UAE-based first-year university students' perception of lifelong learning skills affected by COVID-19

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Abstract: Forcing education institutions to rely on online learning exclusively, the recent pandemic has brought lifelong learning (LLL) to the forefront. The effects of the recent education approaches on students' LLL skills merit investigation. First-year students may be at a greater risk because of their limited tertiary education experience and universities' expectations for them to engage in self-directed learning. This study investigated how 38 UAE-based first-year students thought COVID-19 impacted their LLL skills. The quantitative data were collected using a scale while the qualitative data were collected using a reflective task. The results revealed that the students' overall high score from the scale prior to the pandemic remained stable nine months into it despite a significant decrease in the *adaptable learning strategies* sub-scale. Yet, some students' overall LLL scores increased significantly. The qualitative data showed that these students thought they solidified their skills in learning strategies and plans. However, the female students reported a decrease in *goal-setting* score. Taken together, the results indicate that LLL skills help students reduce the negative impacts of COVID-19 on learning; yet it is still important to note the reducing impact of the pandemic on some students' skill in *adapting learning strategies* and *setting goals*. The results also indicate that LLL skills are malleable and educators can help enhance students' LLL skills.

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I. Introduction

The COVID-19 outbreak was declared a pandemic by the World Health Organization on 12 March 2020. This called for drastic measures in society at all levels. Naturally, educational institutions, too, had to take immediate actions. Due to a lack of experience, new educational practices were initially introduced in an *ad hoc* way, albeit with good intentions and in an effort to avoid a reduction in the quality of students' learning. Online learning and teaching technologies were a valuable resource to draw upon, even though using them made students' full engagement in the learning process and meaningful interactions with faculty and peers difficult to maintain. Rising to this challenge, educators across the globe have had to make an all-out effort to adjust their teaching styles and adopt new approaches to teaching. This has often required them to acquire new technical skills and/or improve their already existing ones. Similarly, students' place at the center of their own learning process has become more noticeable. This has made lifelong learning (LLL) skills all the more important.

If first-year students, who have limited tertiary experience, are not prepared enough for LLL, their learning may be severely affected by the COVID-19. Experiences of such magnitude serve as a 'disjuncture', which is defined by Jarvis[1] as

> a situation in which we are not sure how to act, or even experience a 'magic moment' that just stops us in our tracks. It is something out of the normal - abnormal or supra-normal - and it gives rise to astonishment, wonder or some other emotion.

Jarvis[2] notes that "The process of resolving our disjuncture and practising our solutions may take motivation, perseverance and a lot of effort," all of which are qualities of a lifelong learner. Upon the successful completion of resolving a disjuncture, Jarvis[3] states, the person is changed in different ways. He/she, for instance, becomes more self-confident, more knowledgeable, more skilled, and more experienced. First-year students' LLL skills are likely affected by the COVID-19 pandemic. One naturally hopes this would be a

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[1] Peter Jarvis, *Towards a Comprehensive Theory of Human Learning* (London and New York: Routledge, 2006), 15.

[2] Jarvis, *Towards a Comprehensive Theory,* 22.

[3] Jarvis, *Towards a Comprehensive Theory,* 22.

positive effect. However, there appears to be no research yet investigating this phenomenon, particularly in the UAE context. One reason for this lack of research may be the fact that the pandemic is still ongoing. Researchers may choose to investigate its effects only after the disjuncture is resolved. However, the weight of the disjuncture is such that it warrants investigations at any stage. If we can understand the students' experiences as the effects of the pandemic are unfolding, we can cater to their needs better and support the development of their LLL skills. This is the case with any group of learners, irrespective of their size. Accordingly, with this current study, conducted in the English Department at a UAE-based university, I aimed at identifying my students' self-perceived effects of the pandemic on their LLL skills, particularly those of the newly-admitted students.

The university where this research was conducted puts a heavy emphasis on students' development of LLL skills. The course-learning outcomes on almost all the courses across the university include items related to LLL. However, partly because of the complicacies surrounding the concept and challenges in teaching and assessing LLL skills, students' development of LLL skills seem to be left to chance. Thus the impacts of life-changing experiences, such as the pandemic, on students' LLL skills can go unnoticed. This can hamper students' aptitude for learning and decrease their chances of becoming critical thinkers and self-directed learners, both of which are essential skills for university students to "acquire the knowledge, skills and attitudes necessary not only for academic success but also for their overall well-being."[4] Students can feel the effects not only during their university studies but also upon graduation causing problems in workplaces and for growth in their personal lives. Accordingly, it is crucial to identify students' perceptions of the effects of the COVID-19 as a disjuncture on their LLL skills.

Recently, a plethora of initiatives have focused on how students' learning is affected by the online learning/teaching practices imposed by COVID-19; however, there has been no research specifically focused on its impacts on first-year students' LLL skills – a group of learners who might be particularly at risk. To fill this gap, influenced by the interpretivist approach,[5] I adopted a combined quantitative-qualitative method to understand the experiences of a relatively small group of first-year students (n = 38) in my English classes at a UAE university. This, I believed, would enable me to identify my students'

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[4] Tanju Deveci and Nader Ayish, "Correlation between Critical Thinking and LLL Skills of Freshman Students." *Bartın University Journal of Faculty of Education* 6, no.1. (2017): 286.

[5] Louis Cohen, Lawrance Manion, and Keith Morrison, *Research Methods in Education* (London and New York: Routledge, 2007).

strengths and weaknesses so that I could improve my teaching in ways I could better support their development of LLL skills during times of crises such as the COVID-19 pandemic. To this end, I sought answers to these questions:

1. How do my first-year students' perceptions of their LLL skills before and during the COVID-19 pandemic compare?
2. How do the male and the female students' perceptions compare?

I.1. *LLL and LLL skills*

Defined as "the process of transforming experience into knowledge and skills, etc., resulting in a changed person–one who has grown and developed as a result of the learning",[6] LLL considers the individual to be an active agent in his/her life. Learning, not confined to a place or time, results from the individual's meaningful engagement in learning experiences and develops him/her in significant ways. Accordingly, a lifelong learner can be defined as an individual who is able to not only "informally educate [himself/herself] through self-teaching or consulting with experts" but also "[to] take advantage of institutions promoting formal learning, … or pursue more formal education."[7] Based on the relevant literature, Kirby, Lamon, and Egnatoff[8] identify the qualities of a lifelong learner as someone who sets goals, applies appropriate knowledge and skills, engages in self-direction and self-evaluation, locates required information, and adapts his/her learning strategies as required by the changing conditions. Collectively, these skills enable the individual to 'learn how to learn'.

