

The Impact of COVID-19 on Tertiary Education in Seychelles

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Background

The COVID-19 pandemic has caused all manner of problems for countries globally, with paramount disruptions and losses, for the most part, to the growth of health and socio-economic systems (Ahmad et al., 2020). The education sector in particular, at all levels, has been greatly affected, following the closure of schools and shifts from conventional learning to provisional distance learning nationwide (Schleicher, 2020). The Tertiary Education Institutions (TEIs), being the institutions which cater for learners who have completed the compulsory education cycle and which offer qualifications from level 3 (certificates) upwards on the National Qualification Framework by Seychelles Qualification Authority (SQA) in Seychelles, have not been spared from such developments.

Like in most countries, Seychelles' TEIs went through a lockdown phase in 2020 lasting from the 16th March to the 18th of May, and this drove institutions to be innovative in their responses to continuing their operations under the new health and safety regulations and procedures.

A study conducted by TEC to provide insights into TEIs experience in navigating the crisis, more especially the before, during, and post close-down phases of the institutions, has captured an understanding of how TE systems have been affected and the opportunities which emerged from the crisis. Conducted in two phases, the first was an impact survey for both institutional academic staff and learners and provided empirical evidence that fed into the preparation and implementation of a second phase which was an online forum (TEC, 2020a; TEC, 2020b). The study aimed to understand institutional preparedness for lockdown, challenges faced by learners and management, teaching practices that worked; and, going forward, sought possible proposals from responders as to ideas and solutions for the continuity of education and training through the recommendations they made (TEC, 2020a; TEC, 2020b).

Studies similar to TEC's impact study were identified; those which investigated the impact of COVID-19 on Higher Education (HE) and exposed significant issues and trends across the globe. Higher Education Institutions (HEIs) – herein taken as institutions which offer education for the most part at university level for undergraduates and postgraduates – in

around 185 countries, between April and May 2020 closed down their campuses, causing a sudden increase in distance learning as a response mechanism (Marinoni et al., 2020).

Such changes brought along similar challenges to Seychelles, such as the difficulties in delivering the skills (practical) aspect of Technical and Vocational Education and Training (TVET) programmes through distance or online learning (DOL), the postponement of assessments, issues in relation to connectivity, unequal access to technical or ICT equipment, the lack of competences on the part of both lecturers and learners to engage through distance learning, and the consequent financial or budgetary constraints. On the other hand, the crisis also revealed emerging opportunities for education development such as in the growth of digital education infrastructure through investment in eLearning platforms, increased use of blended learning strategies, introduction or consolidation of the use of learning management systems (LMS), the need to improve curricula priorities, and the chance to improve their learners' independent study skills and the digital skills of lecturing staff. These studies also indicated differences in HEIs responses to the crisis, and emerging trends which were not necessarily seen in Seychelles, such as the decline in enrolment of international learners and the increased dropout rate of learners in tertiary education (UNESCO, 2020b).

To summarize, therefore, this paper seeks to outline the response of the TEIs in Seychelles whilst drawing out comparisons between TEC's COVID Impact Study and similar studies conducted regionally and internationally. It centres around the challenges HEIs faced, emerging opportunities for improving the education system in the 'new normal', and lessons to be heeded moving forward, based on evidence gathered from the different studies.

Methodology

The content of this paper centres around TEC's COVID Impact Study and other existing studies on the effects of COVID-19 on tertiary level education. The TEC COVID-19 Impact Survey used total institutional population sampling, from which 28% out of 3085 learners and 45% out of 239 lecturing staff responded (TEC, 2020a). The participants filled in the survey voluntarily and anonymously during the period between the 31st of August and the 9th of September 2020 (TEC, 2020a). This was followed shortly by TECs Post-COVID-19 Tertiary Education Forum which took place on the 24th of September and the 1st and the 8th of October 2020 (TEC, 2020b). Through the Microsoft Teams platform, participants (a presenter from each TEI) delivered a presentation on their institutions' responses to the pandemic followed by plenary deliberations which enriched contributions on the issues at hand (TEC, 2020b).

