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Building Resilience in Education Systems with Open and Flexible learning

Construindo resiliência em sistemas educacionais com aprendizagem aberta e flexível

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Abstract
In a recent publication "The Handover: How we give control of our lives to corporations, states and AI" recently published by Profile Books Ltd., London, David Runciman suggests that there are some things that pose an existential threat to the human species. They are: nuclear war, climate change, biological warfare or disaster and artificial intelligence. The question is what are we doing about it – as a society? How prepared are we for any transition or transformation of existing architectures and choreographies? In this article, we direct our attention to one region of the globe – the Southwest Pacific region, where the authors are currently located, and we focus our attention on the area of Education, in which we claim to have some knowledge and experience. This requires viewing educational provision through a new set of lenses.
Key-words: Flexible learning; Resilience in Education; Systems with Open.

Resumo
Numa publicação recente "The Handover: How we give control of our lives to corporations, states and AI" publicada recentemente pela Profile Books Ltd., Londres, David Runciman sugere que existem algumas coisas que representam uma ameaça existencial para a espécie humana. São eles: guerra nuclear, alterações climáticas, guerra biológica ou desastre e inteligência artificial. A questão é o que estamos fazendo a respeito – como sociedade? Quão preparados estamos para qualquer transição ou transformação das arquiteturas e coreografias existentes? Neste artigo, dirigimos a nossa atenção para uma região do globo – a região do Sudoeste do Pacífico, onde os autores estão actualmente localizados, e centramos a nossa atenção na área da Educação, na qual afirmamos ter algum conhecimento e experiência. Isto exige ver a oferta educativa sob um novo conjunto de lentes.
Palavras-chave: Aprendizagem flexível; Resiliência na Educação; Sistemas abertos.

Introduction

Despite the significant advancements we have experienced in areas such as infrastructure, technology, education, health care and the economy, large sections of the global community continue to live below the poverty line, and without basic needs such as food, water and shelter—let alone health care and education. According to United Nations estimates, the global population is likely to reach 10 billion by 2050, with more than two-thirds of it living in Asia and Africa (Ritchie, etal., 2023). Given current trends, large numbers of those living in these areas are likely to be out of school. Major barriers to access to educational opportunities will be the lack of opportunities for schooling, its cost, and gender-based barriers to participation in some contexts (Bozkurt et.al, 2023). This picture looks even more dire when, war and natural disasters such as floods, drought and famine are also factored into this equation.

It is arguable that we may have on this planet the capacity to meet the basic needs of 10 billion people. The problem lies with equitable distribution of the food and resources that we have, or can produce. While, there is evidence of abundance and opulence in many parts, there is severe shortage and deficiency in others. However, it is unlikely that many of us will be willing to give up our privileges simply to help others. What will help those in conditions of hopelessness is their capacity to be able to lift themselves up. In the absence of privilege, power and wealth, education offers our best hope to be able to level the field. Therefore, the provision of educational opportunity ought to be seen as a basic human right, much like we see the provision of food, water, and shelter—for education has the potential to provide people with the skills sets to lift themselves up with their bootstraps.

Education has the potential to also free minds and mindsets, and this kind of freedom is not simply about being able to express one's opinions and participate in political processes. It is about having the skill sets and the capacity to make choices about one's life and livelihood. We know that children born into families with education have far greater chances of survival than those without, and that education can lead to improved lifestyles, and help reduce poverty. However, without a systemic rethink and re-engineering of educational provision, access to education will almost certainly remain, for many—a pie in the sky! Conventional approaches to educational provision have not been able to meet the needs of our current

capacity, let alone that of the coming decades. The recent pandemic caused by the COVID-19 virus was a potent reminder of the inadequacies of conventional approaches which have been dependent on the physical infrastructure and its resources. The pandemic is a call for a reimagination and re-engineering of educational provision, globally. Business as usual is not going to be acceptable, nor advisable.

This reimagination and re-engineering of educational provision will have to factor in a disposition of openness and flexibility, for without it, global and universal access to educational opportunities is not going to be possible. The idea of open and flexible education has the potential to help *access to educational opportunity*. This comprises open access to learning opportunities, the adoption of *flexible learning and teaching strategies*, and the adoption of *a culture of sharing* in relation to intellectual property rights openly and freely (Naidu, 2016). Such a disposition comprises a radical shift in the conventional architecture of education systems which will be resistant to change—but it must change! No amount of physical infrastructure will be able to meet the needs of the impending global population. An alternative approach is necessary that does not rely on location-based physical infrastructure and resources. The starting point for such a disposition and modus operandi is the realization that all lives have equal value, and that without opening up access to learning opportunities, the agenda for education for all will remain aspirational, and especially so in the developing regions of the globe.

