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## Research Article

### Market Demand and Interest Profiling of Cebu Institute of Technology - University Students at The Onset of Online Learning

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#### ABSTRACT

This research was undertaken to understand the customer segments of the Cebu Institute of Technology- University using demographic, geographic, and socio-economic lenses. At the same time, this study also determined the students' technological capacity, technical capability, and willingness to enroll in the University's second summer term of 2020. The study used a descriptive research method to obtain data from 2,133 college students as the respondents using random sampling. Based on data gathered from the six colleges of the University, from first- to fifth-year levels, the closure of schools led them to go back to their provinces, resulting in the geographic distribution of respondents, with 48% situated outside of Cebu City. Moreover, one of the most significant impacts of the pandemic is the decline of combined household income from a mean of P34,591.22 pre-pandemic to P23,923.85 during the pandemic when community quarantines were still enforced. Additionally, 72% of respondents have limited to moderate internet connectivity, sourced majorly from mobile data at 66% and personal or family-owned Wi-Fi at 50%. Widely used devices used at home were mobile phones at 97% and laptop computers at 56%. Recommendations included providing financial support through university-based and third-party programs and conducting marketing initiatives targeting the higher-income class to cushion the global economic crisis's negative financial impact.

**Keywords:** *Cebu Institute of Technology-University, Interest Profiling, Online learning, Market Demand*

#### Introduction

At the near end of 2019, the world saw the beginning of one of the most historic pandemics recorded in our time – COVID-19. In most people, symptoms can include mild to

moderate respiratory illness, which does not require special treatment. In some cases, however, the infected person may become seriously ill, requiring medical attention. Since the virus can spread through small liquid particles when

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people cough, sneeze, speak or breathe, wearing adequately fitted masks, practicing proper hand-cleaning, and social distancing was widely practiced before the advent of vaccines (WHO, n.d.). The goal was to slow down the transmission, so quarantine guidelines were observed in the Philippines and worldwide to flatten the curve and lessen the risk of infection and death. Globally, over 600,000,000 confirmed cases had been reported, with a death toll of over 6,000,000, published by the World Health Organization as of November 2022.

Since 2019, COVID-19 has affected several aspects of day-to-day life, especially healthcare, society, and the global economy. The health sector was greatly challenged, especially at the beginning of the pandemic, in terms of diagnosis, quarantine, and treatment of patients. Medical systems were overloaded, and medical professionals were seriously at risk of infection. Because of movement restrictions, the normal distribution and availability of goods and services were disrupted, causing undue stress and the closure of businesses such as theatres and restaurants. As a result of no movement and unemployment, there needed to be better cash flow in the market, less manufacturing activity, and slow revenue growth (Haleem et al., 2020).

Subsequently, with the worldwide effort to slow down the transmission of the virus, COVID-19 led to the closure of schools and educational institutions worldwide. Reportedly, 220 million higher education students worldwide have experienced learning disruptions. To continually operate and provide education to students, schools and universities transitioned to online learning in the Academic Year 2020-2021. While some schools in other parts of the world may have some form of online education pre-pandemic, moving all instructional materials and conducting fully online programs proved more challenging (Zheng et al., 2021).

In a study on the Impact of the Covid-19 Pandemic on the Education System, universities in India needed to conduct classes by adopting an online teaching methodology using learning management systems and open-source digital learning solutions. Higher education is a determinant of economic development, and the pandemic severely hit the higher education sector. India has been a provider of

international students to universities in Asia and around the world; with the closure of universities in the country, it was expected that the demand for international higher education would also reduce (Tarkar, 2020)

A few challenges regarding the closure included the availability of computers and connectivity equipment at home to support online classes. Some universities need more infrastructure or systems to facilitate online teaching. Questions on the delivery of subjects such as arts, music, and those requiring laboratories also surfaced. The issue of assessment and evaluation also looked challenging as students and faculty are at first still determining how to administer projects, assignments, and other learning assessments. In addition, students with less capability to attend online classes may suffer a clear disadvantage during assessments which may affect their grades. The delivery of school support and services needed to be established to ensure the safety and well-being of students and staff, provide clear directions and guidelines in the conduct of classes and school operations, and provide emotional and mental health support. Moreover, a committee needed to be formed to make informed decisions, assess, and learn from the critical situation to overcome and rise to the challenges brought about by COVID-19 (Sahu, 2020).

