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IDD Vision
The IOCOM Digest and Dialogue (IDD) is to be recognized as a world class outcome management Journal/Periodical.

IDD Mission
IDD’s Mission is to provide useful, timely and thought-provoking content in outcome management driven disciplines that addresses a broad spectrum of practices for knowledge exchange among academicians, researchers and practitioners.

IDD Objectives
1. Bridge the gap between academicians and practitioners in the discipline of outcome or benefit management
2. Provide a platform to academic researchers and practitioners for disseminating their research work.
3. Promote adoption of innovative outcome or benefit management disciplines
4. Highlight challenges being faced by the outcome managers (practitioners)

IDD Scope
1. The IDD journal will cover application of the cross-cutting themes of Outcome management disciplines. No other journal in the world is having such orientation.
2. IDD journal’s main emphasis is on applied research.
3. IDD journal will accommodate articles based on both qualitative and/or quantitative approaches. However, preference will be given to mixed methods and action research.
4. Geographical territory of our journal is the entire globe.
5. Our target audience includes academics and practitioners in outcome or benefit management.
Introduction of IOCOM

IOCOM is a not-for-profit corporation registered in Canada. It is an organization of professionals, academics and an alliance of international and national associations, societies and networks engaged in the discipline of outcome management.

IOCOM invites professionals and academics to create a forum for the exchange of useful and high-quality theories, methodologies and effective practices in outcome management drawn from all management disciplines. IOCOM encourages outcome management practitioners from all disciplines to make use of our resources, to participate in our initiatives and to contribute to our goals as individuals or through their organizations. We offer global linkages to outcome management professionals, organizations and networks about events and important initiatives, as well as opportunities for exchanging ideas, practices, and insights with peers throughout the world.

IOCOM’s Vision

To create a world where professionals, academia, organizations and networks with a focus and interest in effective outcome or benefit management, collaborate to strengthen the theory and practice of the discipline that benefits society.

IOCOM’s Mission

To promote outcome or benefit management in the world at large through multidisciplinary professional and academic collaboration and contribute to the quest for outcome or benefit management evidence in decision making for business and organizational viability.

IOCOM organizational and individual memberships are free and provide the benefits of professional connectivity worldwide and access to IOCOM’s E-Journal, Digest and Dialogue (IDD).

Please visit our web site at www.iocomsa.org and join IOCOM.

Please send your write-ups and comments to: editorsIDD@iocomsa.org
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Disclaimer: The views and opinions expressed in the articles of this Journal belong solely to the authors of the articles.
Message from the Chair/President

Greetings from Ottawa, Canada! Welcome to another issue of IDD, Vol. 06 No. 3. This edition is the second focused on the education ecosystem and sub-systems: educational administration; e-educational environments; educating citizens of the 21st Century; collaborative learning culture; collective intelligence; emotional education (social and emotional well-being); and the ecolology of learning ecosystem: families, schools, community, networks and society.

The education ecosystem supports the accomplishment of Sustainable Development Goal (SDG) no. 4, which is to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”.

In my previous message in Vol. 06 No. 2, I introduced the United Nations organization UNESCO -- the United Nations Education, Scientific and Cultural Organization. In this message, I am introducing an initiative launched in March 2020 by UNESCO: The Global Education Coalition. The Coalition’s slogan is “Our collective actions can help build more resilient education systems for the futures”.

It is an open partnership, and UNESCO is inviting expressions of interest from organizations interested in joining the COVID-19 response to ensure the continuity of education for all learners. The COVID-19 pandemic is not only a sanitary crisis, but also a major education crisis. In addition, it has caused world economic disorder and disruption of lifestyles through isolation and social and physical distancing.

More than one billion students/youth across the planet (87 per cent of the world’s student population) are affected by schools and universities closures resulting from the COVID-19 pandemic. The global Coalition is a powerful multi-sector partnership engaged in advancing a COVID-19 education response around the world at global, regional and country levels.

The Coalition seeks to facilitate inclusive learning opportunities for children and youth during this period of sudden and unprecedented educational disruption. Its goal is to support countries in scaling up their best distance learning practices and in reaching children and youth who are most at risk.

1 https://en.unesco.org/covid19/educationresponse/globalcoalition
The Coalition’s message calls for investment in remote learning both to mitigate the immediate disruption caused by COVID-19 and establish approaches to develop more open and flexible education ecosystems for the future. It says, “School closures widen learning inequalities and hurt vulnerable children and youth disproportionately”, and adds, “We have a special responsibility to ensure continuity, inclusion and equity for all students”.


The private sector organizations include the GSMA (the Global System for Mobile Communications, an industry organization that represents the interests of mobile operators worldwide and unites more than 750 operators with almost 400 companies in the broader mobile ecosystem). In addition, private sector members include Microsoft, KPMG, Facebook, and Google to name few. Civil society/non-profit organizations include the Khan Academy, Save the Children, Plan International, World Vision and many others. Consult the coalition’s website for a complete list of members.

You may visit this site to learn about the experiences of students, parents and teachers around the globe who relate how COVID-19 school closures have affected their lives and their struggle to continue learning during the lockdown.

As schools begin to reopen in some parts of the world, UNESCO is asking people to share their experiences of resuming education in the COVID-19 era.

Specifically, the Coalition aims to:

- Help countries in mobilizing resources and implementing innovative and context-appropriate solutions to provide education remotely, leveraging hi-tech, low-tech and no-tech approaches;
- Seek equitable solutions and universal access;
- Ensure coordinated responses and avoid overlapping efforts; and

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3 https://en.unesco.org/covid19/educationresponse/learningneverstops/
• Facilitate the return of students to school when they reopen to avoid an upsurge in dropout rates.

UNESCO Director-General Audrey Azoulay said, “Never before have we witnessed educational disruption on such a scale”. She added, “Partnership is the only way forward and this Coalition is a call for coordinated and innovative action to unlock solutions that will not only support learners and teachers now, but through the recovery process, with a principal focus on inclusion and equity.”

Some messages from high ranking officials are reproduced from the website.

“We must speed up the ways we share experience, and help the most vulnerable, whether or not they have internet access,” said Angelina Jolie, UN High Commission for Refugees Special Envoy, who partnered with UNESCO in the establishment of the Coalition.

UN Deputy Secretary General Amina Mohamed expressed the UN’s full commitment to the Coalition, warning that “for millions of children and youth from disadvantaged backgrounds, school closures could mean the loss of a vital safety net – of nutrition, protection and emotional support.” She added, “This is not a time to deepen inequalities. It is a time to invest in education’s power to transform. As we embark on the decade of action of the 2030 Sustainable Development Agenda, our responsibility as a global community is to leave absolutely no one behind.”

“We are working together to find a way to make sure that children everywhere can continue their education, with special care to the most vulnerable and disadvantaged communities,” said Tedros Adhanom Ghebreyesus, Director-General of the World Health Organization, in a video message marking the Coalition’s launch, together with the UNESCO Director-General and other dignitaries.

The Coalition seeks to broker solutions with country needs and, in the context of the current emergency, all solutions listed on the Coalition platform should be available free of charge. This Coalition is a silver lining in the dark cloud that descended upon the world’s education ecosystems with the onset of the COVID-19 pandemic.

I sincerely hope that the Coalition’s specific purposes will be achieved swiftly to alleviate the suffering of over a billion learners and ensure the continuity of education for all learners to support our knowledge-based economy.

In this issue, I have written an article on Sri Lanka’s Technical and Vocational Education and Training ecosystem as a complimentary article to the one published in Vol. 6 No. 2 by Alan Clarke on Sri Lanka’s challenges to higher education.
My sincere thanks go to the contributors to this issue for their time and effort; I encourage others to join them. IDD needs writers from all outcome management disciplines to maintain a continuous flow of articles.

IDD is your e-journal. Let the world know what you are doing to shape the outcomes of your organization. Help us make the IDD a world-class professional e-journal!

Enjoy reading your e-journal.

Sandiran (Sandi) Premakanthan
Founder President/Chairperson, Board of Directors, IOCOM
Editors’ note

The editorial team takes pleasure in presenting the third issue of Volume 6 of IDD, with five articles dedicated to the theme of education ecosystems and outcomes. We present this edition as new coronavirus hotspots unfold around the world and the virus continues to tear through many nations, such as the United States, Brazil, India and South Africa.

In Ontario, Canada, the provincial Government disregarded the pandemic to introduce a new math curriculum for its publicly funded education system. It now requires elementary students to learn computer coding and financial literacy, starting in Grade 1 when they are only six years old. IDD associate editor John Flanders examines the curriculum and Government hopes that it increases employability in jobs of the future, particularly in STEM disciplines (science, technology, engineering and mathematics).

Namibia, located on the southwestern coast of Africa, is one of the most fascinating and diverse countries in the world and a number 1 travel destination. Unfortunately, all its scenic beauty did not make it immune to the virus. Obert Mutumba, an independent Namibian writer in the field of education and a first-time contributor to IDD, examines how the pandemic has brought about new threats, demands and challenges for teachers, learners and parents in the sparsely populated nation.

In Colombo, Sri Lanka, President Gotabaya Rajapaksa has completed his review of plans for restructuring the nation’s education ecosystem. IDD chair Sandiran Premakanthan profiles Technical Vocational Education Training (TVET) in Sri Lanka’s education ecosystem. He makes a case for strengthening the TVET route to get students who may be waiting a year or more to enter university into a job, thus helping them contribute to the economy.

Over to Pakistan for two articles that examine the nation’s education system. In the first, software engineer turned entrepreneur Raheel Afzal describes from first-hand experience how COVID-19 caught most Pakistani educational institutions by surprise, and the challenges they faced in going online.

In the second, Salman Mahboob examines some of the critical problems that have plagued the education ecosystem of Pakistan. He writes that since its inception in 1947, Pakistan has faced many challenges from poverty to terrorism, political instability, insufficient resources, poor economy, water shortages and many more. It also suffers from an intensive education crisis.

