

The Impact of Introducing Self-Regulated Learning Strategies in Online Graduate Studies

Dr. Dixie Abernathy
Queens University of Charlotte

Abstract

With the increased use of online teaching and learning at both the higher education level as well as in K-12 venues, practitioners and researchers alike actively seek better ways to ensure online success for all students. Factors such as technological prowess, classroom preparation, and self-motivation can all impact the mastery of objectives in the virtual learning environment, but there are other factors that hold promise in terms of helping online students to achieve. These strategies are ones that have been relevant to teaching and learning for quite a while in more traditional learning modalities. While students utilize these various strategies in varying degrees, might the simple knowledge that these strategies, known as Self-Regulated Learning Strategies (SRLS), help the online students, and specifically graduate students, with successful acquisition of learning objectives? In addressing this question and others, student perceptions were gathered as a part of a study on SRLS in the online graduate classroom. This article examines the results of that study and the implications moving forward.

Key Words: Graduate Student Success, Online Teaching and Learning, Self-regulated Learning Strategies.

Introduction

As pointed out by many educators and researchers, online learning holds much promise and many benefits for online learners. When taught well, these include cost-effectiveness, flexibility of scheduling, and quality learning (Burns, 2020). Unfortunately, despite these advances and attributes, studies have shown that the drop-out rate for online students can be as much as double that of students in traditional face-to-face learning modalities, and even reach as high as 60% (Burns, 2013; Levy, 2007). In addition to the challenge associated with simple retention of online students comes the desire to see students in all environments succeed and learn to their full potential. The study of any approach or knowledge that may be useful in driving success is of significant worth. Self-regulated learning has long been acknowledged as holding the potential for positive impacts on learning, but might these approaches also make a difference in less-than-traditional educational settings? It is worth considering if this is true for students in online modalities at the higher education level and thus the study of self-regulated learning and the influence it may hold in successful online learning modalities has gained interest and attention (Cassidy, 2011).

Background

Self-Regulated Learning Strategies (SRLS)

At its core, self-regulation refers to a learner's use of metacognitive, motivational, and behavioral processes in working towards a goal, as in a learning goal (University of Nebraska-Lincoln, 2020). In a nutshell, metacognitive processes are those associated with our conscious focus on acquiring and retaining knowledge, motivational processes are those that we choose, such as avoiding distractions in our learning environments, and behavioral are the choices we make to deliberately ensure and improve our success (such as asking for help). This self-regulation involves three phases the learning must go through, including forethought, performance focus, and reflection (Zimmerman, 2011). As learners work through the processes above, in these three phases, they are engaging directly in self-regulatory behavior, and this behavior is often personalized and tailored to their own circumstances or experiences (Zimmerman, 2002). At times, the self-regulatory behavior can be seen as a means to an end, and for other learners, it may be perceived as the end itself (Pintrich, 2020). The questions hypothesized are: what impact can this have and is that impact relevant to the online learning environment? While self-regulated learning strategies may be defined or identified in various categories, some of the most prevalent or widely discussed are highlighted here, with each analyzed against the backdrop of prior research or use.

Goal Setting. Even as young learners ourselves, many of us may remember being encouraged to write goals for our work, our learning, or our future aspirations. The exercise of writing goals has, in recent decades, parted from the once personal exercise of self-motivation to the strategic step now expected in organizational planning. Educators and students at large are now very familiar (much too familiar, according to some observers) with the art and practice of goal setting. However, SRLS research suggests that the ability to set individual goals, both short- and long-term, may, in fact, be a helpful self-regulation tool that leads to learner success.

The setting of goals as part of the learning process includes not only the goals themselves, but also the ongoing process of monitoring progress towards these goals (Chen, 2002; Zimmerman, 1989). In order for this self-regulation to be effective, it is important that goals be very specific and focused on targeted outcomes from performance (Chen, 2002). When done well, goal setting may even have a positive influence over other self-regulated strategies, such as the ability to self-evaluate how effectively certain actions led to goal achievement, or how time management impacts the ability to reach one's goal.