To provide a comparative aspect, secondary data was gathered from different organizations such as: the International Association of Universities (IAU); United Nations Educational, Scientific and Cultural Organization (UNESCO); Organization for Economic Co-operation and Development (OECD); Association for the Development of Education in Africa (ADEA); International Labour Organization (ILO); and the World Bank Group (WBG). The intention was that the data gathered would cover countries regionally and internationally, providing a broader understanding of the effect of the pandemic on Higher Education, and setting in perspective how reactive or proactive Seychelles was in responding to the crisis. The studies were chosen on the basis of similar findings, and similar methods in gathering evidence on the subject, to that of TEC's COVID Impact Study; for instance survey and webinar reports which allowed for better comparisons and comprehensive analysis between different countries. For instance, ADEA allowed comparisons to be made with Small Island Developing States (SIDS), such as Mauritius, and African countries, like Côte d'Ivoire, Rwanda and Ghana. The studies from UNESCO, on the other hand, allowed coverage of up to 185 countries (Marinoni et al., 2020), whilst ILO and WBG covered around 126 countries globally (ILO, UNESCO and WBG, 2020).

Findings

1. Institutions preparedness for closure

The COVID-19 pandemic has led many HEIs globally to close down their campuses amidst concerns about keeping staff and learners safe. The closure, for many, disrupted the provision of day-to-day campus activities and training, with some institutions even indicating that they had little opportunity to prepare contingency measures and plans for the continuation of teaching and learning (ILO, UNESCO and WBG, 2020). Furthermore, the level of preparedness to cope with the crisis was differentiated across regions (Marinoni et al., 2020). Accordingly, Marinoni, Van't Land and Jensen (2020) highlighted Africa as the region where HEIs were most ill-prepared for the closure compared to Europe, the Americas, Asia and the Pacific, considering that the latter jurisdictions have more resources and better infrastructures in place to continue teaching and learning through means of virtual mobility (Marinoni et al., 2020). As such, statistics pinpointed African HEIs as facing greater difficulties in shifting learning to DOL with many having to stop their institutional activities completely (Marinoni et al., 2020).

Conversely, Seychelles indicated some level of preparedness on the part of institutions to transit and adapt during the closure. A possible reason could have come from Ministry of Education and Human Resource Development's (MOEHRD) constant emphasis on the need for institutions to initiate preparation measures in advance of possible lock down (TEC,

2020a). Overall, TEC's survey reported that both institutional staff and learners felt prepared for the transition, with about half of learners (55%) and 71% of lecturers feeling somewhat prepared (TEC, 2020a).

For some institutions in Seychelles, the disruption forced them to review their programmes on offer to accommodate the market needs (TEC, 2020b). This was an opportune time to offer more short courses focused on reskilling and upskilling, given that many people were faced with job loss (TEC, 2020b).

On another note, even with some level of preparedness, Seychelles faced difficulties in implementing practical classes and work-based experience (WBE) during this period, which was also the case in many countries surveyed by UNESCO. Moreover, there were challenges in providing equal learning opportunities to learners given the gaps in the digital infrastructure. In addition to this, other issues that contributed to this difficulty were the lack of capacities, proper competencies, pedagogies and learning management systems in place to move to DOL.

2. Enrolment and dropout rate of learners

Interestingly, mobility of international learners seemed to be an area that was greatly affected by the closure in many HEIs from countries in the UNESCO study. The statistics presented by Marinoni, Van't Land and Jensen (2020) reported high percentages from regions impacted by the mobility and recruitment of international students, with Europe (95%), the Americas (91%), Asia and the Pacific (85%), Africa (78%) (Marinoni et al., 2020). Though for Seychelles it was not an issue, but if there had been an increased quantity of international learners in local institutions this may have yielded possible concerns.

Seychelles, being dependent to a significant extent on overseas universities for Higher Education, has had to face the fact that many local students had to return home and continue their programmes online. With a still inadequate ICT infrastructure, many of these students have had an uphill battle to access needed learning resources, despite the fact that the local University has offered some assistance by way of access to their resources, human and otherwise.