Moreover, the impact of COVID-19 on education may differ across all learners. In developing countries, the lack of infrastructure and access to computers led to the low learning motivation of students coming from poor and digitally illiterate families. Schools and the government from these countries needed to establish a plan to scale educational technology, using accessible online sources and scale up ICT infrastructures (Seble, et al., 2020)

The date was March 23, 2020, when CIT University was forced to close its gates by order of former Cebu City Mayor Edgardo Labella. The University responded to the crisis by forming a group outlining the framework, later introduced as MADE4Learners Framework. It issued a memorandum on the work-from-home set-up for its faculty and administrative personnel and online learning for its students.

CIT University is a private, non-sectarian academic institution built in 1946 to help the

country rise from the ravages of World War II. The following degree programs were primarily offered: Civil Engineering, Mechanical Engineering, Electrical Engineering, Chemical Engineering, Architecture, and Vocational Programs. Over 75 years later, CIT University remains a top producer of highly competent engineering graduates and industry-preferred professionals. Staying true to its tagline, "CIT Tops Again," it has produced more than 80 first placers and over 700 topnotchers from different fields of discipline, with a significant majority coming from the College of Engineering and Architecture (CIT University, n.d.). For the last 75 years, it has relied on face-to-face and onsite operations to educate its students and serve its stakeholders. The transition to remote education and work set-up posed a significant challenge for the University.

Due to this crisis in the delivery of instruction under strict quarantine guidelines, a Crisis Management Group was formed to outline the procedures and policies concerning online promotion, online enrollment, online delivery of education, online communication platforms, learning management system, and the financial aspects of all the mentioned undertakings. The Crisis Management Group was headed by no less than CIT University's University President, together with the following members: the Dean of the College of Computer Studies, the Dean of the College of Nursing and Allied Health Sciences, the Quality Assurance Officers, the Human Resource, Finance, and Marketing Directors. The policies and frameworks developed by the Crisis Management Group allowed CIT University to implement a fully online system which included a work-from-home set-up for its employees and the online education platform called Multiple Approaches to Distance Education, which was developed and later on dubbed Multiple Approaches to Delivering Education for Learners or MADE4Learners.

Having put up the online system was only the beginning. The other challenge is ensuring that the product developed under the MADE4Learners Framework fits the present profile and capacity of CIT University's students and their families. COVID-19 and the guidelines that came with it badly affected the global economy beyond anything it has

experienced for the last 100 years. It was estimated that the pandemic could decrease global economic growth by 3% to 6% by the end of 2020 (Wang et al., 2021).

For educational institutions, its products are the academic programs delivered through its teachers' services through instructional delivery platforms. To stay relevant to the customers, CIT University must ensure that its academic program remains of top-notch quality and, at the same time, accessible to its current and potential customers.

The customer is any person who avails of the goods or services offered by any business or institution (Cambridge Dictionary, n.d.). Different companies serve different customers. This is the reason why identifying and understanding the customer is crucial. In a world that has become overly competitive, companies must be able to identify customer segments to survive and thrive. More than superior goods and services is required to satisfy customers who have become highly critical. The strategy of mass marketing has yet to work in the 21st century. Instead, marketers are now aggressively studying and serving markets with clearly identified needs, wants, and capacities. Segmentation-based marketing is now the core of corporate strategy and value creation (Weinstein A, 2004).