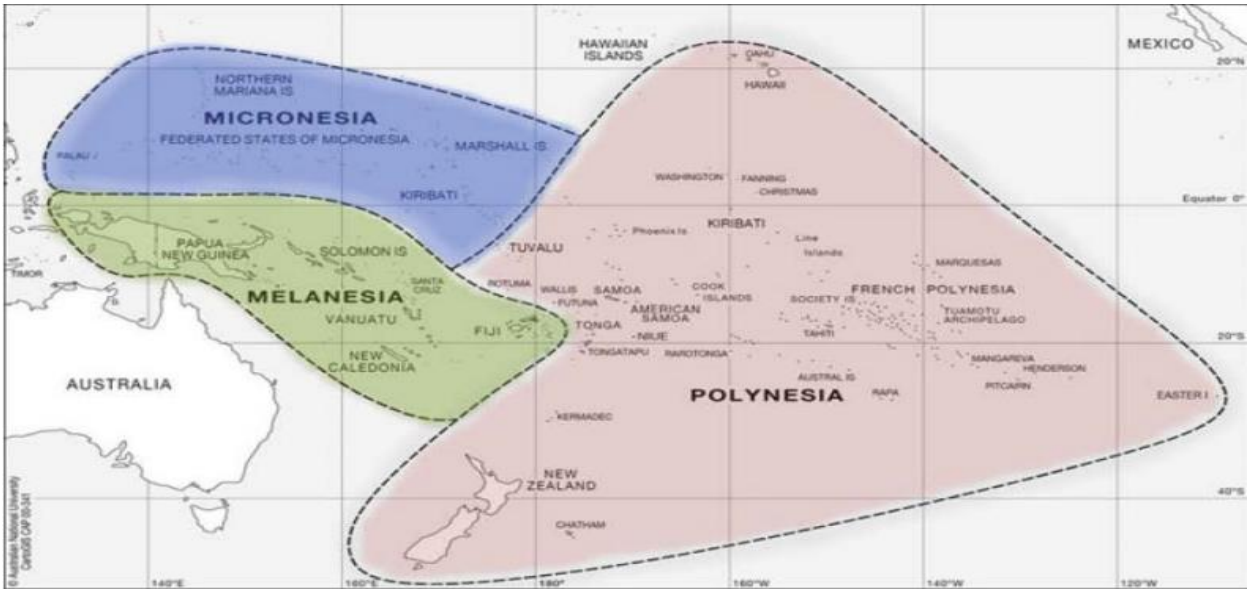
South Pacific Region

The South West Pacific region is one of these developing regions. In this paper we investigate the readiness of the South Pacific Island economies for the adoption of a significantly enhanced approach to educational provision—and one that is based on the affordances of information and communications technologies, as well as how best to approach a reimagination and re-engineering of conventional education systems.

The South West Pacific region comprises small island nations ranging from small coral atolls in Micronesia in the north to larger volcanic islands in Melanesia and Polynesia in the East and the South (see Figure 1). The origins of Pacific Islanders are traceable to the larger land masses of Africa, Asia and the Americas that surround the region. Over the past few centuries, these islands have been the subject of European colonization, from which many have only recently achieved political independence. As a result, European systems of government are

commonplace and European languages widely spoken in the region. The education systems till recently have been also based on European education systems and curriculum, and especially those of Australia and New Zealand. The COVID-19 pandemic caused as much havoc in the Pacific Island educations systems as it did globally.

Figure 1: Map of the South West Pacific Region



(Cullen, & Hassall, 2016).

The Pacific Island nations are also home to small populations ranging from only a few thousand people in the Micronesian region to up to a million people in the southern Melanesian region. The majority of the Pacific Islanders live in small towns and villages. The gross domestic product, per capita, of many of these countries is low by global standards. The impacts of climate change are nowhere more consequential than in the Pacific with many of the islands already under threat from rising sea levels. This requires a reimagination and re-engineering of conventional approaches in order to be able to build resilience in its education systems for the future. But how ready are these economies and their people? In this paper we report the findings of our investigations in the capacity of the countries in this region for such a significant and transformational shift. Based on our findings, we offer a framework for building such resilience in Pacific Island education systems, as a robust education system is critical for sustainable development.

Research methodology

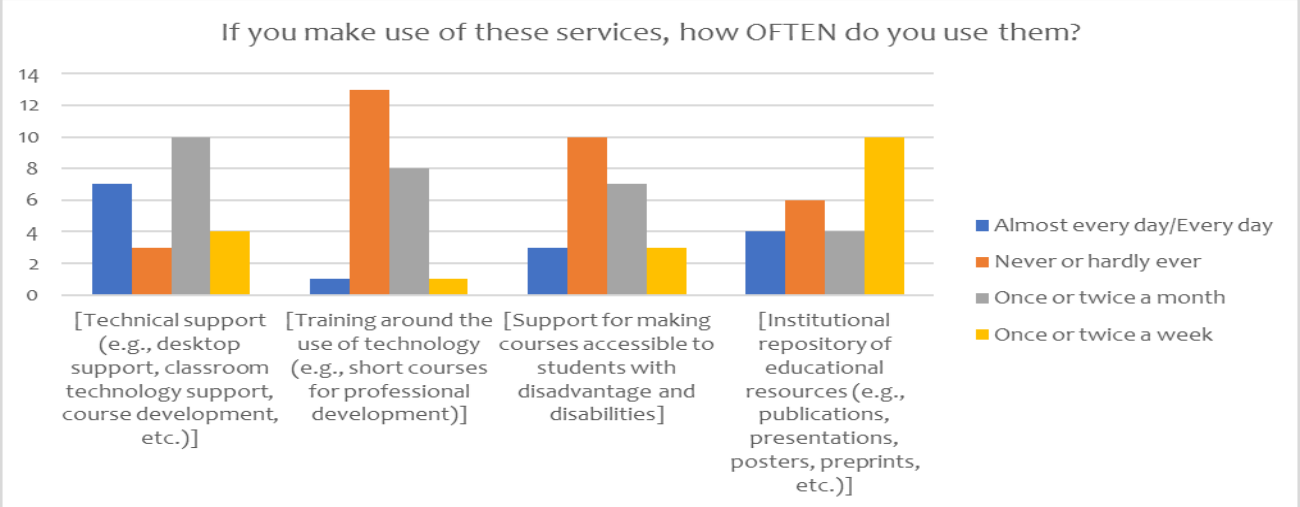
An online survey (see Appendix 1) was used to gather first hand data for this investigation that informs this analysis. This survey consisted of Likert type as well as open-ended questions. Areas covered in this survey included access to technology, issues around equity and inclusion, quality of provision, system resilience and the costs of provision. Invitations for participation were solicited online and participation was completely voluntary and anonymous.

Findings and observations

Respondents to the survey were from Australia, New Zealand, the Republic of Fiji, Kiribati, Samoa, Solomon Islands, Tonga, Vanuatu and the Federated States of Micronesia. Seventy percent of the respondents to the survey identified as female and thirty percent as male. A majority of the respondents were public service employees, and most considered themselves as urban and town dwellers. While desktop computers were still the preferred choice of employers, mobile devices such as laptops, tablets and mobile phones are becoming preferred for personal use.