I.2. *LLL and university students*

LLL has been on education institutions' agendas for a number of years and a considerable amount of time and energy has been devoted to equipping students with essential LLL skills, which has had clear positive effects on their learning experiences. The pandemic is highly likely to have encouraged students (with support from their instructors) to employ these skills to the best

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[6] Peter Jarvis, "Lifelong Learning: A Social Ambiguity," in *The Routledge International Handbook of Lifelong Learning*, ed. Peter Jarvis (London and New York: Routledge, 2009): 11.

[7] Donna L. Gilton, *LLL in Public Libraries: Principles, Programs, and People* (Lanham: Scarecrow Press, 2012), 67.

[8] John R. Kirby, Christopher Knapper, Patrick Lamon, and William J. Egnatoff, "Development of a Scale to Measure LLL." *International Journal of LLL* 29, no.3 (2010): 292.

of their abilities. Conceivably, this has been a challenge for some; a variety of factors, not the least technological limitations and glitches, come into play. Just as the extent to which such factors are mitigated determines students' quality of learning, so does the extent to which they have mastered LLL skills. Expected to be in greater charge of their own learning mainly due to the nature of university education, university students are required to, and given the opportunity to, enhance their self-directed learning skills that lay the foundations for LLL skills.[9] Although curricula at universities in the UAE often include learning outcomes pertaining to LLL skills, it appears that the use of such terms in curricula might not always translate into learning activities and assessment conducive to the development of LLL skills, and newly admitted students' LLL skills are often taken for granted.[10] It has been shown that rote-learning adopted at some secondary schools within the UAE context fails to prepare students for the kind of self-directed learning behaviors[11,12] and therefore LLL propensities expected of them at the tertiary level. In some places including the UAE, students are required to sit long central exams for university admission, which imposes an overall attitude of memorization and superficial learning,[13] resulting in a lack of preparedness for LLL at university.

It has also been shown that the further students are into their university studies, the more skilled they are in self-directedness and application of knowledge and skills,[14,15] which increases their ability to engage in LLL. Previous research conducted has indeed revealed that first-year students, with the limited time spent at university, often lacked an aptitude for LLL.[16]

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[9] Carolinda Douglass and Sherrill R. Morris. "Student Perspectives on Self-direct learning." *Journal of the Scholarship of Teaching and Learning* 14, no.1 (2014): 13.

[10] Deveci et. al, "Correlation between Critical," 282.

[11] Lelania Sperrazza and Rana Raddawi. "Academic writing in the UAE: Transforming critical thought in the EFL classroom," in *Teaching EFL Writing in the 21st Century Arab World*, ed. Abdelmahed Ahmed and Hassan Abouabdelkader (London: Palgrave Macmillan, 2016): 157.

[12] Zafar Syed. "TESOL in the Gulf: The Sociocultural Context of English Language Teaching in the Gulf." *TESOL Quarterly,* 37, no.2 (2003): 337.

[13] Thomas Kellaghan, George F. Madaus, and Anastasia E. Raczek. *The Use of External Examinations to Improve Student Motivation* (Washington, DC: American Education Research Association, 1996),

[14] John C. Chen, Karen J. McGaughey, and Susan M. Lord, "Measuring students' propensity for LLL," in *Proceedings of the 2012 AEE Conference* (Melbourne, 2012).

[15] Thomas A. Litzinger, John C. Wise, and Sang Ha Lee. "Self-directed Learning Readiness among Engineering Undergraduate Students." *Journal of Engineering Education* 94, no.2 (2005): 215

[16] Richard M. Wielkiewicz and Alyssa S. Meuwissen. "A LLL Scale for Research and Evaluation of Teaching and Curricular Effectiveness." *Teaching of Psychology,* 41, no.3 (2014): 220.

Earlier research, too, found that the UAE-based students had relatively lower scores for self-regulation and perseverance skills.[17] Similarly, Arab students in the USA were shown to have low levels of self-regulation.[18] Likewise, Saudi students were found to be extrinsically motivated for learning.[19] All of these, naturally, lower students' aptitude for LLL. Thus, first-year university students ought to be given special attention and help establishing a solid foundation on which they can build LLL skills essential for use during and beyond their university years.

I.3. *Gender and LLL*

There is a general perception that gender plays a role in learning. Meyer et al.[20] emphasize this saying "gender differences constitute a potentially important and neglected source of variation in student learning which, when detected in context, can and should be explicitly managed by academic practitioners." I expect there are differences between male and female students' LLL orientations. This is based on both anecdotal evidence from my own experiences and the results of previous studies. For instance, Cesur and Ertas[21] examined language learners' orientation towards responsibility for learning, which is an important aspect of LLL. Their results showed that female learners were more responsible than male students in terms of planning what to study (i.e., *goal-setting*), adjusting how to learn (i.e., *adaptable learning strategies*), and revising assignments according to feedback provided (i.e., *application of knowledge and skills*). Similarly, Üstünlüoğlu[22] found that female students assumed more responsibility than males in relation to autonomous language learning (i.e., *self-direction and evaluation*). Another study conducted in the UAE context, too, revealed that

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[17] Tanju Deveci. "LLL Orientations of Freshman Engineering Students and Faculty Members" *Journal of Higher Education* 4, no.1 (2014): 14.

[18] Aisha S. Al-Hafthi, "*Learner Self-regulation in Distance Education: A Cross-Cultural study*" (PhD diss., the Pennsylvania State University 2007).

[19] Choudary Zahid Javid, Abdul Rahman Al-Asmari, and Umar Farooq. "Saudi Undergraduates' Motivational Orientations towards English Language Learning along Gender and University Major Lines: A Comparative Study." *European Journal of Social Sciences* 27, no.2 (2012): 283

[20] Jan H. F. Meyer, Timothy T. Dunne, and John T. E. Richardson, "A Gender Comparison of Contextual Study Behavior in Higher Education," *Higher Education* 27 (1994): 469.

[21] Kursat Cesur and Abdullah Ertas (2013). "Who is More Responsible? Preparatory Class Students' Perceptions of Responsibility." *ELT Research Journal* 2, no. 2 (2013): 70.