An emerging issue for HEIs internationally, was the decrease in enrolment and the increase in dropout rate of international learners, given that most of these learners have had to return to their home country due to border closures and economic disruption (Marinoni et al., 2020). This issue was also the case for local learners in these countries given the financial implications associated with Higher Education, with many learners 'often dependent on part-time jobs or parents income' to pay for fees (UNESCO, 2020b, p.8). To give an instance, 'in

Japan, a survey by a student group, covering junior college, university and graduate students, reveals that 20.3% of post-secondary students are considering dropping out of school due to financial repercussions from the spread of COVID-19, 0.2% of which have already dropped out' (UNESCO, 2020b, p.8). 'In Lebanon, for example, the existing economic crisis, exacerbated by the COVID-19 pandemic, has impacted students' ability to continue their HE studies due to their inability to pay school fees' (UNESCO, 2020b, p.8). The outcome for many has been loss of institutional revenue.

On another note, there are countries that took the initiative to try and minimize the impact on international students. For example, 'Germany has introduced support in the form of interest-free loans of up to €650 a month to international students to avoid an increase in the number of dropouts' (UNESCO, 2020b, pp.8-9). Curtin University on the other hand 'is utilizing blended learning to ensure the teaching and learning for international students, which has proved effective so far' (UNESCO, 2020a, p.5).

Conversely, Seychelles has not reported on issues of enrolment or dropout rate in its institutions as of yet. Compared to many of the countries under study, there is no student fee attached to local learners at the TEIs as most learners receive a bursary allowance to assist them in their education. However, there was an increasing concern about learners with lower learning abilities to properly optimize online teaching most especially for those on apprenticeships and certificate levels (TEC, 2020b).

3. Practical session and Work-Based-Experience (WBE)

Many HEIs during this period were faced with the problem of their inability to deliver the practical side of curriculum, and this often resulted in delivering the theoretical components only (Marinoni et al., 2020). HEIs in OECD countries struggled with organizing work-based learning, largely due to the direct impact of border closures which led to a reduction or closing down of businesses operations (Schleicher, 2020). In many countries, only businesses that were considered essential were allowed to continue their operations under strict health measures, and provision of on-job training activities were limited mainly to the essential sectors (ILO, UNESCO and WBG, 2020). Some HEIs struggled because of a lack of competency on the part their lecturers to move practical sessions to DOL given that such activities require learning by doing.

In Seychelles, the challenges in undertaking practical classes and WBE was noticeable in institutions that offered mostly TVET programmes, and the point was strongly emphasized in the TEC Forum (TEC, 2020b). The limit to which these could be undertaken raised issues like delay in undertaking assessment components and the failure to meet the mandated notional hour components of the programme, all of which had implications for meeting

programme accreditation requirements (TEC, 2020a; TEC, 2020b). Moreover, the lack of technical infrastructure in place meant that DOL could not be optimized extensively for practical classes. Learners on apprenticeship programmes were more vulnerable to the limits of WBE as a large part of their training depends principally on their placement in work enterprises (TEC, 2020a). The greatest contributing factor to this was the closure of business operations, most especially in vocational-related fields.

Nonetheless, there were countries which initiated strategies to mitigate these challenges to some extent. For many HEIs such strategies brought financial implications related to the use and acquisition of technical devices, and health and safety regulations. In countries like Australia, Finland, Madagascar, Malaysia, and Thailand, practical training was provided following health and safety guidelines such as social distancing, allowing for small groups of learners only and using protective clothing (ILO, UNESCO and WBG, 2020). Some HEIs used digital simulation softwares, live video conferences, case studies, virtual reality tools, to name but a few (ILO, UNESCO and WBG, 2020). Whilst the former alternative may be possible with strict standards of operation within the institutions and workplaces in the Seychelles, the latter solutions, with their high budgetary implications in the continuing economic crisis, may remain far-fetched unless they become a national priority, considering the many socio-economic benefits that could be achieved.

4. Distance or online learning (DOL)

A noticeable strategy for HEIs during this period was an increased use of DOL for the continuation of teaching and learning (UNESCO, 2020a). The shift from conventional learning to DOL brought opportunities, to some extent, but challenges as well. In almost all instances, HEIs encountered issues in relation to connectivity, lack and cost of appropriate technical devices, the lack of competencies and associated pedagogical development to use DOL (ILO, UNESCO and WBG, 2020).