Considering the COVID-19 crisis that has primarily affected CIT University and all other academic institutions across the globe, the University needed to look deeper into the changes in the customer landscape and segments to continue offering services that are valuable and accessible. To do this, the University must be able to identify its customers from a demographic, geographic, and socio-economic standpoint. At the same time, it should understand the learners' and their families' capability and capacity to participate in the school's online learning system, the MADE4Learners Framework.

### **Research Objectives**

This study was undertaken to understand the customer segments of Cebu Institute of Technology-University using demographic, geographic, and socio-economic lenses. At the same time, this study also determined the

college students' technological capacity, technical capability, and willingness to enroll in the University's second summer term of 2020. Moreover, the Marketing and the Business Development Offices of the University utilized the study's findings as an intervention to the barriers identified by college students that hindered them from not enrolling in the term specified.

## Methods

In understanding the various customer segments and capacities, the study employed a descriptive research method as it is the appropriate methodology to identify characteristics, frequencies, trends, and categories (McCombes, 2022). The Cebu Institute of Technology- University, located at Natalio B. Bacalso Avenue, Cebu City, was the study's environment. With the University President's approval, 2,133 college students took part in the survey through an online platform using simple random sampling out of 8,093 people. These respondents were college students from the first year to the

fifth year of different programs in the university, such as the college of engineering and architecture (CEA), college of management, business, and accountancy (CMBA), college of arts, science, and education (CASE), college of computer studies (CCS), and college of nursing and allied health science (CNAHS). The researchers crafted a self-made questionnaire to achieve the stated research objectives. Also, the self-made questionnaire was undergone a content validity test in which two (2) professionals or specialists were chosen to serve as the content validators. Lastly, for the data analysis, the study used descriptive analytics such as mean, median, mode, and frequency distribution to examine the collected data properly.

## Results and Discussion

This study examined the financial resiliency among the top three listed companies in the Philippine Stock Exchange from 2018 to 2021. Financial performance indicators were measured using the selected financial ratios.

### Demographic and Geographic Profile of the Respondents

Table 2. Profile of Respondents (n = 2133)

Profile	Frequency	Percentage
<b>I. College Representation</b>		
College of Arts, Sciences, and Education	207	10
College of Computer Studies	155	7
College of Engineering and Architecture	1406	66
College of Management, Business, and Accountancy	250	12
College of Nursing and Allied Health Sciences	115	5
<b>II. Year Level</b>		
1st Year	435	20%
2nd Year	770	36%
3rd Year	427	20%
4th Year	136	6%
5th Year	365	17%
<b>III. Gender</b>		
Male	1103	52%
Female	1011	47%
<b>IV. Present Location</b>		
Cebu City	782	37%
Within Cebu Province (BUT not in Cebu City)	1031	48%
OUTSIDE Cebu	320	15%
<b>V. Income Post Pandemic</b>		
₱ 20,000 per month or below	968	45%
₱ 21,000 - ₱ 40,000 per month	703	33%
₱ 41,000 - ₱ 60,000 per month	256	12%

Profile	Frequency	Percentage
₱ 61,000 - ₱ 80,000 per month	103	5%
₱ 81,000 per month or above	103	5%
<b>VI. Income During the Pandemic</b>		
₱ 20,000 per month or below	1451	68%
₱ 21,000 - ₱ 40,000 per month	424	20%
₱ 41,000 - ₱ 60,000 per month	135	6%
₱ 61,000 - ₱ 80,000 per month	57	3%
₱ 81,000 per month or above	66	3%

The survey had a total of 2,133 respondents, with 66% coming from the College of Engineering and Architecture, 12% from the College of Management Business and Accountancy, 10% from the College of Arts, Sciences, and Education, 7% from the College of Computer Studies, and 5% from the College of Nursing and Allied Health Sciences. These students belong to different year levels, with 56% coming from the first and second years, 26% from the third and fourth years, and 17% in the fifth year. Regarding gender distribution, 52% are male, while 47% are female. When the survey was undertaken, 1,031, or 48% of the respondents, were living within Cebu Province but not in Cebu City, 782, or 37%, were residing in Cebu City, and the remaining 15% were outside Cebu Province.