[22] Evrim Üstünlüoğlu. "Autonomy in Language Learning: Do Students Take Responsibility for Their Learning?" *Journal of Theory & Practice in Education* 5, no. 2 (2009): 148.

female students, in comparison to their male counterparts, were more curious about learning (i.e., *goal-setting*) and put more effort into academic endeavors (i.e., *application of knowledge and skills*)[23]. A possible reason for this is that the study was carried out in an engineering university where the female students likely had a greater motivation for success in a traditionally male-dominated field of work.

Despite the results pointing to differences between the two genders, researchers in other contexts did not find statistically significant differences between male and female students' orientations towards learning,[24,25,26] making the discussion over gender differences inconclusive. Accordingly, further investigation into the role of gender in students' LLL orientations is worthwhile. This is particularly true in the context in which the current research was initiated; gender roles in the UAE tend to be quite marked although there is now much emphasis on women's inclusion in prominent positions across the society, which encourages more and more women to participate in higher education. Therefore, increasing our awareness of how males' and females' LLL skills compare will help understand the practical implications of differences, if any.

I.4. COVID-19 as a disjuncture

As happy and exciting as entering university is, it can nonetheless be fraught with major challenges triggered by changes to social environment and increased academic expectations, resulting in reduced well-being and therefore less effective functioning of those transitioning to early adulthood.[27]

A definition of 'disjuncture' was given above. The COVID-19 pandemic is a major disjuncture causing humanity great distress in the face of the unknown.

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[23] Tanju Deveci. "The Relationship between First-year University Students' Academic Self-concept and Lifelong Learning Tendency." *Learning and Teaching in Higher Education: Gulf Perspectives* 15, vol. 1 (2018): 1.

[24] Susan Edgar. "Identifying the Influence of Gender on Motivation and Engagement Levels in Student Physiotherapists." *Medical Teacher* 37, no. 4 (2015): 348.

[25] Sabine Severiens and Geert ten Dam. "Leaving College: A Gender Comparison In Male And Female-Dominated Programs." *Research in Higher Education* 53, vol. 4 (2012): 453.

[26] Tanju Deveci and Nader Ayish. "Personal Responsibility and Interpersonal Communication Skills of Freshman students In a Project-Based Environment." *International Journal of Social Sciences and Education Research* 4, no. 1 (2018): 1.

[27] Michael Sawyer, Lauren Miller-Lewis, and Jenifer Clark, "The Mental Health of 13–17 Year-Olds in Australia: Findings from the National Survey of Mental Health and Well-Being," *Journal of Youth and Adolescence* 36, no. 2 (2007): 185.

It put millions in life-and-death situations with impacts reverberating across the globe. Bjursell,[28] however, notes that LLL theory considers a disjuncture as a trigger for learning. She notes that it is essential for us to examine the changes caused by a pandemic. Only in this way can we understand how fear impacts learning and find ways to tackle the situation in the best possible way. Stanistreet[29] points out that the pandemic has caused many education institutions to end face-to-face education and find other ways to ensure that students continue learning with as minimum impact as possible. Faced with a disjuncture, students have also had to find their own ways of sustaining learning, even if supported by their institutions (and parents in many cases).

II. Method

II.1. Research context and participants

The current research was undertaken in the context of an English class at a UAE university. The English classes aim at developing students' academic literacy skills with a heavy emphasis on writing. The university offers mixed-gender education; however, students, who are influenced by their cultural upbringing and prior education experiences, tend to self-segregate in the classrooms. This is particularly the case for first-year students.

When the university decided to switch to online learning mode, the students had had three weeks of a face-to-face learning experience. The rest of their English course (i.e., 13 weeks) was completed in the pandemic-learning mode through BigBlueButton (BBB), an open-source web conferencing system for online learning. BBB was embedded in Moodle, an open-source learning management system. The faculty were given training on how to utilize BBB and enhance their use of Moodle, which had been operational for quite a while prior to the pandemic. Likewise, the students were inducted into BBB by the university's IT Department. The students took their examinations online, monitored by the faculty using Respondus, a webcam and lockdown browser recording students' entire testing experience. However, many of the assignments in my course required multiple drafts on which the students received written feedback which we discussed during office hours held online.

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[28] Cecilia Bjursell. "The COVID-19 Pandemic as Disjuncture: LLL in a Context of Fear." *International Review of Education* 66 (2020): 675.

[29] Paul Stanistreet. "Thinking Differently, Together: Toward a LLL Society." *International Review of Education*, 66 (2020): 449.

Due to cultural reasons, the students were not required to turn on their cameras during classes. In fact, almost none of the students, the females in particular, turned on their cameras. Many of them were also quite hesitant about participating in the lessons. Although some felt at more ease as the course progressed, they were generally not as vocal as they would be in face-to-face classes. This often meant that I should provide a lot more input sessions than I would normally do. However, thanks to the availability of the breakout rooms in BBB, I was able to interact with the students individually or in groups. In neither, though, the students were likely to turn on their cameras, making the interaction less authentic.

A total of 38 first-year students enrolled in my English classes in the study. Of this number, 22 were female and 16 were male. Their ages ranged from 17 to 21, and the mean age was 19. The students came from various countries including UAE (21), Eritrea (5), Ethiopia (3), Iraq (3), Jordan (2), Palestine (1), Sudan (1), Yemen (1), and Egypt (1). These were all students who came to higher education directly from secondary education.

II.2. *Data-collection and analysis*

The data were collected using a scale adapted from Kirby et al.[30] The scale was comprised of 14 items in five sub-scales, i.e., *goal-setting* (5 items*), application of knowledge and skills* (3 items), *self-direction and evaluation* (2 items), *locating information* (1 item), and *adaptable learning strategies* (3 items). Some of the sample statements for these sub-scales are given in Table 1.

Table 1

Sample Statements

Sub-scales	Before COVID-19	During COVID-19
Goal setting	I preferred to have others plan my learning. I loved learning for its own sake.	I prefer to have others plan my learning. I love learning for its own sake.
Application of knowledge and skills	I tried to relate what I learned to practical issues. I was able to attach meaning to what others saw as disorder.	I try to relate what I learn to practical issues. I am able to attach meaning to what others see as disorder.

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[30] Kirby et. al., "Development of a Scale," 298.