In Seychelles, the issues of access and cost of internet packages, access to technical equipment like smart phones and laptops, the learners' inability to understand or cope with online learning and independent study were pertinent for institutions (TEC, 2020a). This was more apparent for learners in the lower-level academic groups and these tended to be learners on apprenticeships and those undertaking certificate-level programmes (TEC, 2020a). As a result, learners' access to learning materials (35%) as well as lecturers' interactions with them (52%) were affected (TEC, 2020a). There was consequent impact on the delivery of learning resources (see Figure 1) with about half of the staff respondents noting that delivery of learning resources was sometimes done well (41%) or not well at all (6%) (TEC, 2020a). Principally due to this, up to 75% of learners reported being worried about accessing and successfully using the technology needed for their online classes (see Figure 2) (TEC, 2020a).

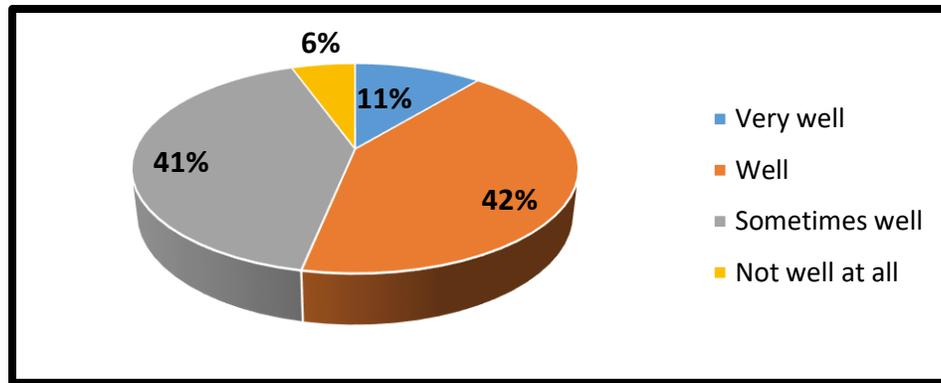


Figure 1: Delivery of learning resources

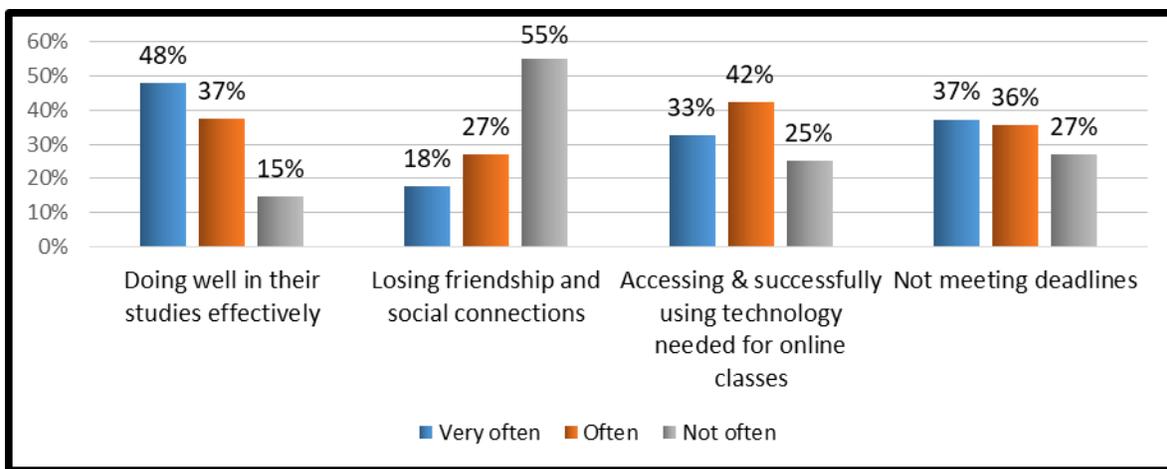


Figure 2: Learners' worries due to changes caused by COVID-19

Despite these difficulties many institutions managed to overcome some of the challenges by providing blended teaching strategies, for example using home assignments, research work, handouts from campus, and online learning (TEC, 2020b).

Similarly, in Mauritius, many public and private HEIs used a blend of DOL and face-to-face teaching and learning interrelatedly (ADEA, 2020). In the University of Mauritius (UoM) up to 50% of their modules (theory parts) have been moved to online modalities whilst practical training was conducted face-to-face (ADEA, 2020). Dissertations were submitted through Google Classroom and UoM noticed that learners favour online submission due to fewer late submissions (ADEA, 2020).