### **Socio-Economic Profile and COVID-19 Financial Impact**

Before the enhanced community quarantine triggered by the COVID-19 pandemic, the respondents had an average estimated monthly income of P34,591.22 with a median income of P25,000. Forty-five percent, or 968 of the respondents' families, had a combined income of P20,000 or below per month, while 33% had a combined income of P21,000 to P40,000. Only 22% recorded a combined monthly income of P41,000 and up. This means the respondents are already within the lower-

middle income class and pre-pandemic, using the average combined monthly income and median income. Regarding proportion, 78% belong to the poor to lower middle-income classes, while 22% belong to the middle-income class or higher.

During the pandemic, however, restrictions on movement that heavily affected the economy were enforced all over the country. This decreased the respondent's income to P23,923.85 per month, with a median of P18,000. In proportion, 68% of families recorded a combined monthly income of P20,000 or below, while 20% are a P21,000 to P40,000 income per month. This reduced the income classes of the respondents to a level lower than pre-pandemic.

### **Technological Capacity and Capability**

CIT University's MADE4Learners included multiple approaches to delivering education to students interested in continuing their education despite the pandemic. These approaches included Distance, Distance-Blended, and Online-Blended. Though different in synchronous and asynchronous schedules, all approaches require technological devices and technical support tools to deliver quality education effectively. Figure 2 shows the approaches, device requirements, and technology support tools specified under CIT University's MADE4Learners Framework.

Table 3. Internet access/connectivity of respondents

<b>Internet access/connectivity</b>		
<b>Response</b>	<b>Frequency</b>	<b>Proportion</b>
FULL internet access / HIGH internet connectivity	416	20%
LIMITED internet access / MODERATE internet connectivity	1529	72%
No Internet Access/No Internet	188	9%
<b>Total</b>	<b>2133</b>	<b>100%</b>

Based on the data gathered, 72% of the respondents have limited or moderate internet connectivity, 20% have high internet connectivity, and 9% reportedly have no connectivity.

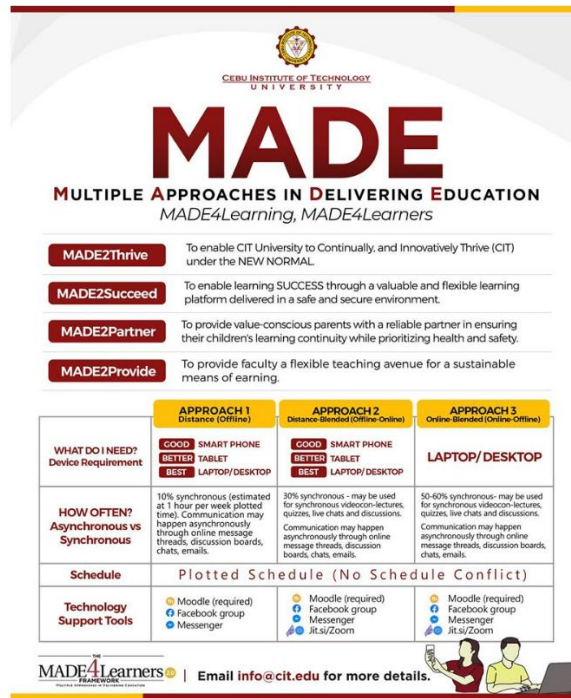


Figure 1. MADE4Learners Framework One-Pager

Table 4. Source/Type of Internet Connection at Home

Source/Type of internet connection at home		
Source/Type of Internet Connection	Frequency	Proportion
Broadband	506	24%
Personal (or family-owned Wi-Fi)	1075	50%
Shared Wi-Fi	589	28%
Mobile Data	1411	66%
Others	130	6%

Widely used connectivity sources included mobile data at 66% and family-owned Wi-Fi at 50%.