We are confident you will find these articles useful and insightful. In the meantime, keep well,

Atiq ur Rehman, Susanne Moehlenbeck, and John Flanders
Coding, financial literacy and conquering “math anxiety”: The new math curriculum in Ontario, Canada

John Flanders

Introduction

If you are an educator, or you have a child in elementary school, you should check out the new so-called “back to basics” math curriculum that the Government of Ontario, the most populous of the Canadian provinces, has proposed for its publicly funded education system.

For the first time, the curriculum, unveiled on June 23, 2020, requires elementary school students to learn computer coding, or programming skills, and financial literacy, starting in Grade 1 when they are six years old.

By the end of Grade 1, the Government expects students to be able to read and alter existing coding, including code that involves sequential events. By Grade 8, they should be able to solve mathematical problems and create computational representations of mathematical situations by writing and executing code.

In financial literacy, Grade 1 students will study and understand the value of the Canadian currency. By the end of Grade 8, they will have prepared a complete financial plan, accounting for income, expenses and tax implications.

The anticipated outcome is to improve students' ability to develop fluency with technology, as well as to develop an understanding of consumer awareness and the value and use of money over time. The curriculum will also focus on math concepts and skills, such as learning and recalling number facts, according to Ministry of Education documents.

Even though the updated curriculum was introduced in the middle of the COVID-19 pandemic, the Government wants teachers to begin using it in Grades 1-8 when the school year starts in September. It is expected to take four years to phase in completely.

The move follows a campaign promise to overhaul the curriculum made by Doug Ford, premier of Ontario and leader of its Progressive Conservative government, during the 2018 provincial election. Mr. Ford was upset that annual province-wide testing habitually showed that half of Ontario students were failing to meet the provincial standard in math.
"I made a promise to parents that we would fix the broken education system we inherited, get back to basics, and teach our children the math fundamentals they need for lifelong success," Premier Ford said.

"For over a decade, too many students were lacking everyday math, financial literacy, and numeracy skills," said Education Minister Stephen Lecce. "The new curriculum will help students solve everyday math problems, enshrine financial literacy in the early grades, and better prepare students for the jobs of tomorrow by ensuring every student learns how to code."

In Ontario, which has a population of 14.4 million, roughly 2 million students attend 4,000 publicly funded elementary schools.

This article examines the Government’s new curriculum and what it means for students and parents. It shows how it goes well beyond Mr. Ford’s campaign promise to return to basics. It also analyzes results of current standardized testing.

New curriculum replaces “outdated and abstract examples”

Documents provided by the Ontario Ministry of Education say the new curriculum will replace "outdated and abstract examples" with lessons that include "relevant, real life examples," such as setting a personal budget or making e-transfers.

The curriculum was developed after two years of consultation with parents, math educators, academics and math experts, the government said. It is part of a four-year strategy designed to improve student performance in math; help students solve everyday math problems; and increase their chance of employability in jobs of the future, particularly in STEM disciplines (science, technology, engineering and mathematics).

For example, coding, which is introduced in Grade 1, is a topic that was not even mentioned in the current 135-page curriculum, prepared in 2005.

First grade students will look at sequential coding, possibly programming the image of a caterpillar that they can move a few steps forward or backwards using arrows. They will also be introduced to mathematical modelling to analyze and create solutions for real-life situations, such as creating a seating arrangement for a class event.
By Grade 4, students will build their knowledge of patterning as they begin to classify patterns as repeating or increasing. They also begin to determine the values that make algebraic statements true: for example, if \( n + 3 = 10 \), then \( n \) must be 7. Students will learn to write and read code to create geometric designs. And they will use the modelling process to analyze and create solutions for real-life situations, such as raising money through a walk-a-thon.

By the end of Grade 8, they will be able to read and alter existing code by analyzing data to inform and communicate decisions, and describe how changes to the code affect the outcomes and the efficiency of the code.

The new curriculum changes when children are introduced to some core skills. For instance, learning to tell time on a round clock with hands will move from Grade 1 to Grade 3, when students have a better grasp of patterns. Plotting coordinates on a grid will be taught in Grade 4, instead of Grade 6. Officials say the skill is useful to have when learning about coding.

Students in Grade 5 are expected to learn how to add fractions, two years earlier than Grade 7 in the previous curriculum. A ministry official said students struggle with fractions and need more time to understand them.

One of Premier Ford’s more controversial election promises – a return to memorizing multiplication tables -- was bad news for students, many of whom rely on calculators, as well as their parents, who have to suffer through the memory work.

"We're focusing on fundamental math concepts and skills like learning and recalling math facts, including multiplication,” Minister Lecce said, adding: “Yes, parents, memorizing multiplication tables is back for our kids.”


**Financial literacy section entirely new**

The financial literacy section is entirely new for all elementary school grades. In the old curriculum dating back to 2005, financial literacy concepts were limited to basic understanding of money and coins.

In the new curriculum, there will be mandatory financial literacy lessons in Grades 1 to 8, including understanding the value and use of money over time, how to manage financial well-being and the value of personal budgeting. It will even cover e-transfers.
Students in Grade 1 will begin by identifying the various Canadian coins up to 50 cents and coins and bills up to $50, and compare their values.

By Grade 5, they will learn about different ways to transfer money between people and organizations, such as e-transfers and cheques. They will calculate the total cost and change required for cash transactions involving items priced in dollars and cents, using mental math and other strategies. And they will prepare basic budgets and learn about the concepts of credit and debt.

By Grade 8, the lessons will cover areas such as long-term financial planning, the calculation of interest rates and how to make use of customer loyalty programs.

**Curriculum much more than a return to basics, educators say**

While the new curriculum is touted as a return to basics, in reality it goes much further than that. For one thing, it is subdivided into six sections: numbers, algebra, data, spatial sense, financial literacy and what the Ontario Government calls “social-emotional learning skills in mathematics and mathematics processes”.

Educators say the key innovation in the new curriculum involves teaching "social-emotional learning skills" throughout math. According to Ministry of Education documents, this means helping students to "develop confidence, cope with challenges and think critically."

The goal is to help students overcome a widespread phenomenon known as “math anxiety”. This can be a significant barrier at which point children throw up their hands or collapse into tears, lamenting that they simply are no good at math.

Throughout all eight grades, students will learn to develop “strategies to be resourceful in working through challenging problems”. One way is to make connections between math and everyday life, both at home and in the community.

For example, in Grade 1, students learn about positive motivation. They learn how to use self-talk strategies such as “I’ve done this before so I know I can do it again” as encouragement that they can do it, or to encourage peers when counting.

In Grade 7, students learn how to cope with stress and manage complex challenges. They are taught how to break down a task into smaller portions, make a plan and take it one step at a time.
The social-emotional learning component is a critical element of the new curriculum, Mary Reid, an assistant professor of math education at the Ontario Institute for Studies in Education, said in an interview with the Canadian Broadcasting Corporation. She said it will help youngsters tremendously.

Prof Reid, whose research focuses on math anxiety, said she hopes the plan will guide teachers toward making math engaging, fun and interesting for students.

"Back to basics is just following procedure without really understanding why you're doing it," she said. "There's so much richness in this curriculum, so much that talks about problem solving, about understanding the concepts in a deep way. That's not a back-to-basics program."

Vanessa Vakharia, founder and CEO of The Math Guru, a tutoring service in Toronto, said the social-emotional learning push is the most appealing change in the curriculum.

"From first-hand experience, the number one thing that gets in the way of kids learning math, building confidence in math and enjoying math is anxiety around math," she told CBC News.

**Opposition: Changing curriculum during pandemic “completely irresponsible”**

Politically, the Ford Government took heat for changing the math curriculum during a pandemic. That allows only two months for teachers in which to start training for the curriculum and for parents to digest it, which Marit Stiles, education critic for the opposition New Democratic Party, called “completely irresponsible”.

“Not only has the Minister of Education failed to properly consult educators and parents about the new curriculum, he has not bothered to consider the additional burden this will cause for teachers, and for parents who are already struggling to help their children learn from home,” Ms Stiles said.

Minister Lecce replied that now was as good a time as any to change the curriculum, as declining test scores demanded a change be made.

“I appreciate the broader challenge around us but we must move forward with these necessary reforms for students so that when they graduate they can aspire to get a good paying job, a job related to the future economy, a job that could give them a yield to own a home one day,” he said.

Sam Hammond, president of the Elementary Teachers’ Federation of Ontario (ETFO), said his union did not oppose a new math curriculum. However, he said it should be introduced over two years,
especially since not all children will have had the same access to online learning resources during the pandemic and may be at different stages in learning.

“Rolling out a new curriculum takes time,” he said in a statement. “Given the significant changes to the math curriculum, and the fact that Ontario is still in the midst of a pandemic, successful implementation will require more than the two-month timeline that the Ministry has set.”

A consortium of four teachers’ unions, including EFTO, said school boards and educators are currently preparing for schools to reopen safely and are addressing gaps in student learning. “It is short-sighted to require that resources be diverted from those efforts to try to comply with an unrealistic two-month timeline set by the government,” they said.

**Current math curriculum blamed for declining scores on standardized tests**

Premier Ford’s push for a new curriculum originated in math scores from standardized provincial tests produced by Ontario’s provincial education assessment program, called the Education Quality and Accountability Office, commonly known as EQAO. He blamed the current math curriculum for declining scores on the tests.

Test results released in 2017 showed that only half of Grade 6 students met the provincial standard in math, the same as the previous year. And among Grade 3 students, 62 per cent met the provincial standard in math.

A year later, things had not improved. EQAO results showed that 49 per cent of Grade 6 students met the standard in the 2017-18 school year. This was a one-percentage-point decline from the previous year and a five-percentage-point drop from 2014.

In Grade 3, 61 per cent of students met the provincial standard in math, down a percentage point from the previous year and a six-percentage-point drop from 2014.

It is important to understand that these results do not necessarily mean Ontario’s students are “failing” math, as many believe Premier Ford implied. This overstates the case. What it does mean is that slightly less than half of them are meeting the provincial standard, which is equivalent to a B grade. In terms of Ontario’s grading, that is roughly 70-79 per cent. Put differently, just under half of students in Grade 6 (49 per cent) are scoring “B” or higher.