Sub-scales	Before COVID-19	During COVID-19
Self-direction and evaluation	I felt others were in a better position than I was to evaluate my success as a student. It was my responsibility to make sense of what I learned at college.	I feel others are in a better position than I am to evaluate my success as a student. It is my responsibility to make sense of what I learn at college.
Adaptable learning strategies	I was able to deal with the unexpected and solve problems as they arose. I felt uncomfortable under conditions of uncertainty.	I am able to deal with the unexpected and solve problems as they arise. I feel uncomfortable under conditions of uncertainty.
Locating information	I often found it difficult to locate information when I needed it.	I often find it difficult to locate information when I need it.

The students were asked to reflect on their experiences before and during the pandemic and indicate the extent to which they agreed with the statements using a five-point Likert-type scale (1=Strongly disagree-5=Strongly agree). Some of the items were negatively worded, requiring reverse scoring. The highest, the lowest, and the average scores that can be attained for the whole scale as well as the sub-scales are given in Table 2 below. I did not consider cut-off points for the scale for the current study although the higher scores from the whole scale reflected stronger LLL skills. I considered a score close to the first quartile (17.5) as a low level, a score close to the second quartile (35) as an average level, and a score close to the third quartile (52.5) as a fairly high degree of aptitude. The quartiles for the sub-scales are given in Table 2.

Table 2

Score Ranges

	N	Min	Max	$\bar{x}$	Quartiles		
					First	Second	Third
Goal setting	5	5	25	12.5	6.25	12.5	18.75
Application of knowledge and skills	3	3	15	7.5	3.75	7.5	11.25
Self-direction and evaluation	2	2	10	5	2.5	5	7.5
Locating information	1	1	5	2.5	1.25	2.5	3.75
Adaptable learning strategies	3	3	15	7.5	3.75	7.5	11.25
Scale as a whole	14	14	70	35	17.5	35	52.5

Kirby et al.[31] developed the scale to identify university students' LLL tendencies. I therefore considered it the most appropriate, among many other scales available in the literature, for the current research. Another reason why I deemed it appropriate was the length of the scale; as a 14-item scale, it was easy to administer, especially because I asked the students to respond to the items twice, first considering their learning experiences prior to the pandemic and then considering their learning experiences during the pandemic. I also took into consideration the fact that the students were all non-native English speakers. Although they had a good level of English as certified by a proficiency exam, it was important to make sure the items in the scale were easy to understand. To ensure that the students would be able to understand the items, I piloted it with four students with a similar profile to that of the students who participated in the study. All these students found the items to be easy to comprehend. The authors also found that the Cronbach alpha value of the scale was .71, indicating a moderate level of reliability. Similarly, the Cronbach Alpha value in the current study was calculated to be .73.

I administered the scale to the students electronically at the end of their first-year of study. They were given adequate time to respond to the questions. I used descriptive statistics including frequencies, mean, minimum, and maximum to describe the data. Also, I compared the scores from the before COVID-19 and the during COVID-19 scales using the paired-sample t-test. On the other hand, I compared the male and the female students' scores using the t-test for two independent groups. For both, a p-value of less than .05 was considered significant.

To identify any statistical differences between their data sets, I compared each of the students' scores from the two scales using the paired-sample t-test. To collect qualitative data, I invited the seven students whose pretest and posttest scores were at a statistically significant difference to respond in writing to some open-ended questions about their perceptions of how their LLL skills were impacted by the COVID-19 pandemic. Since the quantitative data analysis showed that the students were affected most in terms of *goal setting* and *adaptable learning strategies*, I asked questions related to these particular sub-scales of the first data-gathering instrument as identified by Kirby et al[32]. The questions and the related sub-scales are as follows:

How do you feel your experience of the COVID-19 pandemic has affected your

a) love of learning? (*goal setting*)

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[31] Kirby et. al., "Development of a Scale"
[32] Kirby et. al., "Development of a Scale"

b) ability to think about your own learning and how to improve it? (*goal setting*)
c) ability to see the big picture when learning new things? (*goal setting*)
d) ability to plan your learning without depending on others? (*goal setting*)
e) ability to direct your own learning? (*goal setting*)
f) ability to approach problems from different perspectives? (*adaptable learning strategies*)
g) ability to deal with unexpected problems? (*adaptable learning strategies*)
h) feeling of comfort under conditions of uncertainty? (*adaptable learning strategies*)

In analyzing the qualitative data, I adopted the thematic analysis approach[33] which "can highlight similarities and differences across the data set [and] generate unanticipated insights." The steps followed to analyze the students' written responses were as follows: (a) Immersing in the data, (b) Generating initial codes, (c) Searching for themes, (d) Reviewing themes, (e) Defining and naming themes, and (f) Producing the report. For reliability purposes, an independent researcher participated in the data analysis. Upon an initial norming session, we first conducted the thematic analysis separately. Then we held a meeting comparing our analyses, which matched 95%. We discussed the divergences and reached an agreement.

Given their lack of experience on campus, I expected the students to think their LLL skills, in general, were limited prior to the pandemic. However, I believed their experience of the pandemic and the support by their instructors, the university administration, and the IT Department would help them improve their overall LLL skills. In LLL theory, a disjuncture serves as a trigger for learning.[34] I thought they would be first shaken up by the pandemic but then encouraged to question their beliefs about learning (and teaching). This, I felt, might be partly caused by their instructors' having to give up the center stage, causing the students to search for self-directed learning opportunities, which include skillfulness in setting goals, locating sources of information, and adjusting learning strategies. In this way, they can gain self-discipline, self-confidence, and persistence in learning, which results in greater motivation for learning.

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[33] Virginia Braun, and Victoria Clarke, "Using thematic analysis ins psychology." *Qualitative Research in Psychology* 3, no.1 (2006): 97.

[34] Bjursell. "The COVID-19 Pandemic as Disjuncture" 675

III. Results

The first research question asked how the students' perceptions of their LLL skills before and during the COVID-19 pandemic compared. The results are summarized in Table 3 below.

Table 3

Students' Scores

		Before COVID-19				During COVID-19				t	p*
		Min	Max	x̄	SD	Min	Max	x̄	SD		
Whole Population (n=38)	Goal setting	10	24	16	1.05	10	23	17.7	2.95	1.6869	.1
	Application of knowledge and skills	9	14	11	.65	5	15	10.8	2.07	-.1974	.8445
	Self-direction and evaluation	4	10	7	.96	4	10	7.1	1.52	.0733	.9419
	Locating information	1	5	3.5	1	1	5	3.4	1.13	-.4080	.6856
	Adaptable learning strategies	7	12	10	1.33	1	13	9.5	1.57	-2.16	.0373
	Scale as a whole	*40*	*63*	*48.2*	*5.19*	*31*	*58*	*48.4*	*5.5*	*.3315*	*.742*

p<.05.

