formal" and "informal learning" should gradually evolve and transition towards mechanisms that help us understand the difference between "learning to live" and "learning to

[3] For more information on formal, non-formal and informal learning see Patrick, W. (2010). *Recognising non-formal and informal learning outcomes, policies and practices: Outcomes, policies and practices* (Vol. 2009, No. 35). OECD publishing.

earn a living" set of skills. From this perspective, secondary and postsecondary education can be shaped more closely to specific employment outcomes (i.g. work-study programs, early job-oriented counselling, internships, and apprenticeships). Rather than distinguishing between critical and non-critical capacities (e.g. 21st century skills are usually considered as valuable capacities), the emphasis could be placed on what kind of learning experiences is able to reinforce learners' employability level (regardless if s/he is a student or a worker). This could also show how learning experiences are able to improve learners' working opportunities. Having this in mind, alternative and more flexible credentialing and licensing tools can be issued regardless of the settings in which learning happens. This can enrich contexts, and encourage flexibility and mobility of those who want to acquire a new knowledge/skill without sacrificing its recognition.

Vision 1.d

Third-space literacies and alternative learning models have the potential to enhance innovation in education for the digital age. However, this can only be achieved if education inequalities are addressed. Digital education offers a path towards that goal.

Recommendation 1.d

Education as a basic human right requires having access to the same -at least basic- learning opportunities for all individuals across the globe (World Development Bank, 2018). Education enables societies to reduce inequalities, raise human capital and promote social mobility. Equality is enshrined in the scope of education, as well as the main pillar for the role that the State has played in it. While access to critical knowledge generates wealth and potentially increases economic opportunities, its lack of, generates exclusion and dependence.

'Third space literacies' are generally defined as the area between official curriculum and informal knowledge, with skills and dispositions brought in from outside culture (Potter and McDougall 2017). Alternative and non-formal models in education are likely to increase inequalities by favouring a few while affecting others. As the *Matthew effec*t indicates, those already advantaged are more likely to benefit first and most from additional resources. For instance, during the first years of expansion of MOOCS, evidence suggests that the most active learners (as well as those who completed the courses) were those who had previous academic degrees or were already enrolled in university. Similarly, as it was documented during the emergence of open courses at OCW MIT in the previous decade (DeMillo, R. A., & Young, A. J., 2015), those who had already had access to education and/or to the required "social capital" were those who benefitted the most when knowledge became open and available (Losh, E., 2014).

At large, many countries and regions are in a situation of profound education inequality that negatively impacts their possibilities to reach quality education. The expansion of learning through digital tools can favour -first and foremost- those who have the access to technical infrastructure (Internet access, digital skills, etc.) as well as to 'social capital' needed to pursue their own learning interests or needs. In order to overcome these learning inequalities, it is essential that public and private entities create regional alliances to promote and enable not only access to digital basic resources (connectivity and devices), but also the needed proficiency to use digital platforms and online resources. G20 should continue the push to enhance international efforts to develop accredited non-formal education, providing accelerated learning opportunities for youth who are not eligible for formal schooling (T20, 2017).

Hence, it is important to adopt comprehensive and flexible approaches that provide basic access to resources -technological, digital and educational-, and also foster

the development of metacognitive capacities of learners, enabling them to pursue and develop their own learning. Otherwise the risk is -once again- to benefit only a few who are probably in a better condition to develop their own lifelong learning strategies.

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Appendix

Table 1.

There is an increasing variety and number of third space literacies, digital and/or non-formal learning opportunities. The cases mentioned below, represent well known examples and alternative opportunities for training, upskilling and certification.

- **Digital and/or non-formal learning or training opportunities:** there is an emergence of alternative forms of learning which run parallel to the formal education. They offer different venues for learning and skilling, going from experiences that take place outside formally structured, institutionally sponsored, classroom-based activities (Macià & García, 2016[4]). Some remarkable examples worldwide are: Agastya International Foundation **(India),** School 42[5] **(France and USA),** Alison[6] **(Ireland),** Distance Learning in the Amazon Forest **(Brazil),** Generation you employed **(several countries)**, Jóvenes a Programar **(Uruguay),** Coursera, Udacity, SkillShare, Lynda and similar **(online).**

- **Social (peer-based) recognition of uncertified knowledge:** These alternative certificates represent different forms or indicators of an accomplishment, skill, competency, or interest. They can be used to represent online and offline achievements, communicate successes, or mastering certain skills. They can support learning that happens beyond traditional classrooms such as alternative and flexible credentials that substitute traditional certification, demonstrated outcomes / validated competencies that are tailored to the desired output from a variety of learning contexts. They provide a reputation framework for peer validation, capturing technical skills along the path of program completion, document the learner's ability to use a piece of equipment or demonstrate knowledge of a particular topic. Badges, for instance, are becoming novel currencies that provide verified, specific information from trusted sources about the skills, competencies and knowledge. Samples are: Open Badges, Blockcerts, Edublocks, etc[7].

[4] Macià, M., & García, I. (2016). Informal online communities and networks as a source of teacher professional development: A review. T*eaching and Teacher Education, 55, 291-307.*

[5] 42 is a free of charge computer training program, open to anyone -whether they possess an academic degree or not-. Candidates are selected through a highly competitive selection process. Students have a leading role in their learning experience through project-based learning challenges. For more information visit www..42.fr (accessed the 13th May 2018).

[6] Alison provides over 1,000 free courses to eleven million registered learners over the world, reaching 1.5 million graduates of its courses. Alison offers free learning, certification, learning management and publishing to anyone interested. For more information visit www.wise-qatar.org/sites/default/files/2018_wise_awards_brochure.pdf (accessed the 13th May 2018).

[7] The Institute of the Future and ACT Foundation shred their view on how employee-centered learning might look like. The concept involves Edublocks -one-hour chunks of learning from virtually any source or context. These blocks are held in individual accounts. Learners can share and trade these Edublocks once acquired using some a cryptographic system (like the digital currency Bitcoin).
Eliana Osborn, "Edublocks" Coul*d Change How We Learn by Adapting Bitcoin Model to Continued Education, 2018 [Website], https://www.goodcall.com/news/edublocks-change-learn-adapting-bitcoin-model-continued-education-06554 (accessed the 13th May 2018).*
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T20
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The Future of Work and Education for the Digital Age

Bridging the Education-Workforce Divide: Strategies to Meet Ever Changing Needs and Mitigate Future Inequalities

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Abstract

To build the workforce of the future and diminish future inequalities within and among countries, educational systems must close the Education-Workforce Divide. In other words, they must integrate unforeseeable social and work demands into schools' practices and resources to ensure that students, especially those from impoverished backgrounds, develop the skills[1] to participate in their local and national economies and democracies. In this context, equal emphasis must be allocated to competency based curriculum reforms, teacher professional development and evaluation mechanisms in order for G20 countries to timely and equitably bridge the Divide and meet the needs and aspirations of the children of the future.

Challenge

Recent G20 communiques of 2017[2] have addressed key issues related to the future of work, specifically issues related to digital innovations and labor market transformations. Yet, little attention has been given to supply mechanisms responsible to build the needed competencies and skills to address the volatile, uncertain, complex and ambiguous transformations in labor markets and society as a whole: school systems.

To bridge the Education-Workforce Divide and mitigate future inequalities, supporting functions must be in place to tailor and improve curriculum redesign processes and teacher professional development at all levels of education across G20 countries. Such mechanisms must be implemented to support the work of teachers and provide children and youth with opportunities for deep learning and skills development as part of students' basic school life cycles.

[1] We refer to skills as the set of cognitive and social emotional attributes that one person develops over the life cycle to successfully perform activities, complete tasks and contribute to society either collaboratively or individually.