The government’s goal is to have 75 per cent of students achieving the provincial standard equivalent to a B grade in reading, writing and mathematics.
International testing: Ontario students doing fairly well

Internationally, one of the most well known student tests is the Program for International Student Assessment, or PISA (https://www.oecd.org/pisa/), which is a collaborative effort among member countries of the OECD. It measures skills of 15-year-old students in mathematics, science and reading that are generally recognized as key outcomes of the educational process.

Seventy-nine countries participated in PISA 2018, including all 37 OECD countries. In Canada, over 22,500 students from roughly 800 schools participated across the 10 provinces.

If you consider the 2018 PISA scores, Ontario does fairly well in the world in terms of math. Among the 79 countries, nine outperformed Canada in mathematics. As usual, they were mostly Asian nations and included Singapore, China, Japan, Korea, Estonia and the Netherlands.

Canadian students had an average score of 512 in mathematics, Ontario students 513 and Quebec students 532, all well above the OECD average of 489. Quebec was the only Canadian province statistically ahead of Ontario.

In spite of these strong results, PISA 2018 results in both mathematics and science suggested that there is cause for some concern in Canada. In particular, it is noteworthy that around one in six Canadian students did not meet the benchmark level of mathematics (Level 2), a proportion that has not changed since 2012.

Such standard testing gets a mixed reaction around the world. The OECD says the point of PISA is to help education systems improve by offering data and transparency. Among the benefits, standardized tests can provide benchmarks for parents and teachers and help identify problem areas in individual students.

On the other hand, they can create major stress. And teachers may end up “teaching to the test” rather than giving students a deeper understanding of a subject.

PISA’s next round of student assessment testing will be in 2021, assuming the COVID-19 pandemic is no longer a threat. One nation planning to participate is India. It has been over a decade since India finished 72nd among the 73 nations who participated in PISA testing in 2009, beating only Kyrgyzstan.

Sources in India’s Ministry of Human Resource Development (HRD) said the country’s preparations for the 2021 PISA test have already begun, with teachers and students of the participating schools being trained in accordance with the test standards.
References


CBC Television News

CTV Television News

COVID-19 in Namibia: New threats, demands and challenges for the education ecosystem

Obert Mutumba

“I feel sad because I can’t see my friends. I can’t take books from the library.”
(Nuuwa Lisa, Grade 4, Namibia learner)

“Teaching is the most enjoyable profession for me. I miss my learners’ beautiful faces, I miss the way they accept me as a teacher, as a mother. They just appreciate you so much, and I miss that.”
(Ndapewoshali, Grade 2 teacher in Namibia and mother of five)

Introduction

Namibia is one of the most fascinating and diverse countries in the world and a number 1 travel destination. Located on the southwestern coast of Africa, the republic is world famous for the highest dunes in the world and for the Etosha National Park, one of world’s greatest conservation areas.

It has an area of 824 268 square kilometers, roughly the same size as Pakistan, but a population of just 2.5 million, according to United Nations data. This makes it one of the most sparsely populated countries in the world, but one that offers spectacular nature, wide-open space and quiet landscapes and vistas.

Unfortunately, all its scenic beauty did not make it immune to the novel coronavirus. On March 14, 2020, two cases of COVID-19, the disease caused by the virus, were confirmed in Namibia. They were a Romanian couple who arrived in Windhoek, the Namibian capital, from Spain.

The government responded with urgent and determined measures. Immediately, all public and private schools were closed for a month; colleges, museums, art galleries and libraries were shut down. Citizens were told to stay home.

The government suspended air travel to and from Qatar, Ethiopia and Germany for 30 days. Large gatherings were prohibited. This included celebrations for the 30th anniversary of Namibian independence that was set for 21 March.

On 17 March, President Hage Geingob declared a state of emergency as a legal basis to restrict fundamental rights, such as freely moving about and assembling, which are guaranteed by the Constitution. The prohibition of large gatherings was clarified to apply to 50 or more people.
As of July 10, Namibia had 667 confirmed cases of COVID-19, and one death. Only three weeks later, on July 31, this toll had surged to 2,129 confirmed cases and 10 deaths. The first death was not reported until 116 days after the arrival of COVID-19 in Namibia.

As it has all over the world, the COVID crisis has brought about new threats, demands and challenges for teachers, learners and parents. This article examines the impact of the pandemic on schools in Namibia.

**Pandemic strikes education in Namibia**

Namibia has 1,885 schools with a total learner population of 736,836 (534,167 in primary and 200,695 in secondary schools). The teaching staff complement is 30,261 (EMIS 2018). In terms of tertiary institutions, Namibia has three universities, four colleges, three institutes and eight vocational training centers.

During the first three months of the pandemic, Namibia was able to keep ahead of the virus. Up to June 1, the government reported only 24 confirmed cases, and no deaths. As a result, the government started to ease restrictions.

On June 3, face-to-face classes returned for senior secondary grades 11 and 12. This involved 204 schools, with total of 49,433 learners. Schools practiced safety hygiene measures to curb the spread of COVID-19. At Rocky Crest High School in Windhoek, for example, teachers set up a screening station. Each learner is screened and sanitized before entering the school premises. Schools were also checking the temperature of each learner and observing other measures.

"Details of the learners are recorded, including the overall wellbeing done based on a health questionnaire. We aim to ensure schools are a safe learning environment," the school’s principal said.

On June 22, the government had to take action again after a seven-day period in which 28 new cases were reported, 24 of them in Erongo, the westernmost of 14 regions.

President Geingob suspended the resumption of Grades 11, 12, and pre-primary (Grades 0 to 3) for 14 days in the three major towns: Walvis Bay, Swakopmund and Arandis Local Authority Areas. “Face-to-face instruction will be determined pending observation of the unfolding situation in those towns,” he said.4

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4 Statement by His Excellency Dr. Hage G. Geingob at a media briefing on the national migration from stage 3 to stage 4 and Erongo specific response, June 22.
He said the resumption of pre-primary (Grades 0 to 3) would be deferred for two weeks across all 14 regions, until Monday, 06 July. On July 7, primary schools in Namibia did reopen under strict health guidelines; students wore masks and conducted social distancing. More than 300,000 learners from pre-primary schools to grade three returned to school.

However, on July 31, President Geingob, in a televised address, suspended Namibian schools starting Aug. 4 for 28 days after considering the risks associated with the spread of the virus. The measure affected early childhood development, pre-primary, primary and the first two grades of high school. It was the second time in four months in which Namibian schools had been suspended.

**Anxious times for students, parents and teachers**

These are anxious times for students, parents and teachers, particularly in Namibia, with its tiny population scattered in a harsh environment. The COVID-19 pandemic has disrupted the lives of the students in different ways, depending not only on their level and course of study, but also on the point they have reached in their programs.

UNESCO\(^5\) asked some learners and teachers to share their experiences of life in the COVID-19 era. Nuuwa Lisa, a Grade 4 learner who attends school in Windhoek, said she misses school and has to find things to do to fill the day. Even so, she finds time to study at home.

“What I like about my school is that there’s a library and that we can learn lots of stuff,” she said. “We can do homework and we get to learn more stuff than we do at home. When I’m not studying, I jump on the trampoline pretending that all my friends are there, or I watch a movie.”

Ndapewoshali is a Grade 2 teacher at a primary school in Khomas region, centered on Windhoek, and a mother of five.

“At the moment I feel very sad,” she said, “because as we speak, I have 39 learners roaming around the street without any learning. I feel very bad that everything has come to a standstill because of this pandemic. We had not reached our basic competency for this term.”

The pandemic forced the suspension of the Namibian School Feeding Program. It means that more than 330,000 learners in 1,400 schools across the country can no longer be fed through the program. “We give them a meal everyday through the school’s feeding program,” Ndapewoshali said. “Most of these parents don’t even have smart phones. So, it’s very difficult for me to even record a video.

Out of these 39 learners, only two parents own smart phones. What I do is call them and encourage them to keep the learners busy by teaching them to read and teach them mathematics. That’s the best I can do.”

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\(^5\) [https://en.unesco.org/covid19/educationresponse/learningneverstops](https://en.unesco.org/covid19/educationresponse/learningneverstops)
Keep a positive outlook, ministry says
The executive director in the ministry of education has encouraged teachers and learners to be positive, saying that the government was aware of the fear brought on by the pandemic.6

“As we enter this new phase with a sense of excitement, anticipation and a certain level of anxiety, may you know that you are valued as we embrace this new normal in the time of coronavirus,” said Sanet Steenkamp.

She said that in the event a partner or guardian would prefer not to send their child or children to school during the pandemic due to concerns for their health and wellbeing, they may do so, provided “they continue engaging with the school and teachers to ensure the learner does not fail behind.”

The promotion requirement for Grades 1 to 9 has been lowered from 40 per cent to 35 per cent.

There will be no end-of-term tests and end-of-year examinations for the primary phase and that continuous assessment marks will be used to promote grades 8 and 9. Grade 9, on the other hand, will write an end-of-year examination.

Ms Steenkamp also stated that an academic recovery plan should be implemented by every school to make up for lost time due to the Covid-19 pandemic.

“Learners who do not progress to the next grade must receive counselling to help them understand their situation and must receive learning support focusing on the competencies which they did not achieve,” she said.

Ms Steenkamp said the ministry was working on a home-schooling guide that would be issued soon.

Online learning in Namibia: Much to be done
School authorities have discussed temporarily migrating to online teaching and assessment. Although this might be doable in tertiary education, it is particularly challenging for schools. Online education is a new area for the majority of both teachers and learners in Namibia. It is also challenging to roll out online learning for schools specifically in rural areas that have no access to internet and electricity 7.

In April, the government announced that only 13,000 learners will be able to access the ministry's e-learning platforms during the national lockdown. This is less than 2 per cent of the total population of pupils in state and private schools in the country.