Table 5. Internet Service Provider Subscription

Internet Service Provider Subscription		
Response	Frequency	Proportion
Converge IT Solutions	6	0%
Globe	1047	49%
One Sky	55	3%
Rise	0	0%
PLDT/SMART	882	41%
Others	232	11%

In terms of Internet Service Providers, Globe recorded 49% subscriptions while PLDT/Smart was 41%.

Table 6. At-home Devices for Connection and Learning

<b>At-home Devices for Connection and Learning</b>		
<b>Device to access the internet</b>	<b>Frequency</b>	<b>Proportion</b>
<b>Desktop Computer</b>	398	19%
<b>Laptop</b>	1193	56%
<b>Mobile Phone</b>	2077	97%
<b>Tablet</b>	238	11%
<b>Others</b>	114	5%

Since the device is also a factor in the successful delivery of online or distance learning, respondents were also asked about the devices they presently had to access the internet and pursue MADE4Learners. Two thousand, seventy-seven or 97% had mobile phones, 56% had laptop computers, and 30% had desktop computers or tablets.

With the guidelines provided in the MADE4Learners one-pager, the three approaches catered to the different connectivity levels and devices available to the students.

**Online Education Readiness Level**

Table 10 shows the overall readiness level of the college students who participate in the study. The respondents rated 2.82, which is interpreted as high. The readiness level was rated based on the following aspects: self-direction at 2.85 or high, learning preferences at 2.78 or high, study habits at 2.74 or high, technical skills at 2.90 or high, and course communication at 2.87 or high.

Table 7. Summary of the Aspects of Online Education Readiness Level

<b>Online Education Readiness Level</b>		
<b>Aspect</b>	<b>Average</b>	<b>Interpretation</b>
<b>Self-Direction</b>	2.8519	HIGH
<b>Learning Preferences</b>	2.7764	HIGH
<b>Study Habits</b>	2.7425	HIGH
<b>Technical Skills</b>	2.8941	HIGH
<b>Course Communication</b>	2.8686	HIGH
<b>CIT Overall Readiness Level</b>	2.8242	High

Legend: 4.0 – 3.26 Very High  
 3.25 – 2.51 High  
 2.50 – 1.76 Low  
 1.75 – 1.0 Very Low

Regarding self-direction, the respondents rated themselves high across five aspects: goal setting, time management, and project completion. Regarding learning preferences, the respondents rated the aspects high except for not having face-to-face interaction with peers and professors. All other items, including learning with minimal assistance and learning from videos, podcasts, and others, were also rated high. As for study habits, the respondents rated low on being able to ignore distractions and spending 10-20 hours on an online course. Other aspects, such as keeping a record of assignment

dues and being able to turn in assignments on time, are all high. The willingness to use e-mails, social media platforms, and other online tools to submit outputs was rated very high regarding technical skills. The comfort level in surfing the internet, researching, downloading files, and changing computer settings was rated high. However, knowing where to find help with computer problems was rated low. Regarding course communication, all aspects, including communicating via social media or SMS and the comfort level in seeking assistance

from instructors or classmates, were all rated highly.

In the Philippines, the challenge brought about by internet connectivity brings many disadvantages to online learners. The inconsistent connectivity compromises the quality of education, especially with synchronous classes, which require a high-speed internet connection and more bandwidth. In a study done at Misamis University, poor internet connection was the main problem for learners and teachers in online classes as it affects attendance, lesson continuity, performance, output submission, and communication. (Clarín et al., 2022)

In a study by Plews (2017), respondents enumerated (a) awareness of learning preference, (b) seeing oneself as technology-savvy, and (c) being focused on the goal as factors critical to online learning. Awareness of one's learning preference increases the ability and desire to engage in autonomous learning. Being technology-savvy increases self-efficacy when using tools for education. Additionally, it was found that students with more learning strategies had higher motivation levels in their online classes. Moreover, students with higher levels of technology self-efficacy earned better grades (Wang, 2013). A pilot study conducted at the National University of Tainan further showed a significant positive relationship between self-directed learning abilities and online learning

performance because of a criterion test with engineering students (Chou, 2012)