[2] http://www.g20-insights.org/policy_area/future-of-work/

The Education-Workforce Divide is characterized by two factors. Firstly, by the paucity of malleability of school systems to adapt to rapidly changing economies and equip students with different bundles of skills. Secondly, the divide is characterized by unprecedented labor market developments resulting from novel trends such as automation and technological advancements.

On one hand, with comparative data from instruments such as PISA (Programme for International Student Evaluation), one can observe that many nation-states are still learning to implement the needed reforms and compensatory measures to create malleable school environments where children are able to learn, build, and, most importantly, apply basic and high order cognitive, as well as socioemotional skills, to solve complex problems in unfamiliar settings.

For instance, an average of 28% of students in OECD countries are only able to solve straightforward collaborative problems (Guria 2016), which may hinder their ability to elaborate on the multifaceted problems of today's world and build solutions for these problems at work and in their communities. Likewise, since 2009, the proportion of students who attain the basic level of proficiency in reading, which are key to comprehend the world, communicate effectively and develop other competencies, has stagnated in member countries comprising the Organization for Economic Cooperation and Development (OECD) (Guria 2016). Lastly, the data also points out to the fact that socioeconomic status across countries can be predictor of achievement (OECD 2016). This suggests that schools systems have not fully created nurturing environments for skills development and that schooling is not matching the needs of many populations to build and hope for a better future.

On the other hand, technological changes promote labor market disruptions that widens the very Education-Workforce Divide, creating further challenges for democracies as a result of higher inequality rates (International Labour Organization, 2018). Although it is unclear how much disruptions one must expect from these shifts, certain estimations point out to a 60 per cent job automatization by 2030 (Balliester & Elsheikhi, 2018).

The Education-Workforce Divide currently affects youth and children and may become a greater pressing issue for G20 countries in years to come. The global youth unemployment rate was 13.1 percent in 2017 (International Labor Organization, 2017), and three out of four youth who were employed worked in the informal economy (International Labor Organization, 2017), which may increase the vulnerability of the poor due to a paucity of safety nets (World Bank, 2013, p. 129). Moreover, according to International Labor Organization estimations, more than one-fifth of youth are not employed or developing any kind of educational or training activity (ILO, 2017). Together with unmalleable school systems and rapidly market changes, such estimations may skyrocket and create unforeseeable social and economic challenges for G20 societies and democracies.

Recognizing that labor market disruptions will continue to shape G20 economies, that the transition from school to work may become increasingly difficult, and that policymakers have the capacity to craft educational policies to support school systems to become malleable and prepare students to deal with such complexity, this policy brief draws recommendations for G20 countries to tailor and improve curriculum redesign processes, teacher professional development and evaluation mechanisms. These are three key policy areas that, altogether, may support G20 countries to support educational systems become more malleable, narrowing the Education-Workforce Divide and providing children and youth with high-quality resources for skills development during their basic school life cycle.

Proposal

Basic education is one of the few paths that vulnerable children have out of poverty (World Bank 2013). Thus, G20

countries must ensure that children and youth, especially vulnerable ones, have opportunities to acquire and develop different bundles of skills for citizenship and work during Early Childhood, Primary and Secondary Education. To accomplish this, it is pivotal that school systems become malleable to societal and market signals and prepare students to contribute to the development of their communities civically and economically.

It is in this context that curriculum reform and teacher professional development become central to close the Education-Workforce Divide. With the support of high-quality resources in schools - especially a curriculum that is able to develop the whole child and teacher professional development tailored to developing skills - children and youth may become more likely to deal with the complexity of today's and tomorrow's world and actively contribute to the advancement of G20 economies and democracies.

On one hand, the curriculum establishes the kinds of knowledge and skills to be mastered for civic and economic participation, as well as the types of activities that children and youth may experience during their school life cycle to develop these same skills. On the other hand, teacher professional development prepares teachers to bring this curriculum to action and foster these competencies equitably in classrooms. However, curriculum redesign processes can be treacherous and teacher professional development mechanisms diverse, which may not always lead to the expected outcomes. Moreover, incongruent and divergent evaluation mechanisms may hinder the process of collaborative learning across G20 countries.

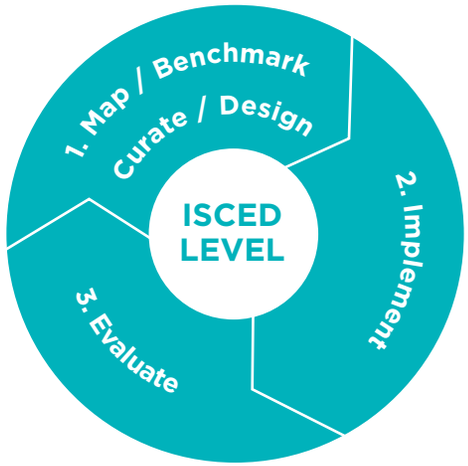
Consequently, supporting functions must be in place to guarantee that curriculum is designed to avoid content overload while ensuring quality content and equitable implementation, in addition to timely meeting society's social and economic needs. Moreover, teacher professional development must be aligned with national and subnational curricula, providing teachers with time, teaching resources and space for collaboration to hone teaching practices that can truly enhance and shape students' knowledge and skills, in addition to evaluation mechanisms that can inform such practices across G20 countries.

Vision for School Malleability: Aligning and Fostering Curriculum Redesign Processes, Teacher Professional Development and Evaluation Mechanisms.

As pointed out by the challenge section of this policy brief, labor markets, technological and societal advancements are ever changing. For school systems across G20 countries to truly support the development of students, it is pivotal G20 countries create curriculum committees and assign them to each International Standard Classification of Education (ISCED) level, specifically levels 0-3, which corresponds to Early Childhood, Primary and Secondary Education. ISCED Curriculum Committees should work in partnership with teachers, labor unions and the education sector and convene periodically to ensure that they are providing a cohesive educational experiences for skills development and learning across all levels of education.

To institutionalize this work, these committees must be set permanently within the Ministries of Education. Each ISCED Curriculum Committee should have sub-committees responsible for at least one stage of the institutional learning cycle, which allows for ongoing learning. This cycle is comprised of:

Learning Cycle Model



1) Mapping, benchmarking, curating and designing curriculum;

2)Implementing curriculum and teacher professional development initiatives;

3)Evaluating curriculum and teacher professional development initiatives.

Successful models of implementation, accounting for countries' contexts, could be documented and shared as part of G20 approach to skills policy development along the years. Below, we describe how these ISCED level subcommittees could operate to support school systems to become more malleable and meet the needs of students entering school systems.

1. Mapping, benchmarking, curating and designing curriculum:

Organizations such as the OECD have already identified the need to map market needs, societal and technological advancements to guide skills policy (OECD, n.d). G20 countries could benefit from this inter-ministerial strategy to inform education policy by using data from resources such as the Survey of Adult Skills (PIAAC). With the mapping of skills, the subcommittee can align the curriculum and provide opportunities for students to develop the competencies needed to successfully perform prospect jobs and contribute to societies. The subcommittee should also promote quality of curriculum content by benchmarking cases of high performing educational systems within and across G20 countries. Finally, it should curate the curriculum to avoid content overload, allowing for differentiation and cohesion across all levels of education.

2. Implementing curriculum and high quality teacher professional development:

After mapping current market and societal demands and upon the design of each ISCED level curriculum, one possible approach to conduct this effort is to implement the curriculum within each ISCED level of education through a step-by-step approach. This may give educational systems the opportunity to learn from experimental iteration[3] and improve upon their own experiences, providing schools and teachers with space, resources and training to effectively enact the curriculum into classrooms.

Each ISCED level subcommittee responsible for implementation could select and comprise a working group of high performing teachers to craft detailed lesson plan models for each subject matter, as well as interdisciplinary units, emphasizing strategies to foster deep learning and transferable skills, such as collaboration and critical thinking. Technology could be used in this context to share these

[3] Iteration processes have been documented as a new approach to development, one that could foster state capability. Leading authors include Professors Matt Andrews and Lant Pritchett. See Andrews at all 2017 for more information on iteration.

resources widely throughout the network of head teachers and educational professionals. These lesson plans would serve as resources for teacher professional development[4] and as inputs for classrooms, and be adapted to schools' contexts accordingly.