7 Estimating the Economic Impact of COVID-19: A Case Study of Namibia, University of Namibia, April 2020
Education minister Anna Nghipondoka said the majority of pupils who registered with the ministry’s online platforms are from the Khomas region centered on the capital, Windhoek.\(^8\)

The rolling out of alternative teaching and learning methods is part of the ministry’s contingency plan to ensure school education continues during the national lockdown. The ministry already has several online platforms which will be utilised to distribute material to pupils, Ms Nghipondoka said.

Access to smartphones and computers for most of students and learners in most cases is influenced by affordability. Currently 74.8 per cent of the population has access to cellphones, but only 15.2 per cent have access to computers. Roughly 20 per cent of Namibians have access to the internet, while only about one-third of teachers do.

Namibia is considered a higher middle-income country, and the World Bank has reported that it has achieved notable progress in reducing poverty. However, the nation’s poverty rate is still 17.4 per cent and progress toward reducing inequality has been slow. As a result, it is one of the most unequal countries in the world.\(^9\)

Other factors affecting online learning include the extent of ITC literacy; network strength and coverage; how well teachers are trained in teaching online and preparing learning materials; and the general economy.

COVID-19 has had a negative impact on the nation’s economy. Every week of lockdown costs N$2.0 billion in gross domestic product on top of the external demand shock. As a result, the economy is operating at about 43 per cent of normal capacity (Bankers Association of Namibia and Economic Association of Namibia, 14 April 2020).

This means in terms of preparedness for a full-fledged online learning, there is still much more that needs to be done to allow its full implementation.

**Impact: Significant loss of teacher and learning time**

The pandemic has resulted in a significant loss of teaching and learning time when one factors in national and school holidays. Significant learning days have been lost (54 days for grades 11 and 12 alone). More than 100 days will be lost for the other grades if the re-opening plan goes as scheduled. The only exception is for the few learners who can manage online learning. Unless effective remedial measures are in place, the school year has been significantly lost. There are two scenarios at play:

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\(^8\) [https://allafrica.com/stories/202004210184.html](https://allafrica.com/stories/202004210184.html)

Scenario one

A year is lost, and students repeat the grades and levels they are currently in. This will safeguard the possibility where cognition is affected, and where the much-needed skills and competencies are lost affecting progression.

Scenario two

Intensify remedial by combining online and contact learning, where possible, providing more hours for teaching and learning. These measures will help to compensate for time lost and ensure the required knowledge and skills are imparted. They will also ensure the learners and students are in the position to meet the evaluation and assessment requirements for them to proceed to the next grades and levels.

Other factors that may impact learning

According to Namibian media reports, at least 80 per cent of schools were ready to receive pupils. The daily newspaper, The Namibian, reported that schools had procured soap and tippy taps (dispensers where water is released by a foot pedal instead of having to turn a tap). Schools have undergone deep cleaning. In addition, water would be provided through tanks, with the help of the Agriculture and Water and Land Reform Ministry, by connecting schools close to water pipes, and by setting up boreholes.

The media also reported that the Teachers Union of Namibia (TUN) cautioned that schools may not be ready to fully reopen due to a lack of adequate resources to ensure social distancing.

School infrastructure capacity: This comes into play when the number of classrooms available becomes a challenge to meet the required social distancing for the virus. For example, in most cases where the average number of learners per classroom is higher under normal circumstances, reducing the numbers will require more classroom space to ensure no learner is left behind.

Personnel capacity: When more class groups are created to meet the social distancing and hygiene requirements, it simply means more teachers will be needed. This would ensure that the number of hours a teacher puts in are not excessive. In the case of Namibia, where the wage bill is high, the government might not be in position to increase the number of teachers.

Water and sanitation

Access to water in Namibia is not that much of a challenge (92.9 per cent of the population has access to safe drinking water). However, sanitation is a huge challenge. One of the key conditions for opening schools is better ablution facilities. Sanitation becomes a factor in this case. Most schools especially in rural areas lack good sanitation facilities, making the situation a challenge. This would require the government to increases resources to meet the health and hygiene standards, which it has done in many cases to prepare for school reopening.
In terms of tertiary institutions, universities in the country are in a far better position to reopen given the infrastructure and the level of maturity for students when compared to learners. This is possible if all conditions are met to ensure that the health of both students and staff of the university is not at risk. At this writing, the nation’s three universities were still closed but were offering classes online.

Conclusion

Education in the country like any other social sector has been impacted negatively in Namibia. Bringing the situation closer to normal or adjusting to the new normal will cost the government significant resources.

Hence all stakeholders need to play their part in ensuring that teaching and learning continue and that they do so in a most conducive and efficient manner.
Technical and Vocational Education and Training ecosystem of Sri Lanka: A pathway for youth employment outcomes

Sandiran Premakanthan

Introduction

In Colombo, Sri Lanka, the Daily News reported on June 10, 2020\(^{10}\) that President Gotabaya Rajapaksa had completed his review of plans for restructuring the nation’s education ecosystem. Members of the Presidential Task Force on Sri Lankan Education briefed the President on the status of the formulation of the National Education Policy.

The National Education ecosystem is being restructured according to the theme of “Equal learning opportunity for every child” envisaged in the national policy framework, “Vistas of Prosperity and Splendor”,\(^{11}\) formally released on December 19, 2019.

The framework aims at achieving four ultimate outcomes: being a productive citizen, a contented family, a virtuous, disciplined and just society and a prosperous nation.

The national policy framework mandates the government to implement a national and international partnership based on principles of priority to national security, friendly and non-aligned foreign policy. It also mandates an administration free from corruption and a new constitution that fulfills people's wishes. The policy framework’s long-term outcomes are:

- maintaining a 6.5 per cent or higher GDP growth rate under the macroeconomic program;
- achieving a per capita income exceeding US$6,500 during 2020 to 2025;
- keeping the unemployment rate below 4 per cent;
- keeping the inflation rate below 5 per cent; and

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\(^{10}\) https://www.dailynews.lk/2020/06/10/local/220405/education-system-restructuring-plans-reviewed

\(^{11}\) http://www.newsonair.nic.in/Main-News-Details.aspx?id=376145
• managing the government revenue and expenditure to keep the budget deficit below 4 per cent of GDP.

In this context, President Rajapaksa stressed the significance of the new education policy. He said its formulation should be acceptable to everyone since it would affect the country and future generations.

Recommendations of the Task Force cover nursery, primary, secondary to higher, vocational, and technical education. The Task Force will also identify activities to broaden vocational and skills education opportunities; introduce and implement innovative solutions to improve skills and competencies compatible with the job market; and formulate a program to expedite new enrolments to universities and expand higher education opportunities by extending distance-learning opportunities to such students as well.

The Presidential Task Force noted that, against all odds in the face of the COVID-19 pandemic, online education methods have achieved much progress. With the growing number of students from both universities and schools, online education displays the potential for further improvement in the future. The President stressed the need to promote online education for higher education, based on the data and findings to date.

In an article in the previous issue of the IDD, Vol. 6 No. 2, Alan Clarke\textsuperscript{12} posed the question “Does Sri Lanka’s education system have a negative impact on the nation’s economy?” Clarke revealed that that the academic education system in Sri Lanka is under extreme pressure. In his conclusion, he wrote: “The government needs to increase the capacity of university places rapidly and at the very least build those five new universities”. He added: “Promoting the benefits of Technical Vocational Education Training (TVET) might also break the myth that if you aspire to have senior role in an organisation, you have to go to university.”

This article provides a profile of TVET in Sri Lanka’s education ecosystem and makes a further case for strengthening the TVET route to get those students waiting to go to university, for a year or more, into a job. Thus, they would contribute to the economy. The main sources for this article are published referenced literature, TVET Sri Lanka country profile\textsuperscript{13} and others.

\textsuperscript{12} IOCOM Digest and Dialogue Vol 6, No 2, Apr-Jun 2020: http://iocomsa.org/node/121
\textsuperscript{13} worldtvetdatabase_lka_en.docx
Tertiary and Vocational Education Policy

Tertiary and Vocational Education (TVE) encompasses all post-secondary education, except for academic study, which comes under the purview of universities as governed by the Ministry of Higher Education and the University Grants Commission. The Ministry of Skills Development and Vocational Education and the Tertiary and Vocational Education Commission govern TVE.

The Policy will ensure training delivery in a context of TVE institutions having annual targets based on national needs and taking measures to improve the employability of trainees and mitigate dropout rates.

Tertiary and Vocational Education Commission TVEC: Governance, roles and responsibilities

The Ministry of Skills Development and Vocational Training is responsible for the development of TVET policies. It established the Tertiary and Vocational Education Commission (TVEC) in 1991 as the apex body in the technical and vocational education and training sector under the provisions of the Tertiary and Vocational Education Act No. 20 of 1990.

The amendments introduced in December 1999 to the Tertiary and Vocational Education Act No. 20 of 1990, ensured that 10 out of 17 members of the TVEC including its Chairman, represent the Employer Associations and Private Sector entrepreneurs. This provides a forum at the highest level for the private sector to contribute towards developing policies and programs that would help achieve the vision of the Government of maintaining a demand-driven training system.

TVEC’s primary responsibility is policy formulation, planning, quality assurance, coordination and development of tertiary and vocational education ecosystem in Sri Lanka. It monitors and evaluates the registration, accreditation, and the quality management system. It grants registration certificates to TVET institutions based on the assessment of adequacy and relevance of infrastructure, training equipment, teacher qualification, curricula and training delivery. The TVEC is also responsible for the development, updating and quality of TVET curriculum.

TVEC governance

The Chairman and the Director General of the Commission assisted by a team of Directors are in charge of development functions and a Secretary, who oversees the personnel, financial and administration functions. TVEC members include employer associations and private sector

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15 Tertiary and Vocational Education Commission TVEC http://www.tvec.gov.lk/
entrepreneurs, who provide a forum for the private sector to contribute towards developing policies and programs.

The Ministry of Skills Development and Vocational Training implements TVET-related policies and programs in collaboration with national agencies, provincial councils, and Zonal Education Office and Divisional Officers.

**Financing**

TVET is funded by public expenditure, which includes contributions from non-governmental organizations (NGOs), donors and grants from development partners. Public training providers offer full-time courses free of charge; students receive a stipend for selected courses.