In Seychelles a few institutions even provided broadband internet modems for staff to facilitate their work, and negotiated learners' internet packages with internet service providers (TEC, 2020b). Similarly, in Chile the Catholic University purchased internet connections for learners to breach the digital gap (ADEA, 2020). For Seychelles there has been strong

advocacy from stakeholder groups that there needs to be immediate dialogue between the Ministry of Education and relevant stakeholders to negotiate realistic internet package deals for both lecturers and learners, to review the learner laptop acquisition scheme, and to facilitate further development of the national digital infrastructure to ease e-learning (TEC 2020a; TEC 2020b).

5. Pedagogies

A deficit in pedagogical requirements and competencies in place for DOL has meant that many HEIs have had issues to do with delivering teaching and assessing learning (ADEA, 2020). Institutions in Seychelles have encountered difficulties such as lecturers delivering or moving programmes online that were not tailored for such, monitoring of learners' attendance at sessions, as well as their participation and learning (TEC, 2020b).

Many HEIs according to both UNESCO and ADEA are looking to invest in pedagogical specialists, capacity and competency building programmes to equip lecturers to teach using digital educational infrastructure (UNESCO, 2020a). In Seychelles there is a proposal for the Seychelles Institute of Teacher Education (SITE) to re-think teacher training in relation to the need for blended learning in its programmes (TEC, 2020b). More short-term solutions include introducing ICT core modules that cater more precisely for online educational platforms for learners and as a professional development module for lecturers (TEC, 2020b). For HEIs, such investments could help improve the quality of teaching and learning through DOL and, according to Marinoni, Van't Land and Jensen (2020, p.26), 'enhance the opportunities for working from distance and the opportunity for learners to access lifelong learning opportunities' (Marinoni et al., 2020).

6. Learning management systems (LMS)

Data gathered from TEC's Impact Survey (TEC, 2020a) indicated WhatsApp and email to be more commonly used by institutional staff and learners, probably because of their own familiarity with, and cost effectiveness of, these platforms. Only one institution in Seychelles used IFNOSS, an online platform, indicating the need to develop and implement online educational software and LMS (TEC, 2020a).

Many HEIs worldwide are looking to invest 'in cloud services, to digitalization of administrative management processes, and access of documents, resources and libraries' (Marinoni et al., 2020, p.26). In Seychelles the study and forum has clearly shown the need to develop and implement an LMS in all institutions to cater for aspects of eLearning. Nonetheless, lessons from international practices clearly indicate that this comes with a multitude of implications, such as the digitalization of resources and libraries and capacity

building for both institutional staff and learners, all of which have associated financial implications. On a positive note, some institutions in Seychelles have expressed their desire to explore launching and sharing collaborative LMSs (TEC, 2020b). In addition, building capacity for more effective e-learning experiences and proposals to develop ICT policy, and core modules to improve staff and learner's ICT literacy came out as a strong recommendation moving forward (TEC, 2020a), aligning with similar propositions from OECD countries (Schleicher, 2020).

Of note is that Mali and Morocco have developed eLearning platforms for HEIs, providing learners with courses and assignments (ADEA, 2020). An online training system and call center has been developed in Côte d'Ivoire for provision of digital courses for continuous learning, allowing learners to download over 800 online courses and receive support when they use the platform (ADEA, 2020).

These strategies could be a learning opportunity for Seychelles moving forward, given that statistics from the survey indicated the need to set up systematic support mechanisms for learners and concerned parent ministries of institutions (TEC, 2020a).

7. Regulatory framework

The many adaptations institutions had to make, and are still accommodating in order to cope with COVID-19, pose complex questions in terms of the implications on the current regulatory and policy frameworks and the overall quality of education. Beyond policy, legal changes are inevitable. In Mauritius for instance, according to ADEA (2020, p.23), the Education Act, amongst several other laws, has been amended to mitigate the effect of the COVID-19 pandemic, an interesting area for Seychelles to conduct further research work on as it recalibrates its response.

As discussed previously, many HEIs worldwide have encountered issues in administering exams or assessing learners. 'For some, the legal implications related to ensuring that the exams would be conducted within the regular timeframe or to what extent it is possible to explore alternative ways of assessing the students' learning outcomes in order to finalize the semester were a real challenge with no clear answers' (Marinoni et al., 2020, p.31). In Seychelles, the assessment of learners was also of significant concern; about one third of the staff in institutions noted that they sometimes could assess learners well and sometimes not, and 15% indicated that they could not assess at all, whilst 16% did not conduct any assessment (See Fig. 3) (TEC, 2020a).