For example, after having a curriculum designed for ISCED level 3 - which usually corresponds to a three year educational cycle - a country could strive to close its first learning cycle within a five year time frame. The first year would serve to initiate the process of developing lesson plans and other teaching materials, whereas the last year would serve for the subcommittee responsible for evaluation analyze the outcomes of the reform and amend the curriculum, if necessary, according to new societal, educational and market needs, as follows:

(ENACTING CURRICULUM WITH TEACHER PROFESSIONAL DEVELOPMENT) ISCED LEVEL 3 IMPLEMENTATION SUBCOMMITTEE	
First year of implementation	• working group develops lesson plans for cohort of educators teaching the first year of ISCED level 3.
Second year of implementation	• cohort of educators teaching the first year of ISCED level 3 participates in teacher professional development and utilize lesson plans elaborated on year 1 by the working group. • working group develops lesson plans for the cohort of educators teaching the second year of ISCED level 3.
Third year of implementation	• cohort of educators teaching the first year of ISCED level 3 continues to receive teacher professional development, use and improve the lesson plans developed in year 1. • cohort of educators teaching the second year of ISCED level 3 uses the resources elaborated on the second year of implementation and participate in teacher professional development. • working group develops lesson plan for the cohort of educators teaching the third year of ISCED level 3.
Fourth year of implementation	• Cohort of educators teaching the first and second years of ISCED level 3 teachers continues to receive teacher professional development, use and improve the lesson plans. • Cohort of educators teaching the third year of ISCED level 3 begin to receive teacher professional development and use the lesson plans in their classrooms.
Firth year of implementation	• First cohort of students from ISCED level 3 who experienced the curriculum graduate and enter labor markets, tertiary institutions, etc. Summative assessments and evaluations point out whether desired bundle of skills and knowledge have been developed in these students. • Subcommittee responsible for mapping technological, labor market and society needs uses this data to amend the curriculum for ISCED level 3, maintaining the cycle of learning.

Time Frame ISCED level 3					
	Year 1 of implementation	Year 2 of implementation	Year 3 of implementation	Year 4 of implementation	Year 5 of implementation
Working Group **Lesson Plans and Teaching Resources**	**PREPARE** lesson plan models and interdisciplinary units for cohort of educators teaching the first year of ISCED level 3.	**PREPARE** lesson plan models and interdisciplinary units for cohort of educators teaching the second year of ISCED level 3.	**PREPARE** lesson plan models and interdisciplinary units for cohort of educators teaching the third year of ISCED level 3.		

[4] Teacher professional development must contemplate a few characteristics in order to be effective: it has to be content focused, incorporate active learning as part of their pedagogy, supports collaboration, uses models of effective practice, provides coaching and expert support, offers feedback and reflection and be of sustained duration (Darling-Hammond, Hyler, & Gardner, 2017).

	X	Cohort of educators teaching the first year of ISCED level 3 receive teacher professional development using teaching resources and **APPLY** it in classrooms	Cohort of educators teaching the second year of ISCED level 3 receive teacher professional development using teaching resources and **APPLY** it in classrooms	Cohort of educators teaching the third year of ISCED level 3 receive teacher professional development using teaching resources and **APPLY** it in classrooms	
Working Group **Teacher Professional Development**	X	X	Cohort of educators teaching the first year of ISCED level 3 continue to receive teacher professional development and **IMPROVE** teaching resources, applying them in classrooms	Cohort of educators teaching the second year of ISCED level 3 continue to receive teacher professional development and **IMPROVE** teaching resources, applying them in classrooms	Cohort of educators teaching the third year of ISCED level 3 continue to receive teacher professional development and **IMPROVE** teaching resources, applying them in classrooms
Working Group **Evaluating and curating**					**EVALUATE** knowledge and skills of first cohort of student who experienced the curriculum through a summative assessment. Amend curriculum, if necessary.

Instead of implementing the curriculum and closing the learning cycle, waiting for another major curriculum reform to take place, this policy brief calls upon G20 countries to amend and curate the curriculum on an ongoing basis through established working committees, using available data and evidence from iterative learning processes to guide schools as they prepare students to become skilled and informed citizens of their nation-states. Through iteration, school systems may be able to mirror the evolving societal, technological and market developments and better equip students to live in the world of today and tomorrow.

3. Evaluating curriculum and teacher professional development initiatives.

One of the greatest challenges to promote collective learning in G20 is measurement cohesion in skills policy. To comprehensively inform the debate across G20 countries, it is germane that member states come to an agreement of which framework they will use to define, monitor and evaluate skills, especially those placed in the socioemotional domain. For example, among other matters, governments have to determine whether they will focus on biometric, psychometric and experimental evaluation methods of social emotional skills, the frequency in which this data will be collected, as well as its validity and reliability mechanisms.

G20 members can collude and create an index of the types of bundles of skills that they think are most valuable to the development of their nation states and collectively support one another by providing technical expertise to establish cohesive Monitoring and Evaluation systems. This will the viable to promote collective learning as G20 members conduct their own curriculum and teacher professional development reforms and build their learning cycles. Current initiatives undertaken by the OECD and the organization Evaldesign could contribute tremendously to G20 endeavors on this matter.

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T20 ARGENTINA 2018
THINK 20

The Future of Work and Education for the Digital Age

Financing Quality and Equitable Education in LATAM

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Abstract

Education learning outcomes in low and middle-income countries are still insufficient and unequally distributed. Several factors are behind this situation, many of which relate to education funding: low absolute expenditure per student; increasing gaps in spending levels between developed and developing countries; unequal distribution of key education inputs; inefficient use of pedagogical resources and low levels of innovation; inadequate political economy frameworks, in which rich individuals are incentivised to opt out of an already weakened public sector. Recommendations to deal with these problems are presented in order to provide not only more investment, but also a more effective and equitable use of resources.

Challenge

While access to education has improved significantly in Latin America and the Caribbean (LATAM), levels of learning are still insufficient and unequally distributed. Several factors related to education funding are behind this situation:

- **Absolute per-student spending is insufficient and below than expected according to LATAM´s economic development.** Although in Latin America during the first decade of the XXI century public investment in education has increased substantially, both in real terms and as a percentage of GDP (Rivas, 2015), average expenditure per student is still significantly lower than in OECD countries. While the average annual expenditure per student in OECD countries is US$9,258, it only reaches US$4,076 in Chile, US$3,824 in Brazil, US$2,877 in Mexico and US$2,459 in Colombia (OECD, 2016). This is relevant since comparative evidence at secondary education shows that there is a strong relationship between learning outcomes and expenditure, up to US$8,000 per student per year (Vegas and Coffin, 2015).

- **The gap in per-student spending levels is increasing between developing and developed countries.** Although Latin American countries have increased the levels of absolute public expenditure in education in the last two decades, the rate of growth has been lower than the one observed in leading developed countries. For example, the annual per-student expenditure gap between Finland and Chile increased from US$2,995 in 2000 to US$5,116 in 2013 (SUMMA, 2017).

- **The distribution of key education inputs is unequal across schools within Latin American countries.** There is an unequal distribution of the education workforce, infrastructure, pedagogical materials, ICT, and funding, among other resources, between different social groups, in terms of socioeconomic status, geographic areas, and ethnic origin. For example, Bos et al. (2016), based on PISA 2015, show that richer students are consistently exposed to more teaching hours and have better-qualified teachers than their poorer peers. They also find that in most LATAM countries, headmasters in low-income schools declare higher levels of concern about the low quality of their staff, infrastructure and pedagogical materials, than their peers from high-income schools. Furthermore, in some cases there is a lack of positive discrimination mechanisms to prioritize low-income students. For instance, a study conducted by CIPPEC in Argentina shows that most educational supplies (free meals, experienced principals, textbooks, computers, among others) are distributed homogeneously, without taking into account the heterogenous socioeconomic composition and needs of students at recipient schools (Bezem, 2012).