**TEVC’s Vision**

“A Sri Lanka where all citizens have access to the highest possible standards of tertiary and vocational education and training which meet the human resource development needs of the country.”

**TEVC Mission**

“As the apex body in the TVET sector, committed to establish and maintain an efficient and effective technical education and vocational training system which is relevant to socio-economic goals and changing market needs.”

**Objectives**

The key objectives of TEVC are:

- To develop, review and reformulate national policies on tertiary and vocational education and training.
- To formulate plans for the development of tertiary and vocational education and training sector.
- To implement the national system of quality assurance through registration of institutes and accreditation of training courses.
- To ensure the establishment and maintenance of standards by TVET institutions.
- To plan and coordinate the implementation of national trade testing and certification system.
To develop and maintain a national system of vocational qualifications.

To maintain the labour market information system for the TVET sector.

To develop TVET institutes through management development programs and financial assistance.

To promote parity of esteem between education and training.

**National Qualifications Framework (NQF)**

Tertiary and Vocational Education Commission (TVEC) monitors and evaluates the NQF, which consists of seven levels:

<table>
<thead>
<tr>
<th>Level</th>
<th>Academic Qualification</th>
<th>TVET Qualification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Certificate</td>
<td>National Vocational Qualification 1</td>
</tr>
<tr>
<td>2</td>
<td>Certificate</td>
<td>National Vocational Qualification 2</td>
</tr>
<tr>
<td>3</td>
<td>Advanced Certificate (GCE A/L or equivalent)</td>
<td>National Vocational Qualification 3</td>
</tr>
<tr>
<td>4</td>
<td>Advanced Certificate (GCE A/L or equivalent)</td>
<td>National Vocational Qualification 4</td>
</tr>
<tr>
<td>5</td>
<td>Diploma</td>
<td>National Vocational Qualification 5</td>
</tr>
<tr>
<td>6</td>
<td>Higher Diploma</td>
<td>National Vocational Qualification 6</td>
</tr>
<tr>
<td>7</td>
<td>Degree</td>
<td>National Vocational Qualification 7</td>
</tr>
</tbody>
</table>

National Vocational Qualifications at levels 1 to 4 aim to teach students basic skills to be at the master craftsperson, while courses at levels 5 and 6 add supervisory and/or process management competencies. The University of Vocational Technology teaches programs at the National Vocational Qualification level 7.

National Competency Standards (NCS) are developed in consultation with the industry. These NCS are used to develop the curriculum, trainer and trainee guides, and assessment criteria.
Figure 1- TVET in the Sri Lankan education ecosystem

General Education

Tertiary (ISCED 5-8)

Tertiary education

Post-secondary Non-tertiary (ISCED 4)

GCE (Advanced level) 2 year

Upper Secondary (ISCED 3)

GCE (Ordinary level) 2 years

Lower Secondary (ISCED 2)

Lower Secondary Education 4 years

Primary (ISCED 1)

Primary Education 5 years

TVET

NVQ 7 Degree

NVQ 6 Higher Diploma

NVQ 5 Diploma

NVQ 2-4 Certificate

NVQ 1

Source: UNESCO-UNEVOC International Centre
Formal TVET ecosystem

The schematic (diagram 1) provides an overview of the national education ecosystem and the TVET ecosystem, linkages and dependencies in contributing to national policy framework outcomes. Technical and vocational education and training (TVET) in Sri Lanka aims to improve the effectiveness and employability of the population, and aims to provide education and vocational qualifications for lifelong learning.

**National Vocational Qualifications 1-4 (Certificate)**

This program is offered at the upper secondary (ISCED 3) and postsecondary non-tertiary (ISCED 4) levels. The training is one-year duration, six months institutional and six months on-the-job training. Admission requirements differ according to specific course requirements. The course is taught in technical colleges and vocational training centres. The graduates are able to enter the labour market or enroll for national vocational qualifications 5-6 (Diploma) at the tertiary level (ISCED 5).

**National Vocational Qualifications 5-6 (Diploma and Higher Diploma)**

This program is offered at the tertiary level (ISCED 5). The duration is 1½ to two years with admission requirements NVQ 3 or 4 (or equivalent). The course is taught in colleges of technologies and university colleges. Graduates are employable or they can enroll to complete the National Vocational Qualification 7 at the tertiary level (ISCED 5) to obtain a diploma or higher.

**National Vocational Qualification 7 (Degree)**

This is a three-year program, admission requirements are NVQ 5 or 6 (or equivalent), offered at the tertiary level (ISCED 6) and taught at the University of Technology (UNIVOTEC).

**Non-formal and informal TVET ecosystems**

A number of ministries provide training programs, including the Ministry of Skills Development and Vocational Training, and the Ministry of Education.

There are a number of mechanisms in place to recognize prior learning. The National Vocational Qualifications Operation Manual stipulates that NVQ qualifications may be awarded through the recognition of prior learning (RPL) if the applicant has a minimum industrial experience of 18 months for NVQ 2 or 3 qualifications.

The criteria for awarding NVQ Level 4 qualification through RPL Assessment are as follows:

For applicants with NVQ Level 2 or 3 qualifications, the eligibility requirements specified are:
- minimum of 24 months work experience in relevant section; or
- minimum of five years relevant experience in formal employment with contributions to Employees Provident Fund (EPF) or pension; or
- minimum of five years relevant experience in self-employment with a business registration; and
- competency in the NVQ 4 Assessment.

For applicants without NVQ Level 2 or 3 qualifications, the eligibility requirements specified are:

- minimum of five years relevant industry experience. If relevant formal employment with contributions to EPF, pension or self-employment with business registration cannot be proved, TVEC will nominate an assessor, in addition to the assessors nominated by the National Apprentice and Industrial Training Authority (NAITA) or the Vocational Training Authority (VTA), for Level 4 assessment.

**TVET program delivery and quality assurance**

A number of institutions under the purview of the Ministry of Skills Development deliver TVET. Training institutes operating under other ministries and private institutions are required to register with TVEC.

Accredited TVET institutions teach the curriculum, and the TVEC grants registration certificates to TVET institutions based on National Competency Standards.

The responsibility for ensuring the quality of the programs lies with the providers. The quality assurance system that is used is ISO 9001:2008. The system aims to match TVET providers’ input systems, processes and output to the intended objectives.

**Types of TVET institutions**

Multiple types of TVET institutions exist in Sri Lanka as shown in Table 1.

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Table 1 – Types of TVET institutes

<table>
<thead>
<tr>
<th>Type of institution</th>
<th>Education level</th>
<th>Ministry/Institute responsible</th>
<th>Number of institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Vocational Technology (UNIVOTEC)</td>
<td>Degree (ISCED 5)</td>
<td>Ministry of Skills Development and Vocational Training</td>
<td>1</td>
</tr>
<tr>
<td>Colleges of Technology (CoTs)</td>
<td>Diploma (ISCED 5)</td>
<td>Department of Technical Education and Training (DTET)</td>
<td>9</td>
</tr>
<tr>
<td>University Colleges</td>
<td>Diploma (ISCED 5)</td>
<td>University of Vocational Technology (UNIVOTEC)</td>
<td>6</td>
</tr>
<tr>
<td>Technical Colleges (TCs)</td>
<td>Certificate</td>
<td>Department of Technical Education and Training (DTET)</td>
<td>30</td>
</tr>
<tr>
<td>Vocational Training Centers</td>
<td>Certificate</td>
<td>Vocational Training Authority (VTA)</td>
<td>250</td>
</tr>
<tr>
<td>Apprenticeship Training Institutes</td>
<td>Certificate</td>
<td>National Industrial and Apprenticeship Training Authority</td>
<td>68</td>
</tr>
<tr>
<td>Vocational Training Centers</td>
<td>Certificate</td>
<td>National Youth Services Council (NYSC)</td>
<td>40</td>
</tr>
<tr>
<td>Private and NGO sector Training Centres</td>
<td>Certificate/Diploma</td>
<td>Tertiary and Vocational Education Commission</td>
<td>400</td>
</tr>
</tbody>
</table>

TVET teachers and trainers

The Faculty of Training Technology (FTT) at the University of Vocational Technology (UNIVOTEC) offers pre-service and in-service TVET teacher and trainer training.

Challenges

The TVET ecosystem in Sri Lanka faces many challenges. The main challenge is to erase the stigma from the past British colonial dichotomy of mainstream education ecosystem and the TVET ecosystem. This gave rise to the negative perception that TVET is associated with manual labour and

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17 http://univotec.ac.lk/
limits employment and social upward mobility. This accounts for the low enrolment rate of only 3 per cent of the 20-24 age group in TVET courses.

In general terms, tertiary enrolment rates in Sri Lanka are low compared to other countries in the region. As of 2014, only 5 per cent of those aged 20 to 24 were enrolled in a university and another 8 per cent in other educational institutions.

The negative perception is compounded by the lack of a demand-driven planning process based on regular assessments of national and regional labour market information. Timely and accurate information about current skill demands and available training opportunities is lacking, as are reliable forecasts of potential needs.

Low quality of TVET programs is another major issue with curricula not regularly updated to the required training standards. In addition, there is a shortage of qualified instructors, especially those with industrial experience. A large number of private providers are still neither registered nor accredited.

The tracking of TVET employability rates is another issue, as there are no regular mechanisms in place nor studies to assess the success. This makes it difficult to evaluate the outcomes of TVET programs directly.

The government aims are to make TVET programs more relevant to the labour market. TVEC with overall responsibility for quality TVET program design and delivery faces a number of issues. For example, the TNVQ framework, though created with employer input, does not cover the full range of skills employers require.

Other related issues include: delivery of TVET programs is often not aligned with national development priorities; and some private training providers are more oriented to social demand than to actual labour market demand.

Further, the TVET ecosystem is not designed to respond quickly to labour market demands and there are no avenues apart from the NVQ, and few industry sector councils through which employers can feed their skills needs into the TVET system.
Conclusion

The TVET ecosystem of Sri Lanka faces a number of challenges. It is expected that the recommendations of the Presidential Task Force will relieve the extreme pressure on the current academic education ecosystem and TVET. However, with the Covid-19 pandemic disruption of education ecosystems worldwide, Sri Lanka like many countries needs to take extra ordinary mitigation measures to get back on track.