Table 3 shows that the students' scores for the scale before COVID-19 ranged from 40 to 63 with an average score of 48.2. On the other hand, their scores for the scale during COVID-19 ranged from 31 to 58 with an average score of 48.4. The paired t-test conducted revealed no difference at a statistical level (t=.3315, p=.742>.05). When the scores for the sub-scales were considered, it was seen that the students recorded slight increases in their *goal setting* and *self-direction* and *evaluation scores*. However, these were not at statistically significant levels (t=1.6869, p=.1>.05 and t=.0733, p=.9419>.05 respectively). On the other hand, their scores for *application of knowledge and skills* and *locating information* decreased slightly. The differences between the scores for these sub-scales were not at statistically significant levels (t=-.1974, p=.8445>.05 and -.4080, p=6856>.05

respectively). However, the decrease in their scores for *adaptable learning strategies* (10 vs. 9.5) was statistically significant (t=-2.16, p=.0373<.05). Although the average scores for this sub-scale were nearer the third quartile, the statistical difference between them still shows that the students felt increased discomfort under conditions of uncertainty and decreased confidence in dealing with unexpected problems and in approaching problems from different angles.

The second question aimed to compare the data according to gender. To this end, I first compared the male and the female students' scores for Before COVID-19 and for During COVID-19. See Table 4 below.

Table 4

Male and Female Students' Scores before and during COVID-19

		Before COVID-19				During COVID-19				t	p
		Min	Max	x̄	SD	Min	Max	x̄	SD		
Females (n=22)	Goal setting	10	24	17.3	3.17	10	18	14.9	2.13	-2.8352	.0099
	Application of knowledge and skills	9	13	11.1	1.28	8	15	11.5	1.6	1.0879	.2889
	Self-direction and evaluation	4	10	7.2	1.54	5	9	7.1	1.31	-.2951	.7707
	Locating information	1	5	3.5	1.01	2	5	3.6	.95	.1368	.8924
	Adaptable learning strategies	8	12	10.3	1.12	7	12	9.7	1.36	-1.8464	.0789
	Scale as a whole	*41*	*63*	*49.8*	*5.4*	*39*	*58*	*50.1*	*4.43*	*-.8664*	*.3971*
Males (n=16)	Goal setting	12	22	16.9	2.62	10	22	17.2	3.15	.2679	.7924
	Application of knowledge and skills	9	14	11.5	1.46	5	14	10.8	2.57	-.9583	.3531
	Self-direction and evaluation	5	10	7.3	1.35	4	10	7.6	1.79	.4303	.6731

		Before COVID-19				During COVID-19				t	p
		Min	Max	x̄	SD	Min	Max	x̄	SD		
Males (n=16)	Locating information	2	5	3.6	1.02	1	5	3.3	1.35	-.7521	.4636
	Adaptable learning strategies	7	12	10.3	1.61	7	13	9.8	1.87	-1.1306	.2759
	Scale as a whole	*40*	*58*	*49.6*	*5.03*	*31*	*57*	*48.1*	*6.6*	*-.5152*	*.6138*

p<.05.

It is seen in Table 4 that the female students' overall score for During COVID-19 was slightly higher than that for Before COVID-19 (50.1 vs. 49.8); however, this was not a statistically significant level (t=-.8664, p=.3971>.05). The most important difference was pertaining to the sub-scale of *goal setting*; the female students decreased their average score from 17.3 to 14.9 with a statistically significant difference between the two scores (t=-2.8352, p=.0099<.05). The score of 14.9 still falls between the second and third quartiles computed for this sub-scale; yet the significant amount of difference between the two scores indicates that the female students thought they became less independent in regard to planning their learning. They also tended to think less frequently about their learning and how to improve it. These, they felt, negatively impacted their self-directedness and love of learning for its own sake.

The male students recorded a slight decrease in their overall score from 49.6 for Before COVID-19 to 48.1 for During COVID-19, but the difference was not at a statistically significant level (t=-.5152, p=.6138>.05). Neither were their scores for the sub-scales different at statistically significant levels.

I also made a separate comparison between the male and the female students' scores for the two scales. Table 5 summarizes the results.

As seen in Table 5, the male and the female students' scores for Before COVID-19 were quite similar. The female students recorded an average score of 49.8 and the male students recorded an average score of 49.6. The similarity between their scores was also confirmed by the lack of a statistically significant difference between the data sets (t=.046, p=4817). The trend was also similar for the sub-scales.

I also compared the male and the female students' scores for During COVID-19. This time, the female students' average score was higher than that of the male students (50.8 vs. 48.1); however, the difference was not at a

Table 5

Comparison of Scores according to Gender

		Female (n=22)				Male (n=16)				t	p
		Min	Max	x̄	SD	Min	Max	x̄	SD		
Before COVID-19	Goal setting	10	24	17.3	3.17	12	22	16.9	2.62	.3924	.3485
	Application of knowledge and skills	9	13	11.1	1.28	9	14	11.5	1.46	.8137	.2105
	Self-direction and evaluation	4	10	7.2	1.54	5	10	7.3	1.35	-.177	.4302
	Locating information	1	5	3.5	1.01	2	5	3.6	1.02	.1022	.4595
	Adaptable learning strategies	8	12	10.3	1.12	7	12	10.3	1.61	.0513	.4797
	Scale as a whole	*41*	*63*	*49.8*	*5.4*	*40*	*58*	*49.6*	*5.03*	*.046*	*.4817*
During COVID-19	Goal setting	10	18	14.9	2.13	10	22	17.2	3.15	2.6137	.0006
	Application of knowledge and skills	8	15	11.5	1.6	5	14	10.8	2.57	1.1764	.1235
	Self-direction and evaluation	5	9	7.1	1.31	4	10	7.6	1.79	-.941	.1764
	Locating information	2	5	3.6	.95	1	5	3.3	1.35	-.867	.1958
	Adaptable learning strategies	7	12	9.7	1.36	7	13	9.8	1.87	-2499	.4026
	Scale as a whole	*39*	*58*	*50.8*	*4.43*	*31*	*57*	*48.1*	*6.6*	*1.3285*	*.0961*

p<.05.

statistically significant level (t=1.3285, p=.0961>.05). To better understand the factors that might have contributed to the increase in the female students' scores, I identified the two students who recorded a statistically significant difference between their scores prior to COVID-19 and during COVID-19

(p=.0041 and p=.0117). After a briefing about their increased LLL skills scores, I asked them to comment on their learning experiences.