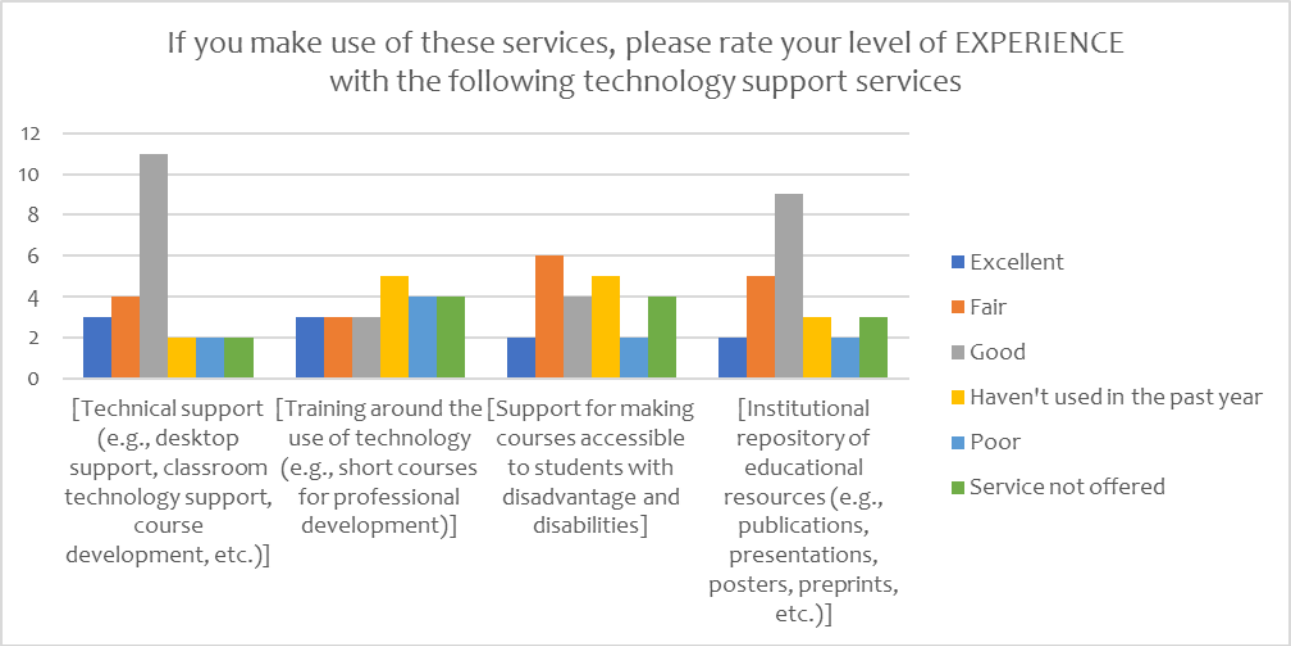
Adoption and use of technology: While there is some evidence of the presence of technology among Pacific Islanders, its uptake and use in the workplace and in learning and teaching seems to be rather slow. A significant area of deficit is in the area of digital literacy. Respondents reported never accessing technical support or training in the use of technology (see Figure 1).

Figure 1. Uptake and use of technology.



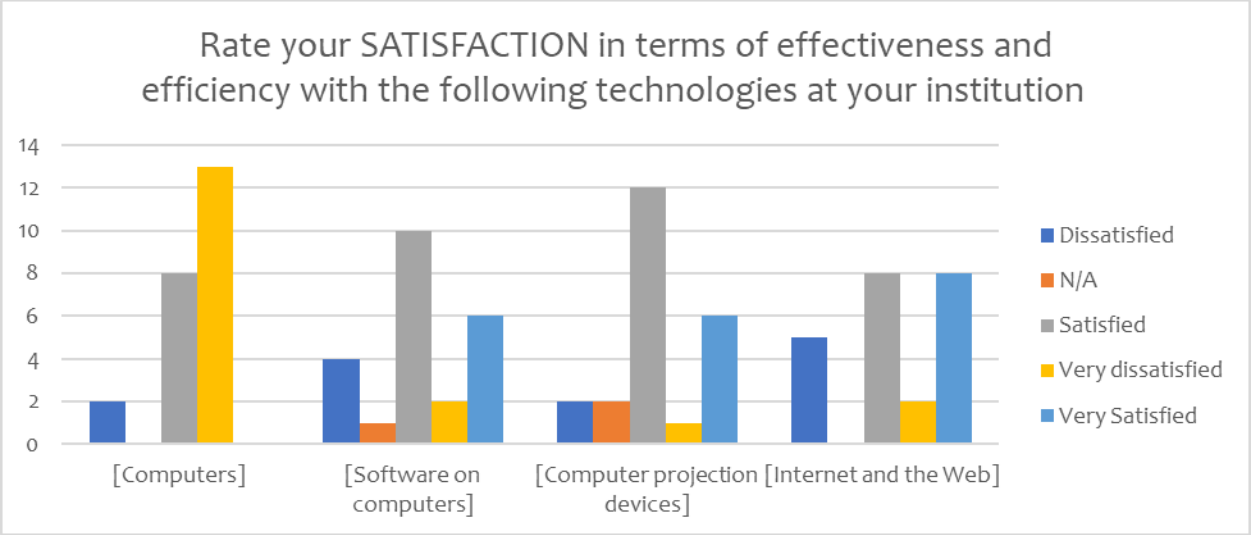
Where available, most considered services related to the use of technology poor or never having used them if they were available. These services include technical support, training in the use of technology, support in the development of courses for those with disability and disadvantage, and institutional repositories of educational resources (see Figure 2).

Figure 2. Experience with services in the uptake and use of technology.