As observed by the Presidential Task Force, on-line education methods achieved much success during the Covid-19 pandemic. This is a clear indication for significant government, private sector and NGO collaboration to invest in building infrastructure for online education to support the growing number of students from both universities and schools.

The President stressed the need of promoting online education for higher education, based on the data and findings to-date. Building Sri Lanka’s distance education ecosystem may be vital to sustain the country’s knowledge-based economy.

References

Sri Lankan TVE country profile compiled by the UNESCO International Centre for Technical and Vocational Education (UNEVOC) in collaboration with the Tertiary and Vocational Education Commission (TVEC), Ministry of Skills Development and Vocational Training, Sri Lanka

TVETipedia Glossary - International Centre for Technical and Vocational Education and Training (UNEVOC) - https://unevoc.unesco.org/home/TVETipedia+Glossary

In case of further clarification and definitions of terms contained herein, please refer to UNESCO-UNEVOC’s online TVETipedia Glossary, which provides definitions and background information from various trustworthy sources on terms commonly used in the area of technical and vocational education and training.


Ministry of Skills Development and Vocational Training.


Online school management system in Pakistan:
From dream to reality

Raheel Afzal

Introduction

COVID-19 disrupted education in Pakistan. Most educational institutions were not prepared for such a situation. Only a handful that had some experience of running online education programs immediately shifted to distance learning.

However, a majority of the institutes struggled. Eventually, millions of students immediately lost access to education. According to the Economic Survey of Pakistan 2019-20, total enrolment in all educational institutions in Pakistan amounted to about 54 million in 2018-19 (Government of Pakistan, 2020).

This article describes how COVID caught most institutions by surprise, and the challenges they faced in going online. In addition, the article presents a case study of a school project, how it adopted an online education system, what challenges it faced, and what it learned. The author offers some recommendations for promoting online education in Pakistan. The author himself was a part of the project; hence, his first-hand experiences are reported here.

The 21st Century, which has experienced the most rapid technological advancements in history, has turned the world into a digital global village. You have access to almost everything through the Internet: from shopping to food delivery, cab services to plane tickets, banking services to eLearning solutions and so on.

In short, digitalization is leaving its footprint on almost everything. Education is not an exception. Two decades ago, McLafferty (2000) said: “For the first time in human history, the average U.S. resident can walk into a public library and post an idea to a Web page that can be indexed and accessed worldwide within days, if not hours”.

Within the last two decades, the landscape of education has drastically changed in the developed world. Many online education programs such as Coursera and Udemy have surfaced, accelerating the pace of the globalization of education.
Context: The coronavirus hits Pakistan

In Pakistan, many universities (such as Allama Iqbal Open University and Virtual University) started using eLearning technologies many years ago. However, schools and colleges, especially in the public sector, did not take advantage of the technical advancements.

COVID-19 caught them by surprise. It disrupted all educational activities in schools and colleges, as none was ready to cope with this new challenge. None of the schools had a School Management System, that is, any software/application supporting integration of educational activities, or any online learning management software or online portals.

Online learning management systems or portals support delivery of online lectures, interaction between teacher and students, and other activities. They allow students to submit homework and assignments online and teachers to grade the assignments, conduct examinations and announce the results.

The first case of COVID-19 in Pakistan was reported on February 26, 2020; it took just two weeks until the situation turned bad. On March 13, 2020, the Government closed all educational institutions and put the entire country under lockdown. The Pakistani education sector was not prepared at all to deal with this challenge.

Universities in Pakistan were asked by the Higher Education Commission (HEC) to start online education. Many of them immediately did so and some struggled. However, the primary and secondary education sectors lacked the necessary capacity and resources to go online. A lack of equitable availability of Internet connections, with adequate bandwidth, was a big issue and it still is (Rehman, 2020).

Most schools did not even have a website. In government schools, the situation was even worse. Computer literacy among teachers was a rare competency. COVID-19 exposed all such realities in a matter of just few weeks.

Virus has eliminated a fundamental right of children

Education is a basic right of every citizen as recognized by the Constitution of Pakistan. Article 25A of the Constitution of Pakistan clearly states the right of children to education, as follows: “The State
shall provide free and compulsory education to all children of the age of five to sixteen years in such manner as may be determined by law”\(^\text{18}\).

This right has also been well recognized in the United Nation’s Sustainable Development Goals (SDGs). SDG 4 emphasizes upon ensuring equal access of everyone to education. It reads as follows: “Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”\(^\text{19}\).

COVID-19 has badly affected achievement of this goal. It removed this fundamental right of children, as it has disrupted all educational activities in schools and colleges.

**Technological solutions**

Many softwares for learning management are available in the marketplace. However, they are very expensive. Only large private schools, where only children of wealthy classes study, can afford such solutions. Education is in danger of becoming a luxury item, no longer accessible to children of poor families.

Tezhost (\[https://tezhos\[t.com/\]) – a technology firm operating in Pakistan and serving its clientele in the United States and many European countries -- recognized the gap. As part of a commitment to corporate social responsibility, it developed a complete web-based system to cater to the needs of primary and secondary level education. The system is known as “USchool.pk”. Fortunately, Tezhost had piloted the system months before COVID-19.

**Challenges in adopting eLearning solutions**

Rehman (2020) has listed six pre-requisites for launching online education. They are: 1) availability of a Learning Management System (LMS); 2) faculty having competence in online teaching; 3) course readiness, fully aligned with the online mode of learning; 4) availability of course material on the web portal; 5) technology readiness; and 6) students’ readiness to learn online.

Keeping these fundamental pre-requisites in mind, Tezhost approached some schools and offered them solutions. It was found that some private schools had already adopted solutions, such as Microsoft teams, Google classrooms, Zoom, Office365 classrooms, and so on. However, they were facing many challenges, such as:

\[https://sustainabledevelopment.un.org/sdgs\]
• Readiness was low. Schools were struggling to shift to online education system, as neither students nor teachers were prepared for it.

• Schools did not have e-coaches who could provide guidance for using such software.

• The software was not only expensive, but also lacked user-friendliness.

How USchool.pk is helping some schools

The program manager of Tezhost told the author that Tezhost started offering their services, free of charge, to many schools and at nominal cost to some schools. One such school is Haleema School of State (HSS, https://haleemaschoolofstate.com.pk/), located in Mirpur in the region of Azad Kashmir.

It is a private school, but serves poor and lower-middle class children. The mission of the school is “I can do it”, which has helped in creating a success story of adopting online education. The system was installed in just four days. Many demos were given to teachers to enable them to perform new roles. Within just one week, they were able to run the school online smoothly.

The system (https://app.haleemaschoolofstate.com.pk/login) enables the teachers to communicate with students online through video classes. Students can view assignments online and can submit homework on the online portal.

The system also allows the school administration to manage academic matters online (such as admitting new students, observing academic activities, conducting examinations, recording attendance of students), as well as administrative matters (such as attendance of staff, handling fee payment issues, preparing financial reports and so on).

In addition, the system empowers parents as they can view the progress of their kids and communicate with teachers, as well as school administration. Tezhost provides them technical backup support including domain hosting, cloud hosting, web-development, conducting demos and trouble-shooting.
Learning from the experience

Tezhost has learned a lot from its experience of helping schools to make educational activities online. For example:

1. Computer literacy is crucial. One week must be devoted to improve computer literacy of teachers to make them feel comfortable with a new teaching format. If this is not done appropriately, teachers are likely to resist change. Eventually, the entire initiative can crash in a matter of days. It is worth noting that most of the students, no matter where they live and which socio-economic profile they belong to, are quick learners and can adapt to online education easily, provided they have the necessary equipment and Internet connectivity.

2. If Internet connectivity is poor, it will result in a lot of frustration for teachers as well as students. But a good Internet connection is not enough. Students and teachers must also have good Internet connectivity. Hence, before introducing online education, the feasibility of good Internet connectivity must be examined.

3. E-coaches: The educational institution must have e-coaches who can familiarize teachers and school administration with the technological issues and trouble shooting.

Conclusion and recommendations

Education is a basic right of every individual. This right has been recognized at all levels. The time has come that the state should work on alternative approaches to education so that the poor are not affected. It is the obligation of the state to provide free education to all children. Hence, the state is required to take necessary measures to ensure that all children get this right.

Here are some key recommendations of the author, based on his personal experience:

1. Provincial governments need to develop a policy for online education, putting in place a framework to guide the educational institutions in going online.
2. Free Internet connections should be provided to all government schools and to all communities living in the surroundings of the government schools so that students can take advantage of online education.
3. Government organizations, such as the Pakistan Software Export Board or Punjab Information Technology Board, should immediately develop and deploy online education software in all government schools.
4. NGOs having budgets for education should be asked by the government to divert their funds to government schools for providing basic IT infrastructure.
5. Public sector universities and technology institutions may be asked to adopt government schools operating in their regions. They can assign one school to each IT student, who will work as an e-coach.
References


Pakistan’s education ecosystem in crisis: Challenges and solutions

Salman Mahboob

Introduction

An education ecosystem provides a basic foundation to the nation, acting as a nurturing force to develop a country. Education empowers people to work on the potential for their growth and development by enhancing their general consciousness to attain national goals. Education is not only a concern of an individual; rather it is responsible for raising the country economically, politically and socially.

Since its inception in 1947, Pakistan has faced many challenges from poverty to terrorism, political instability, insufficient resources, poor economy, water shortages and many more. If that weren’t enough, it also suffers from an intensive education crisis.

This article examines some of the critical problems that have plagued the education ecosystem of Pakistan. On the basis of a critical review of available literature, the article prescribes some solutions.

The situation of literacy

Pakistan inherited a weak educational network at the time of independence. For one thing, the literacy rate was very low. In 1951, a mere 17.9 per cent of the population was literate (UNESCO, 2012). However, successive governments have put efforts into improving the state of literacy. By 2017-18, Pakistan’s literacy rate had reached 62.3 per cent (GOP, 2019), which is still less than acceptable. Above all, regional disparities are huge (see Table 1).