Time Management. The ability to manage one's time has long been the barrier for many the student, starting from the early days of Kindergarten and extending into the dissertation defense for the doctoral student. One would think that with the advancement of digital management tools, such as digital calendars and phones that "ding" us fifteen minutes in advance of our next meeting, time management would be a breeze for even the most disorganized of learners. However, with the advancement of time-managing technology has also come hurried and busy lives, daily calendars filled with a plethora of activities, and the constant temptation of "more" technology (but we will get to that issue under "environment setting").

In research conducted well before online teaching and learning was prevalent, the team of Britton and Tesser (1991) concluded, from surveys of college undergraduates, that those who seemed to accomplish learning objectives with the high levels of success were also those who

had developed ways to set short-term plans for the time they had. In the words of the researchers:
 [S]tudents who happen to do well in school somehow come to develop short-range planning skills and positive attitudes toward time. Although it is not clear what the mechanism(s) are by which such transformations would take place, this interpretation is not plausible on design grounds. Although high school success could have fostered time management, in this prospective study measures of time-management attitudes and skills were taken prior to the unfolding of grade point average. (1991, p. 4)

These early conclusions could certainly lead one to assume that time management, like all self-regulated strategies, can be practiced, improved, and even discovered. In more recent studies, such as Khan's higher education research, students who report the ability to effectively manage time not only achieve at higher levels but experience less anxiety and stress in doing so (Khan, 2015).

Environment Setting. Even in the early days of Kindergarten, students are often reminded to avoid distractions and to stay focused on the work at hand. Teachers can be heard from all corners of the schoolhouse reminding students to “keep your eyes on me.” It is no surprise that distraction, in the educational setting, has become synonymous with “off-task behavior.” Even at the higher education level, certain spaces and classroom decorum are respected in order to provide what might be deemed as appropriate learning settings, especially in light of the variety of backgrounds and learning styles students may bring with them to the university level (Radhakanta, 2012). While in those college classrooms and in those school buildings, there are significant controls over the student's learning environment, yet the same cannot be said for the online learning environment. While learning online, the learner has all control over the selection of the learning environment, and these choices and the ways in which the learner is able to monitor and regulate these choices, may have a significant impact on learning. While much is researched and written in regards to the appropriate setting for the online course itself, very little is available on how students make choices in regards to their own settings, and how the presence or absence of other technologies, entertainments, and people within that setting may or may not affect each individual learner's success.

Task Strategies. Self-regulation can be a very cyclical process, with learners taking a step backwards, to plan and plot various tasks and steps, prior to even starting the learning process. This can sometimes feel like an unproductive use of time, which is one reason that some learners shy away from this important planning step (Sage 2YC, 2020). But asking simple questions such as “have I completed a similar task before?” or “can I use skills I have previously acquired on this particular task?” may actually save time in the long run. In addition, planning and preparing for tasks may also include a “plan B” for when things don't go according to plan (Flanagan, 2014). Planning for and monitoring the completion of tasks is a self-regulated strategy that appears even more relevant in light of the multi-step learning so often utilized in graduate learning.

Help Seeking. With stress and anxiety rates almost six times what they are for the general population, graduate students are a sub-group often in need of specific help and encouragement (Flaherty, 2018). But, as pointed out through the research of Koc and Liu (2016), this help-seeking mechanism must sometimes be triggered through the use of intentional

technologies and formative assessments that encourage online students to “search for ... a strategy to obtain success” (p. 1). Further conclusions from this research indicate that when students do “engage in appropriate help seeking behaviors and instructors provide effective help mechanisms and tools, increase learning gains can be achieved” (p. 1).

Self-Evaluation of Learning. Self-evaluation can be effectively used not only in determining how successfully learning objectives were met, but how successfully other regulatory decisions were in leading to that end result. For example, learners may self-evaluate various environments that were used during the learning process, and which seemed to lead to the best results (Sage, 2YC). And even when success is not reached, self-evaluation may be completed in terms of the effort or strategies used, and not in terms of the ability of the student.