In Ireland, it was found that students from the poorest broadband coverage area also are most likely disadvantaged from a socio-economic standpoint. With this chasm in internet connectivity also comes the digital divide regarding access to devices and equipment such as laptops or desktop computers. This led to recommendations that included prioritizing campus facilities that provide internet access and services to financially challenged students living in low broadband geographies (Cullinan, 2021).

### Enrollment Status and Intention to Enroll

Since the first summer term had already started when the survey was conducted, several respondents had already enrolled in the first summer term. Of the 2,133 respondents, 45% were enrolled, while 55% were not. Out of the 954 enrolled in the first summer term, only 57% planned on enrolling for the particular or second summer term. Out of the 1,179 who were not enrolled in the summer term, only 23% expressed their intent to enroll in the particular or second summer term.

Below is the probability diagram that visualizes the intention of students to enroll in the next term.

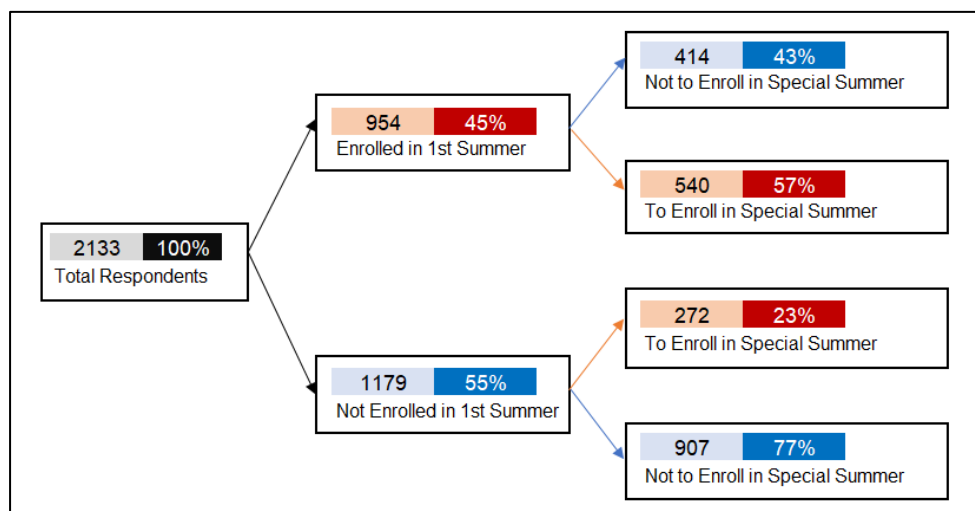


Figure 2. Probability Diagram of Student Distribution in Terms of First Summer Term Enrollment and Intention of Enrollment in the Special or Second Summer Term



## Conclusion

The COVID-19 pandemic led to the closures of schools all around the world. With this, educational institutions must be resilient and design academic and administrative frameworks to ensure business and learning continuity. CIT University introduced the MADE4Learners framework to respond to the challenge of movement restrictions and health threats. The university was one of the first in the country to announce and implement the online learning format during the pandemic.

Based on data gathered from student-respondents from the six colleges of the University, from first to fifth-year levels, the closure of schools led them to go back to their provinces, resulting in the geographic distribution of respondents, with 48% situated outside of Cebu City. Moreover, one of the most significant impacts of the pandemic is the decline of combined household income from a mean of P34,591.22 pre-pandemic to P23,923.85 during the pandemic when community quarantines were still enforced.

The MADE4Learners framework was initially designed to have three approaches: distance, distance-blended, and online-blended. These approaches have different levels of device requirements, synchronous contacts, and technical support tools. Based on data gathered, 72% of respondents have limited to moderate internet connectivity, sourced majorly from mobile data at 66% and personal or family-owned Wi-Fi at 50%. Widely used devices used at home were mobile phones at 97% and laptop computers at 56%.