The education ecosystem faces major issues and challenges, such as: ineffective policy implementation; an unreliable examination system; poor infrastructure and facilities; corruption; political interference; poor teaching; an obsolete curriculum; poor management and supervision; increased dropouts; lack of research work; and most important of all, a lack of standards and uniformity in the whole educational structure (GoP, 2016).
Table 1. Literacy rate of Pakistan (in percentage)

<table>
<thead>
<tr>
<th>Area</th>
<th>2014-15</th>
<th></th>
<th></th>
<th>2017-18</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
<td>Male</td>
<td>Female</td>
<td>Total</td>
</tr>
<tr>
<td>Pakistan</td>
<td>71.6</td>
<td>49.6</td>
<td>60.7</td>
<td>72.5</td>
<td>51.8</td>
<td>62.3</td>
</tr>
<tr>
<td>Punjab</td>
<td>70.4</td>
<td>53.6</td>
<td>61.9</td>
<td>72.2</td>
<td>57.4</td>
<td>64.7</td>
</tr>
<tr>
<td>Sindh</td>
<td>73.9</td>
<td>50.7</td>
<td>63.0</td>
<td>72.8</td>
<td>49.9</td>
<td>62.2</td>
</tr>
<tr>
<td>Khyber Pakhtunkhwa</td>
<td>72.1</td>
<td>36.8</td>
<td>54.1</td>
<td>73.3</td>
<td>38.5</td>
<td>55.3</td>
</tr>
<tr>
<td>Baluchistan</td>
<td>72.0</td>
<td>33.0</td>
<td>54.3</td>
<td>73.0</td>
<td>33.5</td>
<td>55.5</td>
</tr>
</tbody>
</table>


Ineffective budgetary allocation

The federal budget of Pakistan for 2019-20 allocated funds equivalent to US$0.48 billion for education affairs and services, a roughly 20.5 per cent decline from the revised allocation of US$0.61 billion in the previous year (AEPAM, 2019). Pakistan’s expenditure on education represented an estimated 2.4 per cent of gross domestic product in fiscal year 2018-19, which was the lowest in the region. And for fiscal year 2019-20, allocations for the sector further declined.

In addition, the trend of budget execution -- the ratio of actual expenditure to funds allocated -- continues to be low in all provinces. According to the Pakistan Bureau of Statistics (2018), the budget execution rates inclusive of all expenditures made at the primary and secondary levels were 86 per cent in Punjab and 93 per cent in Sindh. This shows that the capacity of the education sector in financial management is weak. Salaries represent the major portion of budget expenditure instead of spending on improving the educational sector.

The federal government contributes about 90 per cent of the budgetary resources of the provinces to meet all their expenditures in all sectors; the provinces raise only 10 per cent of the funds from their own taxes each year. Therefore, despite the devolution of the responsibility of planning and budgeting to the provinces in 2010, the dependence on the federal government continues to be high.

The responsibility of the education ecosystem r has been devolved to the local governments in many developing countries. However, in Pakistan the implementation of plans and policies is in the hands of provincial governments and district education officials. Their job could be made more effective by enhancing their management skills and empowering them to provide support and supervision to the educational institutions. This could be done by hiring district and sub-district level officers on merit, without any political interference.
Less spending on education from foreign donors

A tiny proportion of what Pakistan spends comes from foreign donors. Pakistan has become the largest aid program in the world for the United Kingdom’s Department for International Development (DFID). Its budget for education in Pakistan was $150 million for the fiscal year 2018, which is equivalent to 2 per cent of Pakistan’s education budget.

USAID spent US$65 million on basic education in Pakistan in 2015, which is less than 1 per cent of the budget. The World Bank’s programming is larger, but these are mostly loans that Pakistan will pay back. The World Bank estimates that 17 per cent of Punjab’s provincial budget over the past three years has come from the World Bank and other countries, namely Great Britain’s DFID (not USAID). Unlike many bilateral donors, World Bank personnel routinely reference how small their funds are next to Pakistan’s budget.

Lack of resources and facilities

Education resources such as books, libraries and physical facilities are important to keep the educational process running smoothly. There are despairingly no facilities such as books, libraries or reading materials in all educational institutions of Pakistan. Besides, there are overcrowded classrooms, inadequate teachers and ill-equipped laboratories. Poverty and lack of basic infrastructure available in remote areas of Pakistan result in child labor, thus decreasing enrolment rates.

The availability of proper classrooms, drinking water and washroom facilities also affects the enrolment rate of girls. The participation of girls in schooling is vital, as they comprise about half of the country’s population. Alif Ailaan found that 32 per cent of girls and 54 per cent of boys drop out of school because of their reluctance to attend classes and their lack of interest in going to school. The major factors behind this reluctance are the lack of availability of basic facilities, the threat of corporal punishment to the students, absence of teachers from the schools and low-quality education (ASER Pakistan 2020, Asian Development Bank, 2019; Alif Ailaan, 2014).

Teachers: Absentee rates high

Teachers are considered the backbone of any education ecosystem. Several international researchers have advocated that students’ learning abilities increase and dropout rates decline by providing an adequate number of effective teachers (Ministry of Education, 2019).

In rural areas of Pakistan, the issue of larger numbers of absent and “ghost teachers” has resulted in a ghost schools’ problem (ASER Pakistan 2014). “Ghost” teachers are those who are on the provincial payroll, but are not employed by the department as teachers. In addition, some teachers, who are employed but live far away from their school of posting, employ relatives or unemployed youth to cover for them as “proxies” in school.
Political influence

In addition, a highly significant root cause of the increasing number of ghost teachers is political interference. A report by the Society for the Advancement of Education (SAHE, 2018) described the causes of this relationship between politicians and teachers. Foremost, in rural and suburban areas, political parties tend to use teachers as political organizers, since they are educated. Secondly, on election days, teachers have to perform all polling duties on the eve of all national, provincial and local government elections.

Eventually, teacher unions are closely involved with political parties, although they are so powerful that they don’t need the parties to exercise political clout (SAHE, 2018. The salaries of government teachers are five times higher than what private teachers get. Thus, the ghost teachers could take advantage by giving money to administrators for maintaining their good attendance record or to their relatives for showing up in their place when they are deployed away from their houses.

There is a limit to the current policies; besides all these efforts, it is still difficult for government officers to take any disciplinary action or withhold the salary of those teachers who are not performing their duties. Research studies have shown that monitoring teachers by external parties is more effective. Besides, compensatory incentives coupled with effective monitoring could help reduce the issue of teacher absenteeism.

Hiring contractual teachers could be beneficial, as this policy has been experimented with in many other developing countries to enhance the accountability process. The major issue governments face in this regard is that they have to deal with the political and legal pressure by contractual teachers and the teacher unions to regularize them. The reality is that Sindh and Punjab hired contractual teachers between 2006 and 2014, but due to the immense legal and political pressure, most of them have been regularized (ADB, 2019).

Poor supervisory standards

Annual Confidentiality Reports (ACR) is a performance evaluation report of a public servant written by his immediate superior. In addition to performance, it contains specific observations on the character, conduct and integrity of the officer reported upon. ACR is the basis of the performance appraisal system of the teachers. It is considered just a formality because they are unable to provide valuable feedback regarding the performance of the teacher. Seniority is the basic criteria for promotions instead of abilities and talent.

To ensure quality education in institutions, it is necessary to provide quality and efficient teachers in specialized fields, such as science, mathematics and English. It is because of poor teaching methods and unavailability of subject specialist teachers in higher grades that the dropout rate of children in middle and high schools increases. On- and off-the-job teacher training activities must be equally given to all for developing their high level of technology-based skills as well.
Examination system and lack of uniformity

The examination system and its governance are also a great challenge. In Pakistan, there has been a system of traditional examinations at the secondary level since the 1950s. At the lower secondary and higher secondary levels, province-wide annual examinations are held for students in grade 10 (matriculation or matric) and grade 12 (intermediate) by the provincial Board of Intermediate and Secondary Education (BISE). These examinations are government funded and managed.

There are 28 BISEs in the country, responsible for designing and conducting these annual examinations for affiliated public and private sector schools (UNICEF, 2019). Some of the elite private schools are affiliated with international boards, such as the United Kingdom’s International General Certificate of Secondary Education and Cambridge International Examinations (Ordinary and Advanced level examinations) and a few with the International Baccalaureate.

Table. Provisional board of intermediate and secondary education

<table>
<thead>
<tr>
<th>Area</th>
<th>Number of BISE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Punjab</td>
<td>9</td>
</tr>
<tr>
<td>Sindh</td>
<td>7 public and 1 private</td>
</tr>
<tr>
<td>Khyber Pakhtunkhwa</td>
<td>8</td>
</tr>
<tr>
<td>Balochistan</td>
<td>3</td>
</tr>
</tbody>
</table>

Source: Inter board committee of Chairman.

The BISE Act provides some uniformity in the structure and mandate of the different BISEs across the provinces. It is problematic in that there are so many different examination boards, even within each province. This makes establishing equivalency difficult, so the standards across boards varies considerably. The quality of exams at the secondary and higher secondary levels conducted by the BISEs is poor across the board; the focus is on rote learning and memorization rather than higher-order skills or conceptual learning.

BISEs are unable to form effective examination papers for different subjects (Social Policy and Development Center, 2019). The evaluation process is the most critical phase, as no assessment has been carried out to identify marking criteria standards. Some invigilators in far flung areas have reportedly been helping students to cheat in examination halls. The monitoring system is weak in remote areas, although a strong monitoring system is in place in urban and semi-urban centres. However, technology can help improve the effectiveness of the invigilation system.