- **The use of resources is inefficient and schools show low levels of pedagogical innovation.** Research has evidenced high rates of teacher absenteeism and bureaucratic decision-making processes unable to deal with the increasing complexity of the education system (Hanushek, 2001; Murray, Evans and Schwab, 1998). Furthermore, education systems experience low levels of innovation and insufficient use of effective pedagogical practices in the classroom, such as feedback, collaborative learning, metacognition, etc. (Jacob and Parkinson, 2015; Johnson et al., 2000; Kingston and Nash, 2011).

- **Inadequate and ineffective institutional frameworks hinder education systems**: institutional economics shows the importance of institutions, understood as formal and informal rules, for the determination of property rights, collaboration/competition dynamics, transaction costs, and social outcomes and their distribution (Acemoglu and Robinson, 2012; Knight, 1992; North, 1990). These rules, especially those embodying public regulations, have a strong impact on education systems. Indeed, institutions that promote deregulation, marketisation and privatisation of the education sector, fostering student selection, vouchers and cost-sharing schemes to fund primary and secondary education, have had tangible negative effects on education outcomes, both in terms of equity and quality in the region due to relevant market failures (González, 2017).

Proposals

Given the above challenges actions should be taken on several fronts.

Proposal 1: Increase investment through domestic taxation and reduction of evasion.

G20 leaders should encourage governments to invest more resources per student due to the high social rates of return of education. This investment should prioritize early childhood education. In order to achieve this goal, governments need to increase their education budget, through lower tax evasion

and higher direct taxes, which are low in LATAM compared to OECD, even in historical perspective when controlling by GDP (González, 2018).

Increasing per student spending has been at the forefront of education policy discussions for years given the positive rates of returns from investment in education, which are observed across countries (Becker 1975, 1995; Psacharopoulos 1994, 1995; Cunha and Heckman 2007; Montenegro and Patrinos 2014). Furthermore, empirical evidence demonstrates that rates of return are particularly high at early years of education because what is learnt at that stage facilitates future learning. This dynamic complementarity has been documented by Heckman (2008) in his seminal paper on schools, skills and synapses. This evidence suggests that increasing per student spending should be a policy priority.

In order to finance the extra spending, it is not even necessary to implement a radical tax reform. In particular, governments could take advantage of several opportunities that are present in current tax systems. For example, reviewing the case of Chile, Arellano and Corbo (2013) argue that implementing an efficient tax and transfer system is feasible by improving the tax administration, reducing evasion and avoidance, and reducing exemptions, franchises and special regimes. Nonetheless, we should be aware that LATAM is lagging behind in terms of direct taxation, i.e. personal and corporate tax rates (Goñi et al., 2011). There is also a long way to go in the construction of more progressive tax systems in the region.

Then, the question is: what amount of per student spending should be publicly financed? Empirical research has shown that the positive correlation between level of education spending and student achievement is statistically significant up to a threshold of US$8,000 per student annually (Vegas and Coffin, 2015). Above that level of spending, the association between expenditure and performance is not conclusive and experts recommend not focusing on resources, but in improving the way these are invested.

Also, the role of civil society organisations in monitoring progress towards investment goals and advocating for higher and more efficient investment should be fostered. The cases of *Todos pela Educacao* in Brazil and CIPPEC in Argentina are examples of effective advocacy in this direction.

Proposal 2: Promote policies that ensure equitable investments among students.

In order to ensure equitable quality education and improve the inputs distribution across schools and subnational districts, changes in education policies are necessary. In particular, G20 leaders should promote the implementation of differentiated subsidies according to the socioeconomic status of students. It is essential to establish focalization criteria to deliver extra funding to excluded groups and underperforming students. One example is the Chilean Preferential School Subsidy, which is delivered from the government to schools for each student who is identified as priority according to their socioeconomic status. Empirical research has found positive impact in reducing the socioeconomic achievement gap (Carrasco et al, 2015). It must be highlighted that this policy also provides a balanced mix between higher levels of autonomy and technical support to schools.

In several Latin American countries, research has shown that a child who is born in a family that is poor, indigenous, lives in a rural area, has a mother with little or no education, or a combination of these, will surely attend schools that are of poorer quality (public or private) and will have lower educational outcomes (e.g. achievement in standardized tests) than their peers. For example, in Peru the Young Lives longitudinal study has followed a cohort of children from age 1 year until they turned 15. Another cohort, seven years older, was also followed up to age 22 years1. The study shows that

[1] For more information about the study and publications, see http://younglives.org.uk.

by age five, there were already large gaps between children who were poor and non-poor. These gaps are reduced only slightly after several years of schooling (Cueto et al, 2016). One group that has received little attention from research or policy are children with disabilities, who are in many cases excluded from schools or if included, segregated in special education schools or attend schools with no specialized teachers. As a result, it is paramount to strongly invest in pre and in-service teacher training to guarantee that they acquire the necessary pedagogical skills needed to adequately face increasingly higher levels of student diversity in the classroom.

Another dimension of inequitable investment occurs in federal countries, where the gaps between jurisdictions result in unfair schemes of teacher retribution and other types of investment. In Argentina, for example, historically-rooted fiscal inequities are mirrored by inequities in educational investment, as a result of which some provinces invest per student almost five times more than others (Rivas & Dborkin, 2018). The compensatory role of National states in these cases is necessary to build a more homogeneous map of educational investment.

Finally, full participation of students is yet another challenge that countries in LATAM must face in order to reduce gaps in access and learning. In many LATAM countries there is a need for further investments and programs to reduce school dropout rates and tackle those who abandon school. Conditional cash transfer programs have played a role in increasing coverage and attendance, and reducing dropouts, particularly in secondary schools, although the effects seem small (Garcia & Saavedra, 2017). Moreover, there is still a need to invest in the education and development of skills of those who have not completed secondary education. According to data from UNESCO from 2015, there are 3 million children out of school in primary schools and 10 million children out of secondary schools in LATAM (UNESCO, 2017).

Proposal 3: Encourage the efficient use of resources, promoting effective pedagogical practices.

In order to maximize the efficient use of public resources, policy-makers should encourage the implementation of effective pedagogical practices, which have proved to be effective to improve students learning at a low cost.

In terms of pedagogical practices, innovation based on evidence is crucial. SUMMA and the Education Endowment Foundation (EEF) have been working together in synthesising global and LATAM regional evidence regarding pedagogical strategies that have considerable impact on learning outcomes. Based on more than 10,000 academic articles and 200 meta-analysis, several key classroom strategies have been identified. Among the most cost effective, it is important to highlight two strategies: i) Collaborative Learning and ii) Feedback.

Collaborative Learning develops a strategy in which students work together in small groups in order to develop learning tasks or activities. This model incentivizes participation and collaboration among students to reach a common objective. In the case of Feedback, the practice consists in giving information to the learner and/or the teacher about the learner's performance relative to learning goals. The aim is to redirect actions in order to align efforts and activities. Empirical evidence demonstrates that this practice has a positive impact. In fact, compared to a control group, students whose teacher provides adequate and timely feedback tend to progress 8 additional months in an academic year in terms of their learning outcomes. Moreover, this practice is one of the cheapest to implement, among more than 30 identified strategies (SUMMA, 2018).

G20 leaders should promote focusing schools' resources on these and other effective practices to allow LATAM countries to catch up several additional months a year, allowing them to get on track. Nevertheless, this is not likely to happen by

itself. Governments should commit to push forward a national agenda addressing the most relevant and pertinent practices for each locality, providing resources and technical advice for a successful implementation.