In response to a question on her love of learning as affected by COVID-19, one of the students said, "I started liking [learning] more because I had the opportunity to pause and re-watch any session at any time. Also, I think that online learning saves time in comparison with learning on campus." In regard to her ability to improve her learning, the other student commented,

> After experiencing online learning, I realized that I have to improve my learning ways and I can't do the same mistakes as the last term. For example, I can't depend on the instructors and students all the time and I have to do the work on my own and not wait for others.

She also added that having to do things by herself was a positive experience for her especially because it was her first year and she did not know any students on whom she could depend. She elaborated that the easy access to her instructors before COVID-19 often led her to rely on them more than necessary. She also stated that COVID-19 contributed to her ability to deal with unexpected problems since she had to remain positive and find ways to reduce the impact of problems such as learning how to access learning resources and needing to adopt a new strategy for learning. Now that she'd been able to survive it, she felt "I will not be surprised if any other problems show up." She also pointed to her general attitude towards uncertainty and said, "I am the kind of person who feels worried constantly under this kind of conditions and with the pandemic, I rarely feel comfortable."

The other student made a similar remark about the effect of online learning practices imposed by COVID-19 on her time-management skills: "Now I can manage my time better. I spend more time for subjects I need to improve in." She stated that online learning required her to reflect on her strengths and weaknesses as a learner and devise a plan to improve her skills so that the negative impact of COVID-19 on her education would be as negligible as possible. To this end, she said she had to leverage digital resources more often. She pointed to the variety of online resources she could use to enhance her learning. She also added that if she did not fully understand something she could request a virtual appointment from her instructors. Taken together, these indicate that she thought she has become a more self-directed learner who is able to identify and use available learning resources, evaluate her own learning, and access support when needed, all of which are among the qualities of a lifelong learner.

The most important difference between the male and the female students' scores was related to the sub-scale of *goal setting*; the female students' average score for it was 14.9 whereas the male students' average score was 17.2. The t-test also revealed a difference at a statistically significant level

(t=2.6137, p=.0006<.05). This finding indicates that the female students thought the impact of the COVID-19 pandemic on their skill in setting goals was rather strong while the male students felt the impact was relatively less strong. In comparison to their male counterparts, the female students, for example, thought they became less likely to think about their learning with an intention to improve it, less able to plan their own learning, and less likely to focus on the big picture rather than the details.

My closer examination of the data revealed that three female students' Before and During COVID-19 scores were at statistically significant levels (p=.0474, p=.0445, and p=.0475). These students were briefed about the meaning of their scores and asked to reflect in writing on the possible reasons for the decrease. A common theme that emerged from their responses was 'the feeling of helplessness.' Two of the students indicated that they lost control over learning and they were unsure whether it was necessary to continue learning, especially because the future looked so bleak without a cure in sight for the pandemic. For them, this meant a loss of motivation and a lack of effort. One of the students said, "It was nice to speak to my professors in their offices when I was not sure about how to do a project. They are still available but it is not the same." Similarly, the third student remarked that due to the physical distance from the university campus she was stripped of the opportunity to utilize services like the Writing Center.

Another theme that was present in all student responses was 'the lack of quality collaboration.' For two of the students, not being in constant contact with their peers was a demotivating factor. These students expressed their desire for planning learning activities with fellow students. They also said group work required in some classes was a formidable challenge, which they disliked. The following excerpt from one of these students' responses explains the reason for this:

> Some subjects aren't suitable for online learning like engineering design. In this subject, we have to build things and work in groups. The thing is that I don't see that working in groups is a good thing to do virtually because group members can skip sessions or they don't respond to you and you can do nothing about it. Secondly, doing projects itself is really hard because in the past years (before Covid pandemic) students in each group worked on one project but now each of us has to do the whole project by [ourselves] and supplies [aren't] provided as well.

Two other students also mentioned that the amount of work they were asked to complete by different faculty baffled them. They were so overwhelmed by this that they had difficulty catching up with the course-work. Coupled with other issues at home (e.g., noise, chores), these students

often could not prioritize tasks. The absence of immediate guidance from faculty, peers, and counselors was also a limiting factor for all the students.

IV. Discussion

The results of the current study showed that the students' average scores for the scale before and during the pandemic were both closer to the third quartile computed for the scale, pointing to the students' relatively strong belief that they had an aptitude for LLL. Considering their rather limited experience at university, particularly on the physical campus, I had expected their scores to be either close or just below the average score of 35. Previous research had indicated that newly admitted university students generally had limited skills in self-directedness and application of knowledge and skills.[35,36] The students' scores for the latter sub-scale in the current study are particularly important to note; albeit showing a minor decrease, the students' scores were almost approaching the third quartile for the relevant sub-scale (11 and 10.8), which suggests that the students thought they were relatively strong in relating new learning to already existing knowledge and attaching meaning to what may seem as disorder.

The students' relatively stable scores nine months after the outbreak of the pandemic is also important to note. Considering the weight of the pandemic and its impacts on educational practices,[37] this is a promising result because it points to the students' persistence in maintaining their LLL skills, whether consciously or subconsciously. The pandemic was likely a disjuncture for at least some of the students who maintained their motivation and persevered.[38] It is, however, important to note that at the time I was writing this paper the pandemic was still in full swing, with new strains of the virus recently identified and major cities applying stricter measures. Therefore, the disjuncture cannot be said to have been resolved for the students yet. In fact, in previous research investigating newly admitted university students' transformative learning (TL) experiences it was found that not all students faced with a disorienting dilemma, a concept that can be compared to Jarvis's notion of disjuncture, completed the full cycle of TL.[39]

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[35] Chen, McGaughey, and Lord, "Students' propensity for LLL,"
[36] Litzinger, Wise, and Lee. "Self-directed Learning," 220.
[37] Stanistreet, "Thinking Differently," 452.
[38] Jarvis, *Towards a Comprehensive Theory,* 180.
[39] Tanju Deveci, "The Transformative Learning Experiences of Learners Of English as a Foreign Language at a University Program." *Transformative Dialogues: Teaching and Learning Journal,* 7, no 3 (2014).