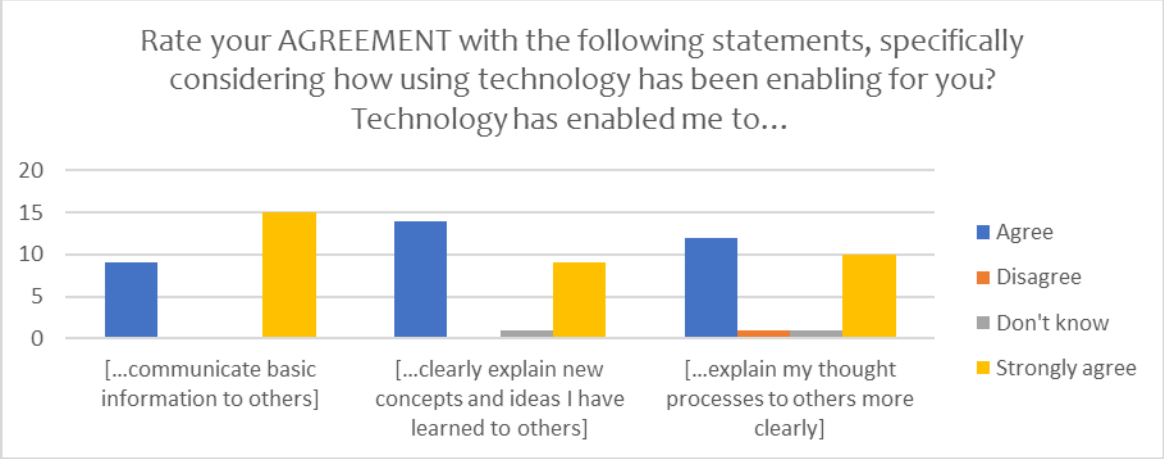
Satisfaction with the effectiveness of technology: Respondents reported not being very satisfied with technology, its effectiveness and efficiency. A majority of them felt either very dissatisfied or, at best, satisfied with the benefits of technology (see Figure 3). This could be a result of a number of factors not directly related to the technology itself, but to its application and integration or the poor levels of digital literacy and support that are in place for their adoption into the workplace and in their learning and teaching processes.

Figure 3. Satisfaction with effectiveness and efficiency.



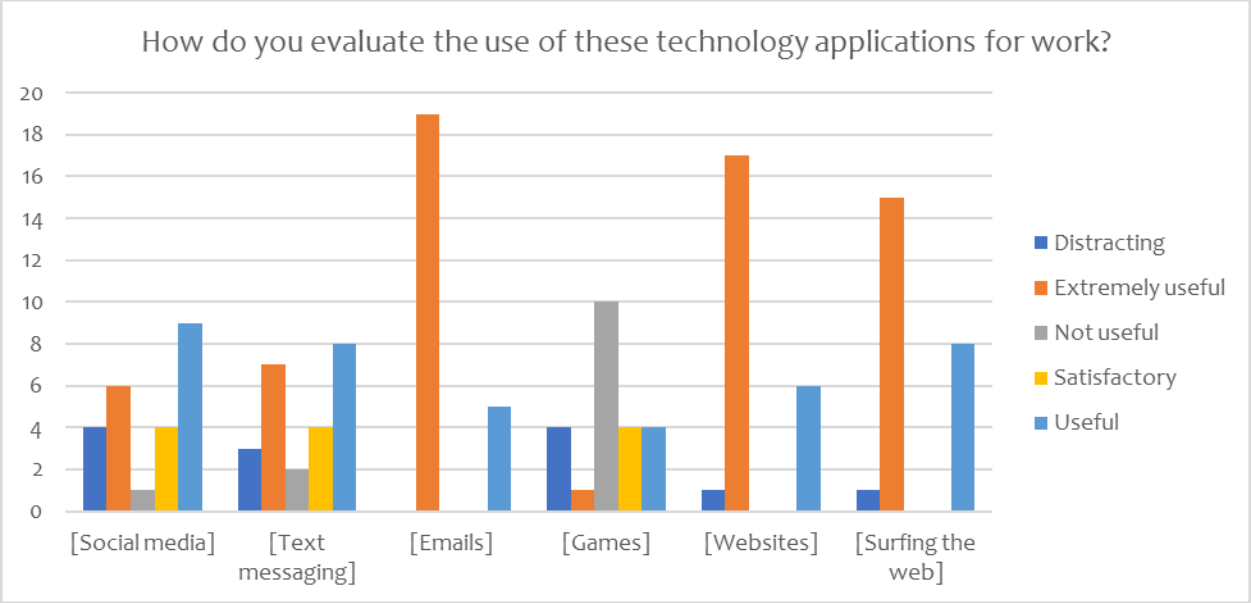
Despite these somewhat poor levels of satisfaction with technology, a majority of the respondents were positively disposed with the affordances of ICTs in their workplace. Many agreed that technology was an enabler in relation to their affordances for communication of information and thought processes, as well as for the acquisition of declarative knowledge from one source to the other (see Figure 4).

Figure 4. Technology as an enabler.



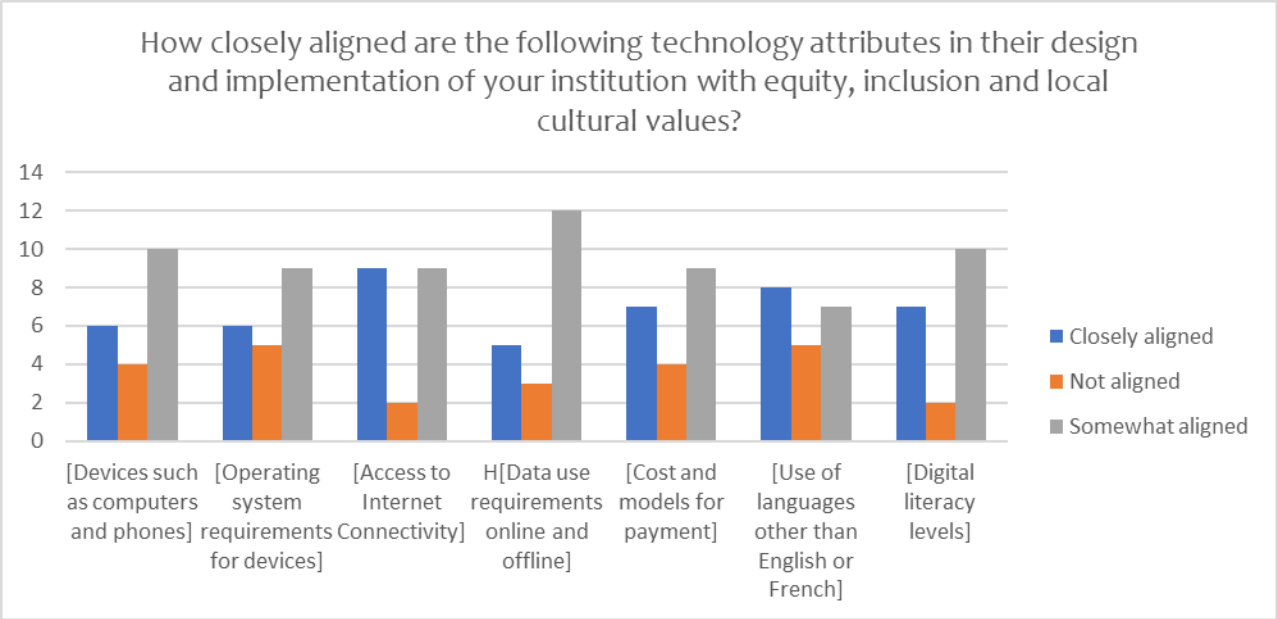
A majority of the respondents reported finding technology in their workplace extremely useful for email communications and accessing resources on the Web (see Figure 5).