Additionally, G20 leaders should encourage governments to increase the access to information and communication technologies (ICTs). The use of technology in education is a popular measure among governments, although research shows that just providing technology, without considerations to pedagogical planning, will not deliver higher levels of learning. Thus, use of technology under a guided and blended model would seem to be more promising (Arias & Cristia, 2014).

Proposal 4: Establish adequate and effective institutional frameworks in education

Current evidence suggests the need to promote national policies that strengthen public education and collaboration among schools, instead of privatisation and competition. Rather than competition, cooperation networks among schools seem to be a crucial factor behind quality improvement (Muijs, 2010). Comparative evidence shows that when these networks exist, schools help each other to improve (Hill and Matthews, 2010). Together they are able to discuss a wide array of relevant topics, evaluate each other in order to identify weaknesses, and most importantly, they share resources, experiences and strategies leading to quality improvement. Therefore, G20 leaders should actively promote a change of the prevailing education paradigm, in order to foster more collaborative school systems.

Students in many LATAM countries would also benefit from integrated interventions, that combine programs at school with others addressing nutrition, health, and the reduction of poverty. Perhaps the first obstacle to achieve this is the lack of integrated information systems; thus, we propose to strengthen these systems.

Also, countries would benefit from educational pilot projects that are rigorously tested and carefully expanded. An example is the MINEDU Lab, developed by the Ministry of Education in Peru, which has carefully tested a number of interventions in that country, in collaboration with partners from the academia and private sector[2]. In most countries, there is little support for educational research, either from the government or the private sector. Developing capacity to do high-quality and policy-relevant research would also be beneficial to students.

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[2] For more information about MINEDU Lab see **http://www.minedu.gob.pe/minedulab/**, although information is in Spanish.

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T20 ARGENTINA 2018
THINK 20

The Future of Work and Education for the Digital Age

Transforming education financing for inclusive, equitable and quality learning outcomes for the 2030/SDG4 Agenda

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Abstract

Education in developing countries faces the daunting responsibility of trying to enact realistic policies and strategies, while keeping to the principles and targets of SDG4 and the demands of Results-Based Financing. The education agenda demands ambitious and transformative changes that require significantly more financial resources and many related efforts to achieve learning outcomes. However, there is insufficient knowledge on how to achieve these goals, and we have yet to come up with more effective modalities and mechanisms for aid. This brief presents pitfalls that await these countries and partners and proposes possible policy actions and corresponding measures.

Challenge

Education is expected to play fundamental roles in realizing sustainable development under the transformative and ambitious Agenda 2030. In developing countries, thanks to massive efforts put into universalizing basic education, we have seen encouraging progress in expanding the education system, resulting in higher enrollment rates and better equity in access to education.

Undeniably, more financial resources are needed to meet the challenges called for by SDG4. What is critical now is to **transform the manner in which education financing mechanisms work**, while being careful to avoid the following pitfalls. Otherwise, additional resources, even if mobilized domestically and externally, will not achieve SDG4 and other SDGs.

Pitfall 1. Political and popular attention has shifted from access to the quality of education, above all learning outcomes, which include knowledge, skills, values, attitudes, as well as employability; while at the same time ensuring equity and inclusiveness. Policies are tasked with addressing them all at

once by running multiple tracks of major reform in parallel. This makes it difficult for individual reform measures to take root and institutionalized, endangering the sustainability of their effects.

Pitfall 2. Present discussions on education financing are largely preoccupied with expanding the resource base and increasing resources flowing into education, mobilized by "innovative financing" measures such as taxes, dues, other obligatory charges, impact bonds, debt swaps, and crowdfunding.[1] However there is little evidence to show that more resources lead to inclusive and improved "learning."

Pitfall 3. In response, the international aid community has made increasing use of the "Results-Based Financing (RBF)" mechanism, under which resources are provided on verification of achievement of pre-determined results.[2] Results are measured by indicators so-called "Disbursement-Linked Indicators (DLIs)." However, in most cases these "results" are intermediate ones, and countries are left with the responsibility of moving from intermediate to final results. Furthermore, stakeholders in developing countries lack crucial knowledge on how to reach these final results.

Pitfall 4. The process associated with RBF includes education planning, analysis of policy issues, factor identification (setting reform agenda and investment priorities), policy appraisal and learning assessment. This process is often driven by the requirements of external development partners, and thus is likely to depend on methods that are developed and brought in by them to aid recipient countries. Though useful, this approach risks the process being unduly influenced by external partners and their expertise, which tends to limit participation of local stakeholders and use of their knowledge. This undermines ownership of the knowledge of local stakeholders.

[1] Burnett and Birmingham (2010) and UNESCO Bangkok (2015)
[2] World Bank (2017)

Proposal

Policy Action 1a. Ensure realistic and feasible policy planning

The focus on learning outcomes is quite justified. When more children complete primary education with unsatisfactory learning, pressure on different levels of education is intensified. Children need to be prepared for school through expanded pre-primary education. Children in primary education must finish more efficiently. Children need to be equipped with the knowledge and skills required for life, before leaving secondary education, which is the end of schooling for the vast majority of youth in developing countries.

Policy issues to make these goals a reality require that remaining issues be tackled: (reaching unserved groups in the population, providing essential school inputs, employing more teachers, for instance) as well as new issues (reorienting the curriculum, improving teaching and learning conditions with innovative means, for instance). Equity and inclusion are not merely issues of access but more pressingly of learning. Obviously, more financial resources need to be mobilized. Adding to the demands, the international community reinforces expectations of the education sector by advocating for the SDGs/SDG4, which link education with other related sectors.

This intensifies the pressure on governments for education to satisfy multiple expectations simultaneously and to crowd the reform agenda with new initiatives. These expectations are transmitted through reform measures, which extend down to the venues where teaching and learning take place, further burdening the implementation capacity of the existing system and its key players. Moreover, the timeframe envisaged for implementation is often too short.

G20 is in a crucial position to advocate and collaborate in country to ensure that the **education policy framework**

accompanying this broad reform agenda is realistic and feasible, particularly from the viewpoint of actors who implement policy. Critical implementation issues include the overall volume of work, timeframe, sequencing, and budget.

A proposed strategy and means for implementation are presented in a subsequent section, as they are related to several policy actions (see **Figure** 1 below).

Policy Action 1b. Build ownership, and institutionalize new ways to ensure sustainability

Successful implementation of such a complicated education reform agenda requires that it be **based on and nurturing a sense of ownership among stakeholders**, essentially those who implement it at the field-level. Reforms which add new tasks, involves different ways of thinking and actions, have to build on shared views and vision for change from the very beginning of the reform process. This requires bi-directional communication between the central policy makers and the rest of the system.

In addition, the education reform needs to maintain positive and consistent results for the benefits to be realized. For the sustainability of the reform results, **each step of the reform process has to be internalized and institutionalized**[3]. It is desirable that issues are identified and solutions come from within, to maintain motivation and ownership of the process. Where ideas of the reform and its measures are introduced from the top, or by the pressures from external sources, as is often the case with education in developing countries, we have to be even more sensitive to make sure the reform process is not derailed.

These essentials are well-known for successful reform, but are too frequently overlooked, as education reform works to tackle complicated issues comprehensively.

[3] Gillies (2010) and Verger (2014)

G20 leaders should collaborate with other partners in mainstreaming measures to respect the ownership and institutionalization of such critical steps in the education reform process.

Policy Action 2a. Use reform measures that fit their purposes

The experts that have estimated the costs of achieving SDG4[4] call for an exponentially more investment in education. The debate goes beyond increasing domestic financing (expanding the tax base) or official development assistance, and proposes establishment of a new financial mechanism for education (such as the International Financing Facility for Education: IFFEd[5]) or using other innovative modes of finance.