Also, there is no proper procedure for rechecking papers. Teachers are hired to assess papers, but this procedure is just a formality. The results usually remain the same, as the recheck procedure is basically a waste of money and time. Proper hiring procedures for fair assessment are mandatory from top to bottom. This could have a positive impact on the education system.
Outdated curricula

The curriculum is the tool through which the goals of education are achieved. The curriculum of education in Pakistan does not meet the demands of current times. It is an old and traditional curriculum that compels learners to memorize certain facts and figures without taking into consideration the reality that education is the holistic development of an individual. It places much emphasis on the psychology of the learner as well, which cannot be negated in the process of teaching and learning.

The present educational curriculum of Pakistan does not meet modern standards of education and research. Hence, the curriculum does not promote the interest of the learner for practical work, research, scientific knowledge and reflective observation; rather, it emphasizes memory work and theory.

Conclusion

The education ecosystem of Pakistan is facing several challenges, which must be addressed to pave a way for a better future for young Pakistanis. Though Pakistan has made considerable progress toward improving access to education for every child, there is much to be done. Quality of education is equally important. It deserves the attention of all stakeholders, especially policy makers and educational institutions. There is an urgent need to reform the education ecosystem of Pakistan and for this purpose, this study presents the following recommendations.

Recommendations

Hiring teachers from local areas has the advantage of potentially reducing teacher absenteeism and improving enrolment rates. Use of technology is very effective. To control and monitor absenteeism of teachers, Sindh, Punjab and Khyber Pakhtunkhwa have introduced biometric attendance systems (automatic taking of attendance through fingerprints). That produced a remarkable reduction in absenteeism. Hence, greater use of technology can help improve the quality of education.

It would also be beneficial to establish a career progression path that encourages effective teaching and which outlines the criteria for a teacher’s promotion instead of using seniority solely. In addition, the teacher salary grading system of primary teachers should be identical to that of higher secondary school teachers. These career paths must also cater to high performance teachers and head teachers to encourage them to move up the career ladder in the teaching field, rather being moved to management.

The system of accountability must be strengthened and all the professionals associated with the system of education should be educated to accept their responsibilities on an individual and collective basis. This would help in creating a sense of ownership of the system and its functions.
The curriculum should be evaluated on an annual basis. In this regard, a vast survey could be conducted to seek the opinions of teachers, parents, employers and community regarding their expectations and observations. In light of this and the expert recommendations of education researchers, the curriculum goals should be redefined. A new curriculum should cater to the psyche and needs of society and the country without any discrimination with respect to caste, color and creed.

Advanced technologies must be used to enhance teacher learning, drawing on successful examples both within and outside the country. The successful implementation of any such policy in improving teacher methods and quality is only possible if it is closely aligned with governance and accountability reforms. This will remain a challenge for many years. However, in-service teacher training needs to focus on special strategies for a multi-grade system of teaching methods along with the specialization of the teachers required.

It is strongly suggested that the research field must focus on unbundling educational programs in higher education and offering students shorter and more flexible courses. This would help students to learn in a specialized content. This unbundling system in universities and colleges must align skills with the needs and demands of the job market and thus provide talent to the nation on an industrial basis. The unbundling the education programs could help Pakistani students at higher educational levels to perform their job in a morning shift, while they enroll in classes in an evening shift, thus bringing balance to their career.

In future, the learning management system would also be a significant reform in the sector, offering online courses and developing learners’ connections. Students would be connected with advisors or alumni to facilitate learning. A learning management system is currently in use by a few educational institutions such as the National University of Science and Technology, Virtual University, and Allama Iqbal Open University. Content Management Systems and Learning Management systems are the software platforms that should be implemented not only at a higher level of education, but in the public and private schools at primary and college levels.

References


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Call for articles

The IOCOM Digest and Dialogue (IDD) is an e-journal of the International Organization for Collaborative Outcome Management (IOCOM). It is web-based openly accessible periodical published on a quarterly basis.

Its readers include members of the IOCOM present in more than 80 countries and professional organization and networks with a distribution of about 5,000 active readers. Readers tend to be (managers, directors, consultants etc..) with an interest in exploring how to improve the delivery of outcomes across diverse societal sectors.

The editorial team invites you to write 2,500-3,000-word articles on any of the outcome management ecosystems and sub-themes. Articles on a chosen sub-theme should address the impact or influence on targeted populations in society. Please e-mail your interest to write an article indicating the title and an abstract of about 100 words.

Outcome management ecosystems

This concept of business ecosystems could be adopted to develop a tree of outcome management ecosystems. Here are some examples of outcome management ecosystems:

- Leadership and people management ecosystem and subsystems: leadership development, leaders & managers, union-labour management, strategic planning and management, facets of human resources management; building & leading teams, negotiation and conflict resolution, complex employee behaviours in the workplace; motivating people, recruitment, retention, staff/employee appraisals, career & professional development, building employee capabilities, stress management, work-life balance, women & gender studies, organizational justice, participatory management.

- Financial, accounting and banking ecosystem and sub-systems: corporate finance, international finance, forensic accounting and fraud investigation, financial economics; cost-benefit analysis, contribution analysis, banking ecosystems: money laundering, digital currency, fintech, cryptocurrency, financial inclusion, innovative financial solutions for poor (micro financing); financial insurance; financial risk management: risk & loss control management.

- Business management/administration ecosystem and subsystems: business economics; business law, organizational behaviour, business ethics; business continuity, international business/trade; marketing and distribution; management reporting.

- Oversight management ecosystem and interconnected sub-systems: audit, evaluation, total quality management (TQM) and ISO family of standards; continuous improvement, auditing
ecosystems: auditing environmental and occupational health & safety (OH&S) management systems.

- Government and non-government organizations (NGO) management ecosystem and sub-systems; good governance, open government, public management/administration, NGOs contribution to social and economic development, Indigenous people and governments, provincial/state and municipal and local governments, organizational diversity, gender and minority issues at workplaces, cultural diversity, diversity and talent management, social and functional categorization, diversity and ethical issues.


- Information technology and information management ecosystems and sub-systems: Information resource management; information and communication technology (ICTs); digital preservation, cybersecurity, internet, data ecosystem including big data, data analytics; artificial intelligence, blockchain, machine language.

- Learning and innovations ecosystem, and sub-systems management of innovation; learning ecosystem, learning culture, learning fit, measurement,, innovation ecosystem, start-ups ecosystem, technology eco-system; innovation, law, and technology.

- Industrial/manufacturing management ecosystems and sub-systems: product design and development, production management; plant maintenance; statistical quality control, quality assurance; productivity sciences ecosystems: industrial engineering/work study (motion & time study), method study (process re-engineering), work measurement, ergonomics and workplace design; operations management; robotics.

- Supply chain management ecosystem and sub-systems: logistics, procurement, product life cycle management, asset management, supply chain planning, supply chain enterprises applications; supply chain visibility, green supply chain, risk and supply chain resilience, integrated logistics hubs, one belt one road (OBOR).

- Engineering management ecosystems and sub-systems: civil engineering; mechanical engineering, electrical and electronics engineering, aeronautical engineering, architectural engineering, computer & software engineering, environmental science engineering.

- Agricultural management ecosystem and sub-systems: agricultural policies, agricultural management services, food security and environment, sustainable agriculture, gender in agriculture, trade of agricultural commodities, World Trade Organization (WTO) agreement on
agriculture, use of digital technology in agriculture, land grabbing, natural disasters and resilience;

- Health management/administration ecosystem -sub-systems: patient care, health outcomes and quality of life; health information systems ecosystem: eHealth: informatics, innovations and information systems; occupational health & safety: law & regulations; occupational hygiene; health law, ethics, & policy; health administration, health education and promotion, health risk communication, patient outcome management, midwifery, indigenous medicine, specialized health ecosystems – cardiovascular, quality of life, health emergency response management, health services research, health insurance, medicare system, dental care and dental hygiene, pharma care and pharmaceutical outcome research management and policy.

- Criminal justice administration ecosystem and sub-systems: criminal law; law enforcement (law & order), legal administration, offender (correctional) management; parole system, crime & socio-legal studies, e-justice.

- Education management ecosystem and sub-systems: educational administration; e-educational environments; educating citizens of the 21st century; collaborative learning culture; collective intelligence; emotional education (social and emotional well-being); ecology of learning ecosystem: families, schools, community, networks and society.

- Environmental management ecosystems and sub-themes: An ecosystem consists of all the living and non-living things in a specific natural setting including plants, animals, insects, microorganisms, rocks, soil, water and sunlight are major components of many ecosystems: two types: terrestrial (forest; grassland; desert and tundra) and aquatic (fresh water; and marine). Other related sub-themes include climate change, air pollution control and greenhouse effect, alternative sources of clean energy (wind, hydro and solar) and conservation of species.

Four possible levels of outcome management ecosystems and sub-systems:

- Those driven by clusters of management and technical disciplines;
- Those driven by sector agendas: agriculture, education, health, social services and so on;
- Those driven by national (country) level results agendas (political agendas); and
- Those driven by international and global agendas: climate change, sustainable development goals, World Health Organization (WHO) and other United Nations (UN) agendas.

With kind regards,

The Editorial Team
Vol. 6, No. 4 Oct. – Dec. 2020

Education management ecosystem and sub-systems: Lessons learned from Covid19 pandemic impact on learners and systems experiences, international, regional, national, organizational and individual; educational administration; e-educational environments; educating citizens of the 21st century; collaborative learning culture; collective intelligence; emotional education (social and emotional well-being); ecology of learning ecosystem: families, schools, community, networks and society,

Deadline for the submission of articles: September 15, 2020

Volume 7, No 1 Jan – Mar 2021

Environmental management ecosystems and sub-themes: An ecosystem consists of all the living and non-living things in a specific natural setting including plants, animals, insects, microorganisms, rocks, soil, water and sunlight are major components of many ecosystems: two types: terrestrial (forest; grassland; desert and tundra) and aquatic (fresh water; and marine). Other related sub-themes include climate change, air pollution control and greenhouse effect, alternative sources of clean energy (wind, hydro and solar) and conservation of species.

Last date for the submission of articles: Nov 30, 2020

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Referencing/citation Style: APA (6th ed.);
Font and font size: Times New Roman, 12 pt.
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Send your articles to: editorsIDD@iocomsa.org
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