Figure 5. Technology affordances.



Most of the respondents also felt that the adoption and use of technology (such as devices, operating systems, connectivity, costs, and digital literacy strategies) in their institutional contexts were fairly closely aligned with its value propositions around equity and inclusion (See Figure 6).

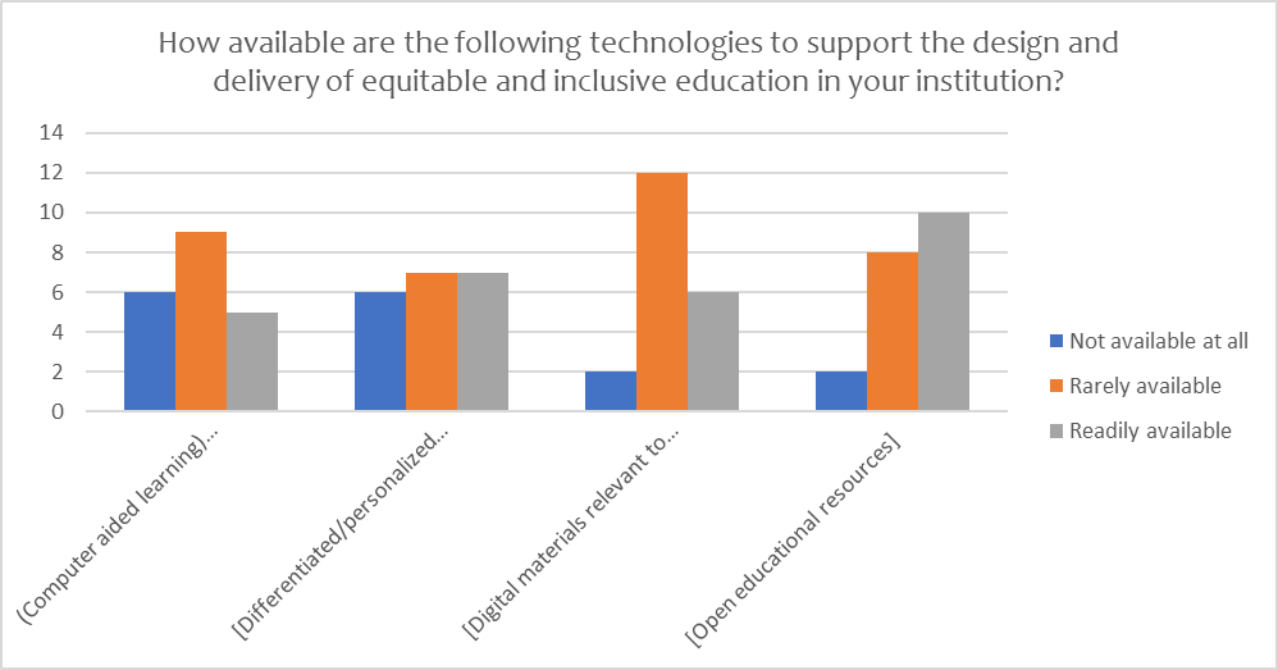
Figure 6. Alignment of technology with value propositions.



Although, many felt that there was much to be done in the application of technology in the design and delivery of equitable and inclusive education in their institutions. This includes

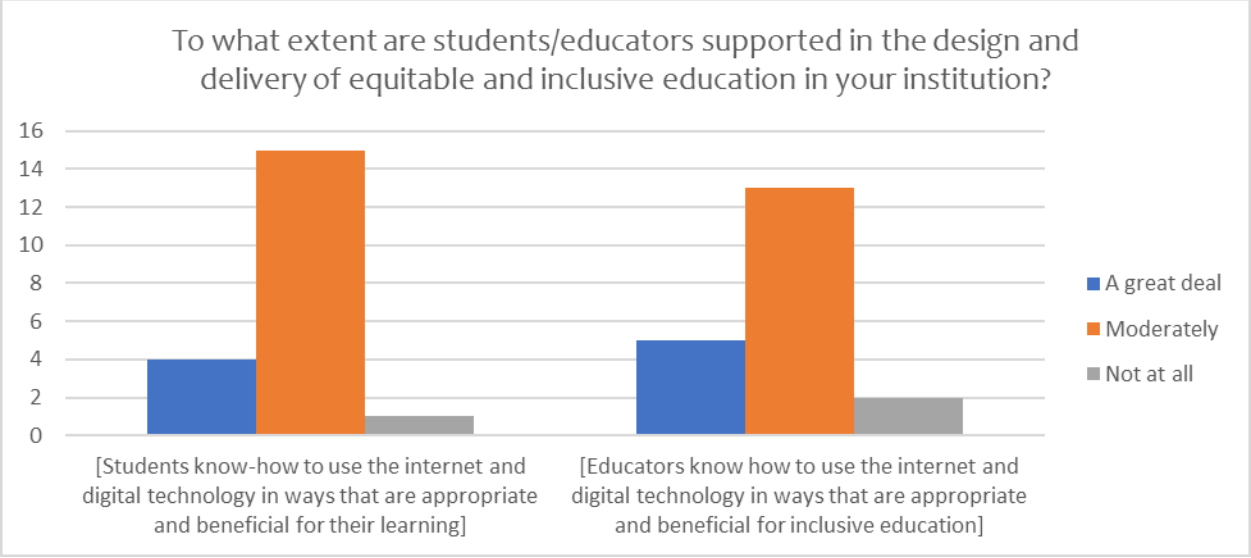
access to computer enhanced and, personalized learning, and access to digital and open educational resources (see Figure 7).