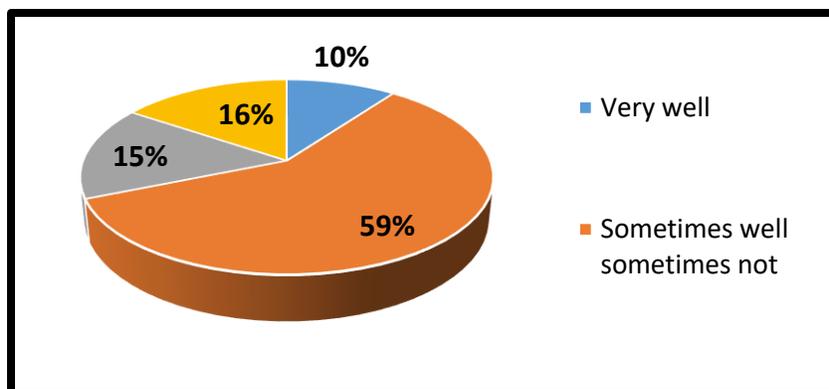


Figure 3: Assessment of learners

Consequently, in some cases assessment had to be postponed until further notice, and at other times closed-book assessment or research work was given to learners, as being more convenient modes of assessment (TEC, 2020a). There is obviously a clear need to review assessment strategies and this may well have a direct influence on the quality, and the regulatory framework, of education. Fitting online learning in the current context of the regulatory framework in Seychelles needs in-depth reflection. Currently, many providers themselves are unsure as to what they can undertake and yet continue to meet quality assurance requirements (TEC, 2020a). Statutes or generic policies guiding institutions were developed in non-COVID times and aspects of these, including parts of the codes of conduct to do with attendance for example, have clearly become obsolete. It is for this reason that collaboration and support may be needed between institutions and regulators to review criteria used, for instance, for institutional and programme accreditation, and to indicate compliance with the requirements laid down by the Tertiary Education Commission (TEC, 2020b).

The same requirement applies for many Higher Education systems worldwide, where there are propositions to review 'educational legal frameworks, policies and plans, in light of the lessons learned from the crisis' (UNESCO, 2020b, p.7). In countries surveyed by UNESCO the need also includes the review of curriculum to fit learners' different levels of learning abilities.

8. Health and safety regulations and procedures

Not only did the pandemic put pressure on HEIs to develop and implement innovative response mechanisms for the continuation of teaching and learning, but more robust health and safety regulations and procedures in place for COVID-19 needed to be developed and implemented, bringing with it significant funding implications.

In Seychelles, institutions experienced an increase in expenditure which placed substantial constraints on their budget in terms of sustainability (TEC, 2020a). These expenditures included: provision of sanitisers, thermometers for temperature screening at entrance of campus, installation of washing basins, new transportation arrangements to accommodate social distancing, maintenance of accreditation status due to changes, ICT related tools and equipment, and greater costs relating to part time lecturers given that many classes had to be split into smaller cohorts (TEC, 2020b). However, the installation of washing basins at the different institutions did provide a learning opportunity for the Seychelles Institute of Technology (SIT) students undertaking this practical training.

Similar trends in relation to expenses on health and safety equipment were noticeable in other countries as well. In Mauritius for instance expenses included ‘procurement of materials and equipment for distribution to learning institutions, these include hand and shoe sanitizer, forehead thermometers, liquid soap and disinfectant, provision of additional taps where needed, and general cleaning and disinfection of learning institutions’ (ADEA, 2020, p.26). Mali installed handwashing kits, provided masks ‘to administrative and teaching staff and pupils’ (ADEA, 2020, p.25) whilst Rwanda ‘allocated 30 % of Ministry budget to the reopening of learning institutions’ (ADEA, 2020, p.26). Comparatively, ‘in Côte d’Ivoire, there were increased material resources of health and sanitary kits for all learning institutions, and 80 million masks conveyed to the institutions by the government’ (ADEA, 2020, p.26). For many HEIs worldwide, including Seychelles, these investments have allowed them to resume face-to-face teaching and learning in a safe environment for both institutional staff and learners.