Over the past few decades, we have seen the Program-Based Approach (PBA) (which uses budget support) gaining momentum due to its advantages in ownership, harmonization and alignment, which are advocated to enhance the effectiveness of aid[6]. Evaluations show, however, that while this modality has been instrumental in reducing the number of out-of-school children and gender disparities, it has yet to prove its effectiveness in improving learning achievement.[7] Meantime, reviews of projects in the education sector that use conditional cash transfers, another new modality, have shown improved enrollment and attendance, but no positive effects on student learning, or even whether they reach the target population.[8] PBA or commonly used aid modalities are not necessarily a panacea for redressing the current learning crisis.

[4] EFA Global Monitoring Report team (2015), Education Commission (2016)
[5] Education Commission (2017)
[6] Riddell and Niño-Zarazúa (2016)
[7] Independent Commission for Aid Impact (2012) and De Kemp, Faust, and Leiderer (2012)
[8] Reimers, DeShano da Silva, and Trevino (2006) and Bauchet, Undurraga, Reyes-Garcia, Behrman, and Dodoy (2018)

G20 is expected to stress that **increases in financial resources should go hand in hand with an evidence-based and informed choice of reform measures that fit their purposes**, with room for adjustments to meet local contexts.

Policy Action 2b. Use resources efficiently by ensuring conditions for success

In addition to meeting the pressing needs for financial and other resources to education, it is equally important to pursue wiser ways for using those resources, as well as to develop capacity of the education system to deliver quality services. We experienced "aid fatigue" during 1980s and 1990s that reduced the amount of aid due to lack of visible and lasting aid results. We have to avoid following the same path. **Efficiency in the use of available resources is vital and requires good understanding of conditions for success**. Limited resources must be used in such a way to maximize their effects.[9] No simple solution has been found for improving learning outcomes, which makes it all the more important to accumulate practical knowledge on what works and how to realize improvements in learning.

G20 should emphasize the importance that due regard be given to the contexts and conditions under which measures have been implemented successfully elsewhere and to adapting them to current cases.

Policy Action 3a. Pool and share knowledge on pathways from intermediate to final results

Influential trends in favor of RBF risk shifting the responsibility for the remaining and most difficult push to achieve the final results. This is because the agreed "results" that trigger release of external resources to recipient governments are in most cases intermediate ones.[10] Moreover, there are no clear-cut solutions to achieving learning outcomes. This means that neither aid recipient countries nor the international community which support them have ready answers. To face this challenge, the international community emphasizes learning assessments (PISA, TIMSS, SACMEQ, EGRA, or national assessment, for instance) as one approach, hoping they will help verify the effectiveness of policy measures or identify enabling factors, or other systemic factors that show promise for improving learning.[11] We have to remember, however, that a conventional input-output model of education production function has been criticized for not presenting a systematic relationship to learning outcomes.[12]

This points to the need to go beyond identifying enabling factors even if they may provide useful hints for targeting investment ("what" to invest in) and combine them with knowledge on the practical process and methods of improving learning ("how" to achieve results). As an illustration, one approach would be to combine knowledge on what key competencies are required in the 21st century with knowledge on how to equip learners with those competencies and what conditions are required for learners to use them as required.

G20 should call upon the international community at large to recognize that such **knowledge on pathways to move from intermediate to final results exist globally and locally**, and to lead the work of **pooling the knowledge for ready reference, to be adjusted to meet local conditions and to be shared among stakeholders through collaboration among the various players**.

[9] Fredriksen (2010)

[10] Yoshidak and Van der Walt (2017)

[11] See, for instance, SABER that The World Bank is leading. http://saber.worldbank.org/index.cfm

[12] Hanushek (2008)

Policy Action 3b. Develop more useful "outcome" indicators

Correspondingly, G20 should emphasize in its practice of international education cooperation that **developing more useful "outcome" indicators is an urgent task**.

Take for instance, "the number of teachers who received new in-service training," used in a real case as one outcome indicator.[13] This assumes that the new in-service training satisfactorily incorporates orientation to the curriculum. It further assumes that those teachers who received the training apply better teaching methods in their respective and more difficult teaching and learning conditions. Input-output actions (curriculum revised, teachers trained) need to be consistently translated along with their embedded concepts (such as student-centered, problem-solving, self-efficacy, etc.) into process actions (teaching and learning practices). Capturing such a complex series of changes in a single "outcome" indicator is an unrealistic challenge, although outcome indicators, once adopted, certainly attract the attention of policy makers sometimes excessively and may thereby unintentionally undermine concerted efforts.

Useful "outcome" indicators for RBF need to be developed and used with other measures so that together they are placed in implementation plans that clearly elucidate actions and considerations to be undertaken concurrently and consistently.

Policy Action 4. Understand the complex reality of the education sector from multiple perspectives

Useful methods have been developed for education planning—analysis of policy issues, identification of solution factors (investment priority), policy appraisal and learning assessment-- all of which benefit countries greatly. These methods are mostly crafted outside developing countries, often introduced by international partners who are influenced by certain theories close to them. This can cause the process to be guided by, and to depend on the support by external experts who tend to own most of the knowledge used in the reform process, and who fail to take advantage of valuable opportunities for wider participation, to build the capacity and to ensure ownership of stakeholders.

For instance, education sector planning is guided by parameters ("benchmarks") which are obtained from cases of countries that have successfully achieved common educational goals.[14] Education sector analysis that justifies international financial support, and that provides a basis for reform agenda setting and clues for solutions is often influenced by external partners. A similar approach is taken to identifying successful models for producing results, as well as for costing the goal framework. However, such approaches may fail to capture other positive or negative consequences of the educational reform agenda, or to respond to the multi-faceted realities behind the issues.

As the educational issues we are tackling become increasingly complex and, therefore, require wider participation of enlarged groups of stakeholders, it is imperative to bring in perspectives beyond conventional analyses.

G20 should gather its voices to highlight the idea that **there is great room for using valuable local knowledge and multiple perspectives for analysis, planning and solution of educational problems. Such knowledge and perspectives, used through an inclusive process, will enable us all to understand the complex realities of issues and the entire process of educational development**.

[13] GPE (2015)

[14] UNESCO-IIEP Pôle de Dakar, World Bank, UNICEF and Global Partnership for Education (2014)

Strategy for Implementation

The implementation strategies suggested below do not necessarily correspond to individual challenges and policy actions, but rather need to be considered together as they are closely related to each other, as illustrated by **Figure 1**.

The G20 should encourage the global community as well as developing country partners to take these strategic actions collaboratively, recognizing their interdependence:

SI1. Realistic and feasible policy planning should carefully consider what additional roles will be created, who will take them on, and who will be asked to accommodate difficult behavioral changes. Policy planning should **avoid giving excessive burdens, especially to those who are directly involved with teaching and learning**. Invariably, implementation boils down to teachers. Adequate consideration should be given to the sequencing of events.

SI2. It is of paramount importance that **stakeholders be identified; that they reach a common understanding of the reform objectives and processes; that their roles be clarified; and they develop the capacity and receive necessary support for implementation** (see Box 1).

Box 1. Institutionalization Matters: The case of Lesson Study in Indonesia[15]

Institutionalized reform actions can help bring intermediate outputs to sustained final results, namely, improved teaching and learning in a sustainable manner.

Indonesia has successfully fostered the school-based practice of in-service teacher development called lesson study. After jointly discussing classroom challenges, the class is opened to all colleagues and some teachers of other schools. They observe the lesson focusing on learners, and later have reflective discussions to improve teaching and learning. The principal leads this school-wide practice.

University researchers who are teacher educators continuously visit schools and provide on-site advisory services.

District and provincial education offices have encouraged more schools to practice lesson study, and, seeing its cost-effectiveness and gains in learning, have expanded it to other districts.