Figure 7. Technology in equitable and inclusive education.



Many felt nevertheless, that students and educators were reasonably well supported with the design and delivery of equitable and inclusive education in their institutional contexts. These areas included students' use of the Internet and the Web in their learning, and in the efficient use of technology by educators in their inclusive education efforts (see Figure 8).

Figure 8. Technology supports in inclusive education

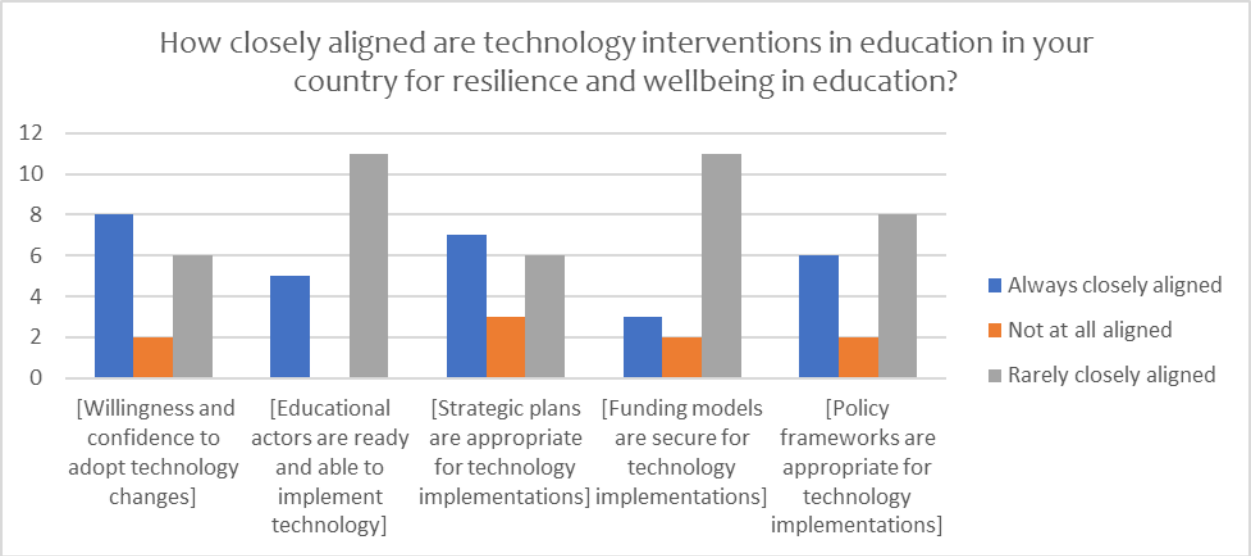


Technology application in building resilience. Resilience is all about being future proof and ready. It is about being adaptable, and about being able to remain viable in the face of

changing and volatile circumstances. The key parameters of this kind of capacity are willingness and confidence to adopt technology changes; being ready and able to implement technology; possessing secure funding models; and having policies and strategic plans that are appropriate for technology implementation (see Figure 9).

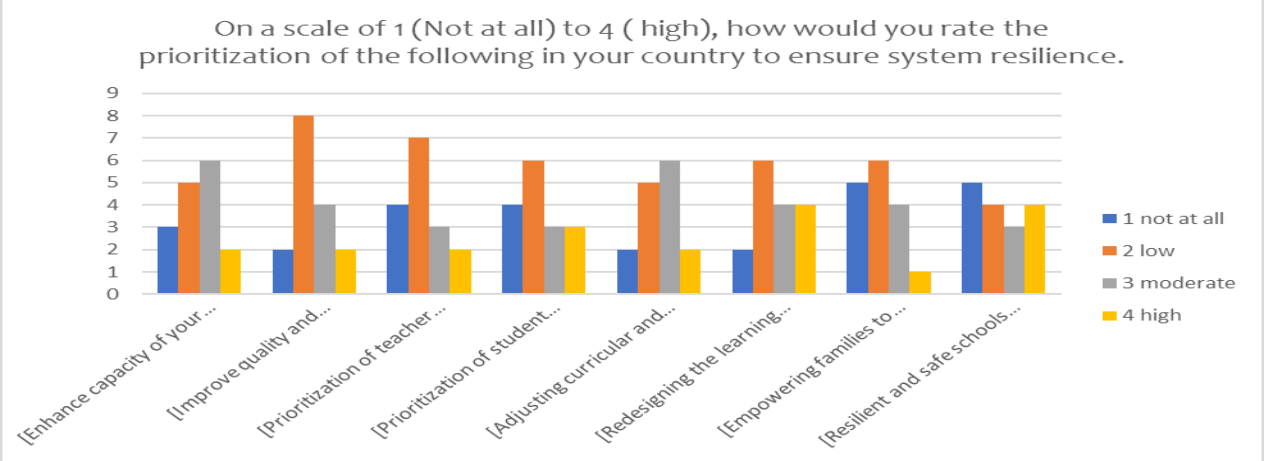
The picture in these areas does not look very promising. Respondents felt that in most of these areas, instructional interventions were not closely aligned with institutional aspirations along these lines—leaving them vulnerable to disruption and destruction.