9. Inequalities in learning opportunities

COVID-19 has become an impetus for change in education systems to address the many inequalities that we knew existed but which have been shown in a different, and sometimes starker, form. Most impacted have been learners coming from more disadvantaged backgrounds, for example, ‘students living in poverty and marginalization’ (UNESCO, 2020b, p.5). They have faced the raw end of access and financial implications of online learning in view of an inability to fully optimize DOL and independent study.

To offset such effects, in Ghana ‘lessons were provided online and via television and radio for learners in TVET’ (ADEA, 2020, p.13). In Seychelles the use of television and radio were not used for tertiary institutions, something which could have been done to reach learners that did not have access to internet, smart phones or laptops. Some institutions did manage to provide photocopies as a resource but this was limited due to lack of preparedness (TEC, 2020a). To mitigate the problem of access and encourage life-long learning and inclusive education:

Curtin University is creating 'micro-credentials' to allow shorter term 'stackable' credentials so people can learn at their pace and timing. It is also starting the relationship with students while they are still in high school by offering digital alternative early credit and acceleration option and then using the micro-credentials for life-long learning and 'returning to learning' pathways.

(UNESCO, 2020a, p.5)

Perhaps for Seychelles institutions, an increased autonomy will provide the space for such strategy but SQA needs to lead the way in setting up an overall framework from which institutions will domesticate.

Some HEIs from countries belonging to ADEA are setting up 'multimedia structure to cater for creation of a recording studio, knowledge and learning management platforms, television channels, and digital libraries' (ADEA, 2020, p.32). Given that apprenticeship students were having difficulty in accessing online resources, the use of recording studios and television channels is a strategy Seychelles can learn from and take moving forward. Nonetheless, institutions must review the issue of fairness and equality if only one group benefits.

Many HEIs from UNESCO countries are proposing that the country invests in setting up national integration of ICT infrastructure for teaching and learning, and free internet access for education purposes to allow better access to eLearning for learners. As previously indicated, in Seychelles there are proposals to initiate dialogue with concerned stakeholders for systematic cooperation and support, for instance in terms of affordable internet prices or packages for institutional learners and staff, to review the laptop scheme, and for an increase in bandwidth to improve connectivity speed and stability (TEC, 2020a).

Conclusion

The challenges and opportunities brought along by the pandemic upon the education and training systems, has clearly had the potential to enable stakeholders to set a new pathway for education and training. In light of the evidence presented in this paper it is clear that the tertiary education sector remains an ever-changing landscape. On a macro level the results indicate 'the significant gaps in knowledge, capacity and funding for the provision of online or blended learning between institutions and countries' (UNESCO, 2020a, p.3). At the same time, it signifies the importance of innovativeness, adaptability, competencies, and collaborations 'to react effectively and efficiently in the future' (Schleicher, 2020, p.26).

The studies surveyed showed 'that most education systems were largely unprepared and ill-adapted to ensure continuity of inclusive education outside schools' (UNESCO, 2020b, p.6). As a result, 'students, professors, academic leadership and communities have had to be flexible, resilient, adaptable and creative in addressing the challenging situations' (UNESCO,

2020a, p.2). On top of that, the ‘response mechanisms relied greatly on the willingness and capacities of academic and non-teaching staff’ (UNESCO, 2020a, p.2). For Seychelles, to some extent, there was generally a willingness on the part of institutions to adapt to the situation though not all institutions moved at the same pace clearly due to a lack of capacity of different institutions.

Drawing out from the comparability analysis in this paper, evidence presented indicates that to some extent the majority of institutions globally and regionally ensured the continuity of teaching and learning despite the many challenges and related implications. In addition to this, the response mechanisms implemented in the process of continuous learning highlighted significant international emerging trends in the education sector in line with digital learning. Moving forward, there is a growing need and opportunity to incorporate eLearning and distance learning systematically and collectively post-COVID, to improve accessibility, affordability, institutional readiness, relevancy of programmes and courses, and meet international learners’ needs, and equal lifelong-learning opportunities for learners. Whilst these trends offer the opportunity to rethink the education systems, it remains imperative to address the related implications of the needed resource and infrastructure in the education sector.

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