This was due to several factors including feelings of insecurity in a new situation or the fear of the unknown. Similarly, Taylor[40] points out that not all learners may have an inclination for TL. The students participating in this study, too, may find it challenging to maintain their LLL skills as the pandemic unfolds.

It is important to point out that the range of scores for the scale During COVID-19 was greater than the one for Before COVID-19. That is, the scores for the former ranged from 31 to 58 (SD=5.5) while those for the latter from 40 to 63 (SD=5.19). This indicates that some of the students' thought their LLL skills were impacted negatively, which is also reflected in the average scores for some of the sub-scales.

The results were also analyzed considering gender. It was seen that neither the male nor the female students' overall Before COVID-19 and During COVID-19 scores differed at statistically significant levels (t=-2.8352, p=.0099). This is despite the observation that the female students' scores increased marginally while the male students' scores decreased slightly. However, the comparison of the male and the female students' overall scores did not differ from each other at a statistically significant level – a finding in line with findings of previous research.[41,42] In other university contexts, on the other hand, the female students were reported to have a stronger tendency toward LLL.[43,44,45] These contradictory results, including the ones from the current study, make the discussion about the impact of gender on students' LLL skills inconclusive.

Yet, an important finding occurred in the current study; the female students reduced their average score for *goal-setting*. The t-test produced a difference at a statistically significant level (t=-2.8352, p=.0099<.05). On the other hand, the male students recorded a slight increase in their *goal-setting* score, albeit a lack of difference at a statistically significant level. And the

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[40] Edward W. Taylor. "The Theory and Practice of Transformative Learning: A Critical Review." *ERIC Clearinghouse on Adult, Career, and Vocational Education*. *Information Series*. no. 374 (1998*)*: 56.

[41] Kirby et. al., "Development of a Scale," 291.

[42] Nihal Tunca, Senar Alkın-Şahin, and Özge Aydın, "Life-long Learning Tendencies of Pre-service Teachers," *Mersin University Journal of the Faculty of Education* 1, no.2 (2015): 432.

[43] Deveci, "LLL Orientations," 14.

[44] Çigdem Kılıç, "Pre-service Teachers' Perceptions toward Lifelong Learning," *Journal of Research in Education and Teaching* 3, no.4 (2014): 79.

[45] Meerah T. Subahan Mohd., Denise Koh Choon Lian, Kamisah Osman, Effandi Zakaria, Zanaton Haji Iksan, and Tuan Mastura Soh, "Measuring Life-long Learning in the Malaysian Institute of Higher Learning Context," *Procedia Social and Behavioral Sciences* 18 (2011): 560.

comparison of the students' scores revealed that the difference was to the advantage of the male students (t=2.6137, p=0006). Together, these data suggest that the female students thought the pandemic had a negative impact on their goal-setting skill while the male students tended to feel that its effect on their goal-setting skill was marginally positive. A possible reason for the decrease in the female students' score in *goal setting* is the very nature of a pandemic as a disjuncture[46] or as a disorienting dilemma. Such a disjuncture often creates stress and anxiety, leading individuals to confusion in regard to what to do and how to tackle the situation.[47] Confronted with a new mode of learning, the students' pre-established goals in the current study might have become dysfunctional, the evidence of which was present in the qualitative data collected from the students. It is possible that those shaken by the disjuncture, especially those without prior experience with online learning, became more dependent on their instructors in terms of what to learn and how to learn it. Recent research reporting data from multiple countries (i.e., Portugal, Ukraine, and the UAE) revealed that university students' online learning experiences were negatively affected by a lack in their goal-setting, study plan, and time management skills.[48] This was the case for some of the students in the current study too as indicated by the qualitative data.

Nagle[49] states that goal setting helps identify the tasks to complete to attain improvements in learning. Effective goal-setters take into account a variety of factors including their situation, responsibilities, resources, and time. Accordingly, goal setting fosters the skill of self-direction and evaluation; the learner takes charge of his/her learning experience. Supported by a facilitator, he/she can put more effort into attaining goals and persevere during difficult times such as a pandemic. Alić[50] notes that the extent to which the learner fulfills his/her goals determines the extent to which he/she feels competent. This affects his/her self-confidence encouraging him/her to apply newly-learned information and skills to current life experiences and increasing his/her motivation for learning.

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[46] Jarvis, *Towards a Comprehensive Theory,* 180.

[47] Jack Mezirow, "Learning to think like an adult: Core concepts of transformation theory," in *Learning as Transformation: Critical perspectives on a Theory in Progress,* ed. Jack Mezirow, J. and Associates (San Francisco: Jossey-Bass, 2000): 5

[48] Patricia Fidalgo, Joan Thormann, and Jose Alberto Lencastre, "Students' Perceptions on Distance Education. A Multinational Study." *International Journal of Educational Technology in Higher Education* 17 (2020): 1.

[49] Jeanne Nagle. *Great Lifelong Learning Skills*. (New York: The Rosen Publishing Group, 2008): 13.

[50] Jelana Alić, "Gender Differences in Goal Orientation between High School Students in Physical Education Classes," *Croatian Journal of Education* 19, no. 2 (2017): 181.

V. Recommendations

Such has been the impact of the COVID-19 pandemic on higher education (together with all other levels of education) that every country across the globe has made great efforts to reduce the disruption of learning. As new entrants to higher education, first-year students may be the most vulnerable. These are the students in need of establishing a solid base for success in their subsequent years of study at university; a foundation for which the importance of LLL skills cannot be overstated. The fact that they have succeeded in entering university may indicate that these students already possess relatively developed LLL skills, for which the results of the current study indeed provide some evidence; the first-year students' scores for the LLL scale used in this study were close to the third percentile indicating a relatively strong aptitude. However, the results also showed that the students, the females in particular, thought the pandemic had some negative impacts on their skills. An effective LLL learner perseveres trying to meet the exigencies of challenging times. While some may be assiduous, others may require support.