Figure 9. Technology alignment for resilience



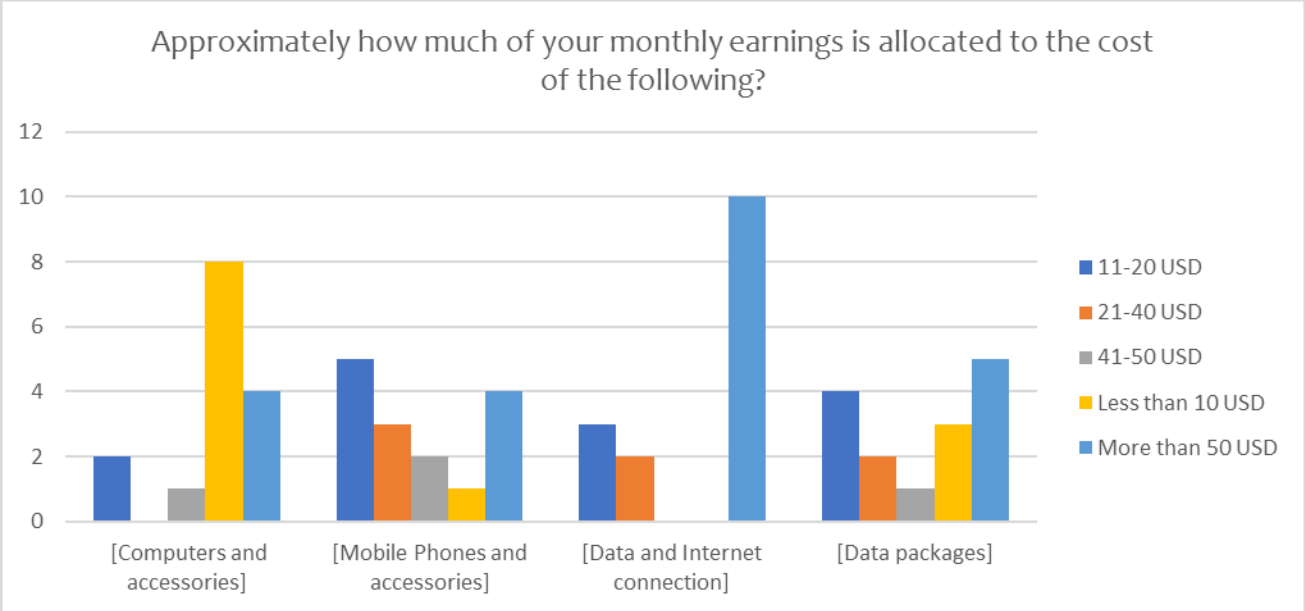
Resilience is also about having the capacity and the skills to be able to adapt in the face of change. These parameters include: curriculum alignment, and prioritization of student and teacher safety. Respondents felt that none of these matters were very high on the radar in their institutions (see Figure 10).

Figure 10. Prioritization for resilience.



Costs of technology. A major factor in the adoption of technology is its costs, and in the South West Pacific, this is always a challenge. Annual incomes per capita in the region range from as low as 2, 000 up to 50, 000 USD in a few instances. While the costs of devices are reasonable, the costs of connectivity are very high and beyond the reach of many (See Figure 11). This is possibly the most serious impediment to the adoption of technology in the region.

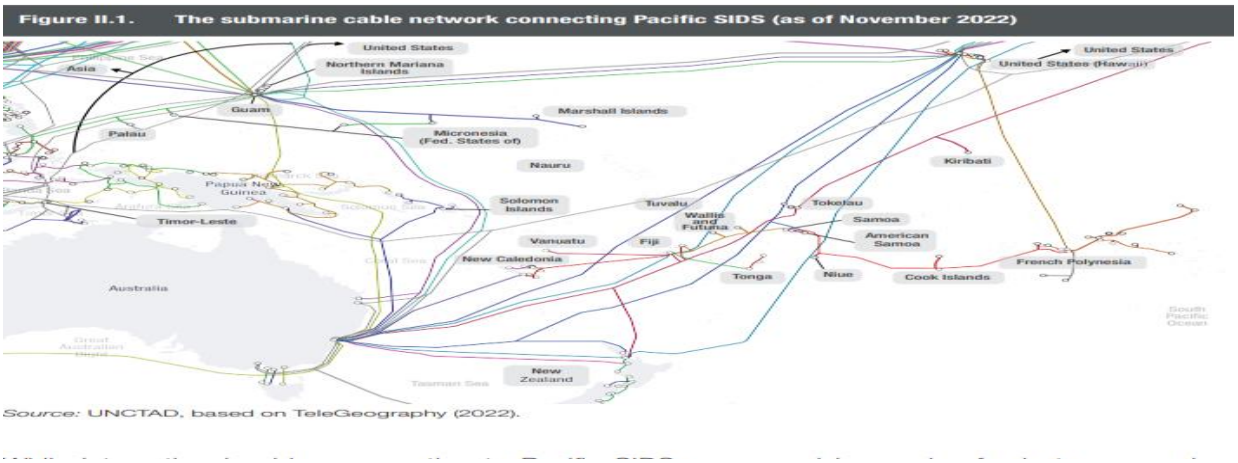
Figure 11. Costs of access to technology and connectivity.



Discussion and recommendations

It is arguable that the South West Pacific region compares favorably with like regions of the world in relation to its access to technology. Our investigations into the readiness of the South West Pacific Islands for a radical reimagination of their education systems reveal a promising picture with access to technology and connectivity growing in the region (see Figure 12). While the region is well serviced by terrestrial connectivity between the Pacific Rim countries, many of the Island nations still have access to just a single cable and many have no cable at all—a situation is unlikely to improve in the near future.

Figure 12. Submarine cable network in the South West Pacific (2022)



Access to satellite-based communications with services such as Starlink offers promising opportunities. Starlink which is a service provided by SpaceX is based on access to a growing number of low-earth orbiting satellites that are being deployed by SpaceX specifically to provide access to the remotest and poorest regions of the world with affordable access to the Internet and the Web. The South West Pacific region is not new to this technology. Satellite-based connectivity has been available for over half a century when one of NASA's old weather satellites was made available to the University of the South Pacific for communications, including teaching and learning within its region.

While access to technology is improving in the region, numerous other challenges remain, and these have to do with the capacity of Pacific Islanders in the effective and efficient use of technology. A high percentage of Pacific Islanders possess low levels of digital literacy, and very low levels of it among educators for technology integration in learning and teaching. This is partly a result of a lack of adequate opportunities for training and upskilling in the use of technology, and also access to relevant resources, both in terms of infrastructure and connectivity. A related problem is access to reliable sources of power supply, without which technology becomes more of a frustration.

This picture is unlikely to change in the short term. It is imperative therefore that Pacific Islanders start to think differently about educational provision at all levels. This will require reimagining how and where teaching and learning take place because the status quo and business as usual are unlikely to be able to meet the needs of the next generation of Pacific

Islanders. Failure to do this will mean continuing brain drain of Islanders to the more developed Pacific Rim countries where the opportunities for growth and advancement are much better.