The initiative began with assistance from JICA, and has continued with the commitment of local stakeholders. The roles of players are clear, mutually stimulating, and objectives are shared. They are centered on collaboration between schools and university, with support of the Ministry of National Education at different levels.

What was a small community of practice is now solid and has evolved from the practice in Java with participation of three education universities to the nation as a whole. Eventually a Lesson Study Association of Indonesia was established (2012), which has become a core member of the World Association of Lesson Studies.

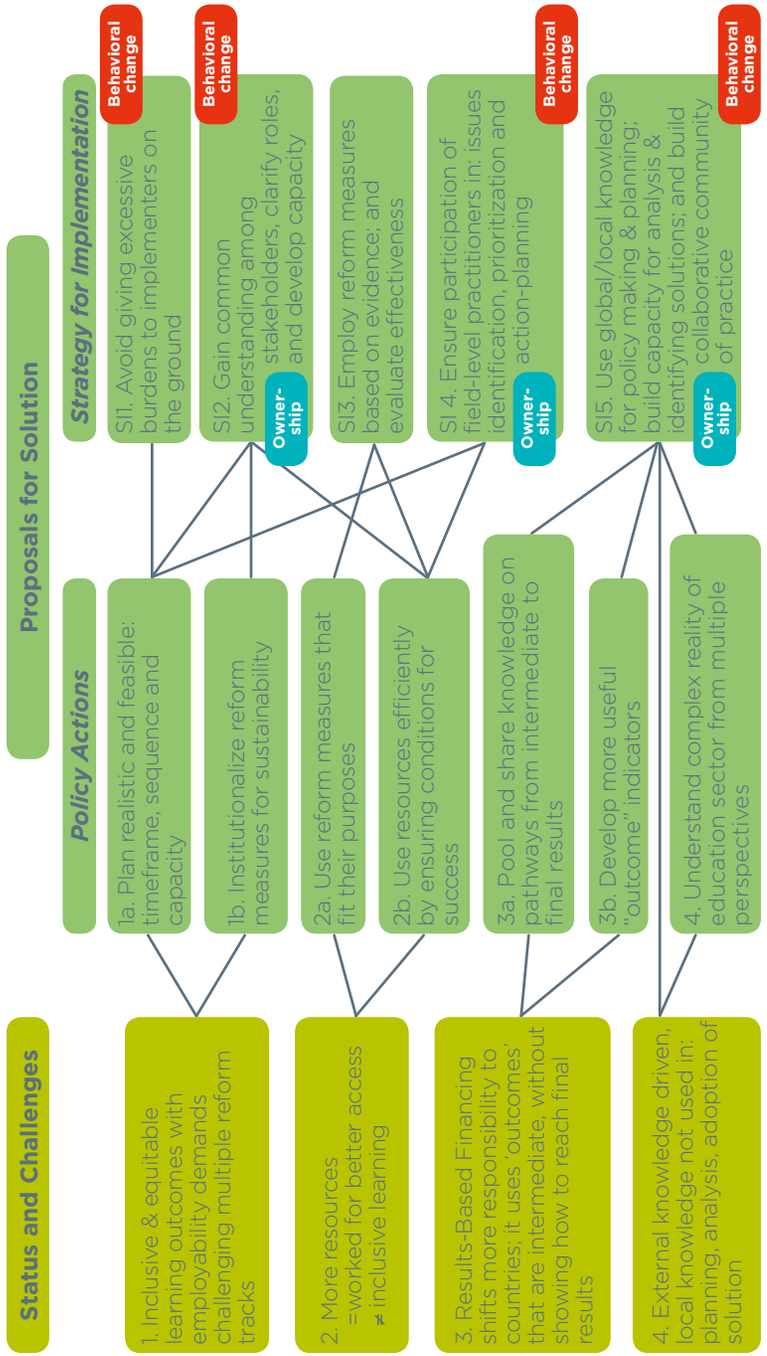
SI3. **Reform measures should be employed based on evidence through which their effectiveness is validated**. The informed choice of policy measures is made possible when reliable evidence-based information is available on what works for which challenge. Policy borrowing is common on a global scale, and the measures adopted in one country with positive results tend to be employed in other countries. This in turn requires that a systematic evaluation of the intervention has to be embedded in the reform plan of the country concerned.

[15] UNESCO-IIEP Pôle de Dakar, World Bank, UNICEF and Global Partnership for Education (2014)

SI4. **Ensuring participation of all stakeholders, primarily field-level practitioners, is indispensable in identifying education policy issues, prioritizing and planning the actions**. This will help understanding of complicated realities and conditions for success, and thus make educational plans more realistic and feasible.

SI5. The more complicated and difficult educational challenges are, the more crucial it is that wider groups of stakeholders (including civil society representatives, media and researchers) participate in and contribute to the full cycle of the reform process, with a sense of ownership. This requires **building on local and field-level knowledge of policy processes** for analyzing issues, gaining insight into and adopting solutions, sequencing events, monitoring and evaluation. **Such an approach will help maximize opportunities for building the capacity of stakeholders, and will be instrumental in building a collaborative community of practice**. For instance, knowing that a weakness in current practice lies in the monitoring of practices in the field, notably teaching and learning practices that are difficult for indicators to capture suggests that participation of community and NGOs in monitoring teaching and learning might be a good strategy to consider.

Figure1. Transforming Education Financing – Challenges and Proposed Solutions



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The Future of Work and Education for the Digital Age

Issues and options for financing post-compulsory education

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Abstract

The aim of this paper is to assist trans-national discussions of financing TVET by highlighting a range of alternative options and providing a framework for evaluating their relevance in specific circumstances. TVET is in a financially vulnerable position in a number of administrations, falling between schools and universities, and subject to changing policy whims.

The paper draws on experience of the impact of different approaches in practice. The evidence is drawn primarily from the UK. It is thus illustrative rather than definitive, though a high degree of what some have termed 'policy churn' makes England a useful source of examples.

The Challenge

The policy objectives considered the most important for funding TVET are:

1. Increasing efficiency. In simple terms increasing the efficiency of post-compulsory education can mean seeking to do more for the same amount of funding or achieve the same output for less. Potential mechanisms include approaches designed to increase competition between institutions or changing the basis on which funds are allocated to reflect outputs rather than input costs. Increasing efficiency may or may not be in tension with other objectives such as promoting growth or equity depending on the mechanisms used which in turn are influence by other aspects of context (i.e. is there a need to cut expenditure overall)

2. Improving sustainability. This refers to the desirability of safeguarding post-compulsory education from either significant fluctuations in funding or substantial long term decline. In recent years in the UK this has generally been taken to mean increasing (or at least stabilising)

private investment from individuals and employers, though a shift from grant to loan funding for a large part of post-compulsory education also has the benefit of stabilising government expenditure on the sector. The apprenticeship levy (a hypothecated payroll tax on large employers) plays a similar role.

3. Promoting equity. Increasing access to post-compulsory education by disadvantaged or under-represented groups is a frequent policy objective and at times a dominant one. Measures to improve equity can include differential funding rates for types of programme or student; the application of grants or bursaries for some categories of student and restrictions on the eligibility of some activities for support (e.g. only funding the first qualification at a given level) Making loan repayments contingent on income has a similar objective.

4. Generating growth. In many jurisdictions increasing the numbers of participants in adult learning at all levels has been a key objective. Approaches designed to promote growth include some versions of competitive funding models, simply removing caps on growth or the introduction of levy schemes of various sorts. Policy makers have also sought to encourage growth by reducing costs to participants, whether by removing up-front costs (loans) reducing fees (changed course design / delivery) or helping meet direct & indirect costs (bursaries) One role of individual learning accounts has been to influence individual demand for learning.