Despite these, only 812 students, or 38% of the total respondents, expressed their intent to enroll in the particular or second summer term.

## Recommendations

After the organization, presentation, and analysis of the data gathered, the action plans below are recommended:

1. Financial Support. The high probability of attrition is primarily caused by the negative financial impact of the movement restrictions caused by the COVID-19 pandemic. To aid students, the university may offer the following financial assistance:

- a. Offer deferred payment programs to allow students to enroll and pay dues later.
  - b. Provide longer credit terms to give students and their parents ample time to look for sources of funds to pay tuition and other dues.
  - c. Tap on third-party loan providers and other financial institutions to offer loans to financially challenged students.
  - d. Offer virtual non-academic scholarship set-up to continue supporting non-academic scholars
  - e. Look for alumni and industry partners willing to support more students even during a pandemic.
2. Market Segmentation and Targeting. A strategic plan to attract students from upper-level income classes can be undertaken to cushion possible attrition. This move will lessen price sensitivity and cushion the negative effect on enrollment and retention in the event of a national or global recession or financial crisis.

## References

- Chih-Hsuan W., David M. Shannon & Margaret E. Ross (2013) Students' characteristics, self-regulated learning, technology self-efficacy, and course outcomes in online learning, *Distance Education*, 34:3, 302-323, DOI: [10.1080/01587919.2013.835779](https://doi.org/10.1080/01587919.2013.835779)
- Clarín, R., Baluyos, L. Challenges Encountered in the Implementation of Online Distance Learning. *EduLine: Journal of Education and Learning Innovation* ISSN: 2775-6173 (online) Vol. 2 No. 1 (2022) <https://doi.org/10.35877/454RI.eduline591>
- Haleem A, Javaid M, Vaishya R. Effects of COVID-19 pandemic in daily life. *Curr Med Res Pract*. 2020 Mar-Apr;10(2):78-79. doi: 10.1016/j.cmrp.2020.03.011. Epub 2020 Apr 3. PMID: 32292804; PMCID: PMC7147210.
- Plews, R. Self-Direction in Online Learning: The Student Experience. *International Journal of Self-Directed Learning* Vol 14, No. 1 (Spring 2017)
- Sahu P (April 04, 2020) Closure of Universities Due to Coronavirus Disease 2019 (COVID-19): Impact on Education and Mental Health of Students and Academic Staff. *Cureus* 12(4): e7541. doi:10.7759/cureus.7541
- Seble, T., Worku M., The Impact of COVID-19 Pandemic on the Education System in Developing Countries: A

- Review. *Open Journal of Social Sciences* Vol. 8, No. 10 (October 2020)
- [Tarkar, P. \(2020\). Impact of COVID 19 Pandemic on Education System.](#) *International Journal of Advanced Science and Technology* Vol. 29, No. 9s, (2020), pp. 3812-3814
- Wang, C., Wang, D., Abbas, J., Duan, K., Mubeen, R. Global Financial Crisis, Smart Lockdown Strategies, and the COVID-19 Spillover Impacts: A Global Perspective Implications from Southeast Asia. *Frontiers in Psychiatry* 12 (2021). <https://www.frontiersin.org/articles/10.3389/fpsy.2021.643783>. DOI=10.3389/fpsy.2021.643783
- Weinstein, A, *Handbook of market segmentation: strategic targeting for business and technology firms / Art Weinstein.*—3rd ed (2004). The Haworth Press, New York
- Zheng, M., Bender, D. & Lyon, C. Online learning during COVID-19 produced equivalent or better student course performance as compared with pre-pandemic: empirical evidence from a school-wide comparative study. *BMC Med Educ* 21, 495 (2021). <https://doi.org/10.1186/s12909-021-02909-z>