In a related study, it was found that self-efficacy may have a role to play in the use of self-regulated strategies including self-evaluation. The more self-efficacious the student, the more willing and able they are to engage in self-regulation. In the words of the research team, “Those with a high sense of self-efficacy tend to use cognitive and metacognitive strategies and to persist in difficult or uninteresting tasks” (Demiroren, Turan, & Tasdelen Teker, 2020, p. 2).

Course Design and Self-Regulated Learning

Due to constraints on time and the breadth and depth of curricular and learning objectives, graduate programs cannot necessarily teach and assess the use of self-regulated learning strategies within the structure of course learning. However, there are opportunities for course designers and instructors to make the knowledge and understanding of self-regulated learning strategies and their potential impact on program success a part of the overall graduate experience. For example, when considering the self-regulated learning strategies associated with help-seeking, Mary Burns (2020) suggests that courses be designed to encourage interaction amongst students and faculty, thus making help-seeking more natural and encouraged. She adds that “it is emotionally and cognitively powerful to wrestle with difficult concepts, interpret information and to do so communally” (p.2).

Another powerful way to remind students of the self-regulated strategies at their disposal is to provide an orientation that specifically addresses self-regulation. Details such as what it is and how students can attain it should be shared in explicit terms (Burns, 2020). Other design components that may encourage self-regulatory practices are inclusion of short-term goals for students to follow, brief or shorter-termed timelines, and estimates of how much time a particular assignment may take. These goal setting and time management triggers may actually encourage students in the short-term, and then lead to more use of self-regulated learning strategies in future courses (Burns, 2020).

Even in the best of circumstances, in learning that involves students with a plethora of self-regulated learning skills at their disposal, self-regulation is just one component of the overall learning experience. As shared by Paul Pintrich (2020):

All the models assume that learners can potentially monitor, control, and regulate certain aspects of their own cognition, motivation, and behavior as well as some features of their environments. This assumption does not mean that individuals will or can monitor and control their cognition, motivation, or behavior at all times or in all contexts, rather just that some monitoring, control, and regulation is possible. ...there are biological, developmental, contextual, and individual difference constraints that can impede or interfere with individual efforts at regulation. (p.1)

Ultimately, it may require that graduate level online learning environments make major philosophical shifts, and design courses not according to what we the instructors are going to cover, but how we the instructors, will foster the intellectual development and evaluation of learning from our students (Dash, 2014).

In Practice: Embedding Self-Regulated Learning Strategies

While an increasing body of research on self-regulated strategies and graduate learning builds, this connection is still not one that is easily prevalent in all sectors of higher education or within the mindset of all graduate learners. As Dash (2014) shares, “Unfortunately, self-regulated learning has not been applied to graduate education” (p. 1). In the spring of 2019, an online, graduate Master of Arts in Educational Leadership program, offered at a private Southeastern university, engaged in a total course redesign process. As part of this redesign, research regarding self-regulated learning and the use of such in increasing the success of graduate students in online programs was considered. As such, the redesign process included an intentional focus, during the first course of the program on self-regulated learning strategies introductions and reminders, and the sharing of various articles and studies on each strategy.

During the first week of the eight-week course, students are reminded of self-regulation and introduced to current research that suggests that self-regulations may improve student performance in online, graduate studies. At this beginning point, students are also given the opportunity to complete an optional survey, one in which their initial thoughts, understandings, and use of self-regulation are assessed. In weeks two through seven, students are given specific foci on self-regulated learning strategies, such as time management, environment setting, and seeking help. During the final weeks, students are offered the opportunity to complete an optional survey, one in which they assess their own use or the impact of self-regulated learning strategies at this point in their learning. The figures below (Figures 1, 2, and 3) show samples of the self-regulated information that is embedded into this first course of the MEL program (Abernathy, 2020).