5. Shaping Priorities. Governments are often as interested in influencing the mix of post-compulsory education provision as in its overall size. Of recurring interest is the objective of aligning the outcomes of education with the presumed needs of the labour market. Mechanisms adopted to this end include changing the rates of funding given to providers for specific subjects, restricting the eligibility of certain programmes for public funding support and attaching specific conditions to general funding allocations. Routing public funding via employers has been seen as a way of ensuring that training providers focus on employers' needs rather than their own preferences.

Criteria

This section outlines six key criteria against which the suitability of any financing mechanism might be judged. Limiting the length of the list to any specific number is to some extent arbitrary as it is always possible to argue for splitting one of the criteria into two or more. The primary principles applied in determining the list however have been completeness – that all important considerations might be included under one or another of the criteria; distinctiveness – that it is possible for a mechanism to be judged as performing well on one criterion but not on another; and manageability – the list needs to be short enough to be applied in practice. This is not to say users should consider it 'cast in stone': any discussions around this topic should include consideration of whether potentially important issues are excluded or obscured, or indeed whether two or more criteria might be combined without serious loss.

The key criteria are:

1. Efficiency. This refers to the operational efficiency of the mechanism itself, not the efficiency of the education system to which it relates, which is a different, though equally relevant, question. It is important that the financing mechanism itself does not require a disproportionate share of the available resources for its own operation. An extreme, though not unknown, example of an inefficient mechanism might be the requirement for institutions frequently to submit detailed bids for relatively small sums of money.

2. Transparency. This criterion refers to the extent to which relevant stakeholders in the education system – institutions, users and public authorities – are aware of how the mechanism operates and know what is going on. As used here this term also relates to accountability and objectivity; governments can only properly be held to account if their dealings are visible, based on an overt rationale and available for scrutiny. Similarly the term is used here to include aspects of 'robustness' i.e. the capacity to gain advantage by 'gaming the system' is minimised.

3. Predictability. Predictability is closely allied with transparency but is not the same thing. A mechanism based on rolling forward the sums allocated in previous years might be highly predictable but offer no basis for accountability. Predictability is important in facilitating institutional planning and allowing stakeholders to align their actions; it reduces the need to hold unproductive contingency reserves. Predictability might be more important at some times than others.

4. Flexibility. Since the world is constantly evolving an effective mechanism must be able to cope with changing circumstances, and also allow institutions to be adaptable themselves. The salience of this criterion will differ with the context – in a rapidly developing nation, or a sector experiencing discontinuous change it will be more important than in more settled circumstances. There are perhaps some tensions between flexibility and predictability or transparency such that in practice it will not be possible to optimise all three.

5. Acceptability. It is important that any financing mechanism is 'felt fair' by key stakeholders in order to minimise the likelihood of action to subvert or circumvent it. As stakeholder interests are not identical this requires a complex balancing act. Other than in the most complacent of circumstances transparency is probably a necessary but not sufficient condition for acceptability. There is probably some tension with flexibility since in most changing contexts there will be winners and losers.

6. Saliency. In some ways the most important criterion for judging the efficacy of a funding mechanism is the extent to which it is aligned with the overall goals of the education system and delivers outcomes supporting those goals. Since the goals of those responsible for education systems differ the suitability of any specific mechanism will, in important respects, be governed by context. To put it at its most simple, if the overriding policy objective is to reduce unit costs a different approach will be required from a context where growth in, or widening of participation is key. Because of the importance of context the next section offers a simplified analysis of possible policy priorities.

Policy objectives. As noted in earlier sections the suitability of a mechanism will in part be determined by the purposes of the education system it serves. The mechanisms examined in this paper are seen as representative of aspects of policy that might be prioritised at different times or in different jurisdictions. It is important to emphasise that although they are presented as ideal types it is highly unlikely that one policy thrust would ever rationally be pursued to the exclusion of all others; it is hard to conceive for example that any government would completely ignore the efficiency of the system or equally, have no interest other than reducing its unit cost.

Financing mechanisms are not the only lever available to governments seeking to influence the behaviour of institutions. Arrangements for governance, inspection or performance management can have an equal or in some cases more powerful effect and may be the more appropriate policy choice. The role of these other levers is not considered further here but a good overview of experience in England 1994-2014 can be found in 'Coming of Age for FE' .

It is also relevant to note here that the distinctive nature of financing mechanisms for post-compulsory education derive mainly from its specific context. The six criteria outlined in the previous section could equally well be applied to schools in the compulsory phase of education. In the post-compulsory sector financing mechanisms have also to reflect the fact that participation is voluntary for example or that learners are also voters. It is probably the case that the content of post-compulsory education, as defined for this paper, is more varied than either the compulsory phase or indeed initial higher education.

Proposal: Financing mechanisms and policy objectives

This section summarises the evaluations of sixteen separate mechanisms according to the six criteria outlined. It suggests that this framework be adopted by policy makers to evaluate any proposed system for the funding of TVET, looking both at their operation as mechanisms – how efficient, transparent etc. they appear to have been, and their impact on their presumed objective or objectives. The two grids represent a subjective assessment of how well they appear to have performed against the criteria set out and should be taken more as an invitation to extend and deepen the analysis than as the last word on the subject.

Efficiency

- Competitive funding models drove substantial growth in 1990s
- Price competition – appears to work neither in HE or TVET
- Allowing new entrants - no clear evidence as yet (but franchising may expand)
- Output based funding – effective but moral hazard/ quality?

Sustainability

- HE loans – secured funding & maintained demand & equity though not 'felt fair'
- ILAs – high take up but probably deadweight; some fraud
- FE loans – big shortfall in take up
- Co-funding – poor collection in TVET
- Involvement of financial institutions

Equity

- Income contingency – no hit to widening Participation in HE but not felt
- Tighter eligibility rules – refocussed system
- Education Maintenance Allowance – small but well evidenced +ve impact
- Levy – seems to be shift to higher level & loss of L2 / 16-18Widening Participation uplift – felt to work but weak evidence

Growth

- Competitive funding models – rapid growth; some questionable; Levy – slow take up; signs of deadweight
- Train to Gain – quality & deadweight issues

- Removing HE cap - positive impact England (& Australia)

Prioritising

- Demand-led focuses on demand from students, not 'needs of the economy'
- Levy - Employers still leaning on providers; priorities not the same as government's
- Level 2 entitlement etc; started to reshape FE
- Adjusting rates – doesn't impact seriously on demand side

Impact of selected financing mechanisms on policy objectives

	Efficiency	Sustainability	Equity	Growth	Prioritising
Competitive funding	high			high	
Price competition	low		low		
Output-related funding	med				
Encouraging new providers	low		med		
Income contingent Loans (HE)		high			
Loans (FE & apprentices)		low			
Learning Accounts		low			
Co-Funding rules		med		low	med
Financial institutions		low			
Tightening eligibility rules			med		high
Apprenticeship levy		high		low	med
Train to Gain programme		low	med		high
Removing cap on numbers	med			high	
Adjusting funding rates					low
Bursaries & EMA	med		high		
W P funding uplift			med		med

Analysis of selected financing mechanisms

	Operational Efficiency	Transparency	Predictability	Flexibility	Acceptability
Competitive funding	high	high	med	med	med
Price competition	high	med	low	high	low
Output-related funding	med	high	med	high	med
Encouraging new providers	low	med	low	med	med
Income contingent Loans (HE)	low	high	med	med	med
Loans (FE & apprentices)	low	high	low	med	low
Learning Accounts	low	high	low	med	med
Co-Funding rules	med	high	low	med	med
Financial institutions	low	low	low	med	med
Tightening eligibility rules	med	med	med	high	med
Apprenticeship levy	low	med	low	med	med
Train to Gain programme	med	med	low	low	med
Removing cap on numbers	high	high	med	high	high
Adjusting funding rates	high	high	low	med	med
Bursaries & EMA	low	med	low	low	med
W P funding uplift	med	med	med	med	high

About the authors

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