Engagement with this kind of re-engineering will require a reimagination of enduring value propositions and the role of education in the socio-economic development of societies. Education is a public good, which like food and shelter, needs to be accessible to all. It is fundamental to the creation of productive and peaceful societies, as education gives people the capacity to be productive members of their communities. For this reason, educational opportunities, both formal and non-formal need to be open and flexible, and not confined in any shape or form. This will require radical mind shifts about educational provision and its reach.

There are three key dimensions of the idea of open education. Foremost this comprises *open access*. The idea of open access is deeply grounded in a socio-economic and political agenda that proposes access to educational opportunity regardless of one's skill set, location or ability to pay. All of these variables have been used as guardrails to not only constrain access to keep it in the hands of the few privileged members of our societies. This has meant invariably, the separation of the educated from those who are not. This is how we have maintained social order. A major problem with this value proposition is that, we are unable to benefit from the whole society, leaving out from the equation women, and the disenfranchised. Societies have been poorer as a result. Opening up access means that all of us, and every one of us has the opportunity to seek to further sharpen our skill sets so that we can be productive members of our societies as opposed to leaving them in the hands of the few. And as a result, we are all much better off.

Opening up access to educational opportunity is not merely about accessing and acquiring formal qualifications. It is so much more than that—it is about opening up and freeing up mind sets. For without that we are never really free. Being free is not merely about being about express one's thoughts openly and freely without censure and sanction. It is about having the tools to make one's own choices, and unless one has the capacity to do that, we are never really free. This kind of freedom is about justice, for without education, one cannot really be part of the mainstream conversation and therefore unable to compete equitably on a level playing field. The best way to open up access to educational opportunity is to remove barriers to it. Obvious barriers include pre-requisites, age, gender, ethnicity, location and ability to pay.

Don't be surprised! We have in the past excluded people from accessing educational opportunities due to their ethnicity (such as during the apartheid regime in South Africa).

At a deeper level opening up access is about adopting *open and flexible learning and teaching strategies*. And this is a second critical dimension of the idea of open. It is about being inclusive regardless of one's condition and capacity. Traditionally, if one needed to access formal learning opportunities, then one needed to converge at a physical location, and in buildings that were designed in a particular way, as if one were going to be served food in a restaurant. There is no particular reason for the acts of teaching and learning to be confined to physical spaces and particular locations. In the last few decades, we have seen knowledge being released from the shackles of physical libraries and becoming accessible in a much wider range of places. The growth of the Internet and the Web has had a very significant role to play in this.

It is likely that in the future, subject matter knowledge as well as expertise can be accessed from a distributed network and with a wide range of tools, in different ways and at a time that is convenient to individuals. A new kind of educational infrastructure is required for this modus operandi. It will be more important in this scenario to ensure that learners and teachers can connect with each other rather than be able to converge in a physical location. Building more physical spaces ought to be seen as less important than providing connectivity to one another, and to the global repository of knowledge, so that regardless of one's location, everyone can and will have access to the same repository, database or hub. A useful approach to embedding openness and flexibility in learning and teaching is to see it in relation to the following dimensions of *learning experience design:* These include flexibility in relation to how learners engage with the learning content; with their peers; with their teachers; with the learning environment; their assessment activities; feedback and the services provided by the educational institution.

A final and very important dimension of the idea of open is *open scholarship*. This is about engagement with the products of learning, teaching and research, and its ownership, use, reuse and distribution. Traditionally we have been notoriously selfish and guarded about this, to the extent of keeping the products of our scholarship under wraps and cover with the help of very strict copyright laws which have prevented us from its use, reuse and redistribution, without suitable payment and acknowledgement.

It is arguable that this kind of restricted access to knowledge cannot be helpful in the development of societies and economies. This is an outdated and anachronistic model and value proposition. For a more productive society we need a different value proposition, which allows open and free access to the products of knowledge, and especially that which is the product of public funding. This is the premise of the open education movement (Lane, & Mcandrew, 2010). The idea of the open education movement is that educational resources ought to be licensed differently from the way they have been traditionally, to allow a much wider range of possibilities for adoption, adaptation, use, reuse and redistribution.

The findings of this study suggest that it is imperative that developing economies and societies such as those in the South West Pacific region, and similar contexts, engage with the idea of open. Without it, there cannot be equitable access to educational opportunities, in the best of times—let alone during times of calamity such as the recent global pandemic caused by the COVID-19 virus. Such a rethink and re-engineering may not require additional or more resources. But it will be about reallocation of existing resources. For this, we need progressive mindsets, plus brave and bold decision making!

References

BOKZURT, Aras; GJELSVIK, Torunn; ADAM, Taskeen et al. Openness in Education as a Praxis: From Individual Testimonials to Collective Voices. **Open Praxis, v. 1**5, n. 2. p. 76-112, 2023. Disponível em: https://openpraxis.org/articles/10.55982/openpraxis.15.2.574.

CULLEN, Rowena; HASSALL, Graham. e-Government in the Pacific Island states: ICT policy and implementation in small island developing states. Solomon Islands Country Report. Used with the permission of CartoGIS, Australian National University; Internet World Stats (2022). **Miniwatts Marketing Group**. *October 2016*. Disponível em: https://www.internetworldstats.com/#google_vignette.

HANNAH RITCHIE, Lucas Rodés-Guirao; EDOUARD MATHIEU, Marcel Gerber, ESTEBAN ORTIZ-OSPINA, Joe Hasell and et al. **Population Growth**. Data adapted from Gapminder, PBL Netherlands Environmental Assessment Agency, United Nations, 2023. Disponível em: https://ourworldindata.org/grapher/population-regions-with-projections

LANE, Andrew; MCANDREW, Patrick. Are open educational resources systematic or systemic change agents for teaching practice. **British Journal of Educational Technology**, *41*(6), pp. 952-962, 2010. doi:10.1111/j.1467-8535.2010.01119.x

NAIDU, Som. (2016). The Case for Open Educational Practice. **Distance Education**, 37, 1-3, 2016. Disponível em: https://doi.org/10.1080/01587919.2016.1157010.

RUNCIMAN, David. **The Handover:** How we gave control of our lives to corporations, states and AI. Profile Books Ltd, London, 2023.

UNCTAD. **ICT prices:** ICT price baskets. Historical data series, March 2022. Disponível em: https://www.itu.int/en/ITU-D/Statistics/Pages.

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