Considering the results of the current study pertaining to the students' perception of a reduced skill in adapting learning strategies, action needs to be taken. Students should be encouraged to reflect on the variety of factors impinging on their learning strategies and alternative ways of learning. Only in this way can they make informed decisions about the best ways to learn. To this end, students can be encouraged to ask questions such as "What was I supposed to learn?", "How well did I learn it?", "Where did I fail?", "What strategies did I use?", "Which one(s) did not work for me?", "In what other ways could I have approached the task?", and "What is my plan to reattempt the task?" Building a habit of asking these and other similar questions will enable students to "redevelop, extend and deploy their repertoires of knowledge and their approach to, and skills at, solving problems a new in increasingly challenging and difficult situations, throughout their lives."[51] An alternative reflection task is writing a letter to future students where they explain the things they have learned, how they dealt with problems, what different approaches they would take if they faced the same situation again in the future, and what they have learned about their learning.[52]

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[51] David. N. Aspin, "The ontology of values and values education," in *Values Education and Lifelong Learning: Principles, Policies, Programmes* ed. by David N. Aspin and Judith D. Chapman (Dordrecht, the Netherlands: Springer, 2007): 27.

[52] Phil Wilder, "Promoting Student Self-assessment," accessed December 17, 2020. http://www.readwritethink.org/professional-development/strategy-guides/promoting-student-self-assessment-30102.html

Students' adaption of learning strategies also needs to be supported by faculty adjusting their teaching strategies. The pandemic has resulted in all education institutions without exception relying on online learning technologies, which required both educators and students to use new approaches. Research in some contexts indicates that educators benefited a lot from using a variety of ICT tools when trying to adjust their teaching due to school closures.[53] In another context, educators' use of strategies increased students' interest in learning through brief, clear, and interesting media in addition to regular evaluations.[54] However, the students' feeling of reduced score in *adaptable learning strategies* in the current study may point to their reduced ability to adjust learning strategies. Relying on their instructors' delivery methods, these students likely had limited success in adapting strategies. Therefore, educators must be helped to improve their ICT skills so they can enable their students to make informed choices about how to adapt and adopt learning strategies compatible with the new modes of education. Also, students ought to be provided with as much individualized support as possible so that they can fully benefit from the new types of education delivery.[55]

Another important finding of the current study was related to the female students' self-perceived reduced scores for *goal-setting*. Goal-setting may be considered a building block of LLL; effective goal setting, according to Locke,[56] encourages learners to modify their behaviors when required and to strive for superior performance. COVID-19 clearly required students to adjust learning behaviors and goals with the necessary concomitant of diligence. Evidently, the new modes of education delivery imposed by the epidemic disturbed some students' learning goals, particularly those of the female students. These students must be supported in reorienting their learning goals to prioritize the skills necessary for adaptation to online modes of learning and adoption of individual accountability. This entails the

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[53] Johannes König, Daniela J. Jäger-Biela, and Nina Glutsch, "Adapting to Online Teaching during COVID-19 School Closure: Teacher Education and Teacher Competence among Early Career Teachers in Germany," *European Journal of Teacher Education*, 43, no.4 (2020): 610.

[54] Sutarto Sutarto, Dewi Purnama Sari, and Irwan Fathurrochman, "Teacher strategies in online learning to increase students' interest in learning during COVID-19 pandemic," *Journal Konseling dan Pendidikan* 8, no.3 (2020): 133.

[55] Pierre Gouëdard, Beatriz Pont, and Romane Viennet, "Education Responses to COVID-19: Shaping an Implementation Strategy," *OECD Education Working Papers,* no:224 (2020): 13.

[56] Edwin A. Locke, "Toward a Theory of Motivation and Incentives," *Organizational Behavior and Human Performance* 3, no.2, (1968): 157.

faculty's adapting instructional strategies with various student-learning goals in mind. The qualitative data showed that the students missed working in collaboration with other students and meeting face-to-face with faculty. Toward this end, students with similar needs regarding goal orientation can be asked to work together under the guidance of a group leader skilled in adapting learning strategies. In the case of virtual classrooms, instructors can create break-out rooms where the performances of the participants can be closely monitored. This provides struggling students with opportunities to participate in collaborative dialogue with more knowledgeable and skilled class members in order to develop problem-solving and goal-setting strategies.[57] Students can also be helped to identify an 'accountability partner' with the same learning goals. Accountability partners can support each other during difficult times and maintain their motivation for working towards the established goals[58] or adjust them as required.

Metro[59] suggests that students' goal-setting skills can be developed through differentiated grading systems that incorporate goal setting and self-reflection, especially during times of crisis. In order to respond to each student's distinct needs, faculty can ask students what grade they wish to earn and the standards they may find hard to master. Students then can be asked to set goals in those areas and identify the particular strategies they can use to achieve these goals. They should also be asked to reflect on potential barriers affecting their performance (e.g., technical problems, inadequate resources, and a lack of time-management skills) and how they feel faculty can help them.

Students' LLL skills should also be developed using a more generic approach. Although introductory classes on LLL can be offered to students at the freshman level, departments across the university should incorporate relevant LLL skills into their curricula throughout undergraduate as well as graduate levels. However, to avoid only paying lip service to the concept, particular tasks, assignments, and assessments should be aligned with the course-objectives. These need to be promptly revised to respond to the exigencies of such crises as COVID-19.

Recommendations can also be made for future research. At the time of this writing not all students, freshman students in particular, were expected to

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[57] Lev Vygotsky, *Mind in Society: The Development of Higher Psychological Processes* (Cambridge, MA: Harvard University Press, 1978).

[58] Mandi, "The Value of Accountability for Achieving Your Goals," accessed January, 10, 2020, https://theartofsimple.net/the-value-of-accountability-for-achieving-your-goals

[59] Rosalie Metro, "Humane Assessment Shouldn't Happen Only during a Pandemic," accessed January 10, 2020, https://www.insidehighered.com/views/2020/09/09/new-approaches-assessment-can-promote-student-success-times-crisis-well-normalcy

return to campus soon. This may have further impacts on their LLL skills, which could be studied. It would also be enlightening to compare the LLL skills of students according to academic settings (i.e, freshman, sophomore, junior, and senior levels).

VI. Conclusion

Effective use of LLL skills is not a panacea for all the negative impacts of a crisis such as COVID-19 on students' well-being. Yet they lend themselves as a useful tool in circumventing negative consequences. As educators, we also need to be cognizant of the malleable nature of LLL skills; during times of crisis, students' aptitude for LLL can be hampered as well as improved. We need to stay alert against the negative impacts and take the necessary interventions so that students' LLL skills can be helped to evolve apace with the demands of critical times. Only in this way can students be given good preparation for learning throughout their lives.

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