Figure 1
Week One Self-Regulated Learning Tip

SRLS Weekly Tip #1: The Power of Knowledge

It is generally accepted that there are three procedural phases associated with self-regulated learning: the forethought phase, the performance control phase, and the self-reflection phase. Strategic processes that are driven by the learner and that precede any performance in learning are part of the forethought phase. Often these early processes are ones related to student intrinsic motivation. These skills and processes would include goal setting and environment setting. The second phase, or performance control phase, consists of skills or strategic processes that are happening during learning. Self-regulated strategies such as time management, task strategies, or seeking help when needed would be considered to be in this phase. The final phase of self-regulated learning is known as self-reflection or self-evaluation. This phase is associated with the reflective and evaluative action, on the part of the learner, to react to how the learning was self-regulated and the actual learning or result of such. Learners engaging in this phase are often able to self-evaluate and even adjust self-regulated strategies for future success (Barnard-Brak et al., 2010; Wandler & Imbriale, 2017).

You may not have ever considered the extent to which you have or use self-regulated learning strategies. Now that you are beginning an online graduate program, this is the perfect time to explore in more detail and become more knowledgeable about your own SRLS preferences. Please complete the self-assessment of your SRLS at the link below. Pay special attention and make note of those strategies for which you assess yourself with a rating of 5 or less. Complete this survey no earlier than the conclusion of Week One and no later than Wednesday of Week Two of the course. **You will submit proof of completion of this survey by providing a screenshot of your survey submission during Week 2 to contribute toward your course participation grade.**

- [Self-Assessment of Self-Regulated Learning Strategies](#)

Figure 2
Week Two Self-Regulated Learning Tip

SRLS Weekly Tip #2: Goal-Setting

Have you ever thought of yourself as a goal-oriented individual, or, more specifically, a goal-oriented learner? Research now indicates that the process of setting goals may motivate students at the higher education level. Not to be confused with rewards, goal-setting is the process of simply having a certain end point in mind and then keeping that end point in focus as one proceeds through the process or journey. The actual monitoring of progress towards the goal is a "metacognitive strategy and is often done through selective attention, rehearsal, elaboration, and structuring. Learners must desire to attain the long-term goal and must be prepared to overcome temptations along the way. Self-regulation requires that learners forego short-term gratification in an effort to achieve long-term goals" (Anderton, 2006, p. 158).

Are you interested in learning more about Goal-Setting and how this Self-Regulated Learning Strategy may positively impact your graduate learning? Check out the article "Can Goals Motivate Students", written by Alexandria Usher and Nancy Kober and published by the Center on Education Policy at George Washington University. The article is accessible using the link below.

- [Can Goals Motivate Students?](#)

Figure 3*Week Three Self-Regulated Learning Tip*

SRLS Weekly Tip #3: Environment Setting

As a student in the Queens University of Charlotte MEL program, each of you are most likely juggling other responsibilities and roles outside of your graduate program work and learning. In fulfilling these roles which are naturally a part of your lives, it may sometimes seem impossible to grab a little bit of time to study or to find a little piece of a conducive environment in which to do so. The environment in which one chooses to learn, reflect, study and grow can be a significant determinant in success as a graduate student.

Are you interested in learning more about Environment Setting as a Self-Regulated Learning Strategy? Search on your own for great resources, or check out this quick read (with lots of great ideas) on "10 Ways to Improve your Study Habits". This article was produced by Western Governors University and includes ideas related to turning off distracting devices, keeping your eye on the clock, and working in an organized setting. The link to the article is below.

- [10 Ways to Improve Your Study Habits](#)

In spring of 2020, research was conducted into the impact of this approach, on learner awareness and use of self-regulation in starting the MEL program. The research study as well as the results and implications follow.

Methodology

During the spring of 2020, graduate students in the Master of Arts in Educational Leadership (MEL) program at a private Southeastern university were given the option of completing an anonymous survey, both at the beginning of their first MEL course and at the end of their first MEL course. Because of the optional and anonymous nature of this survey, the number of participants completing the survey varied. The survey was designed to gage the participants' awareness and use of SRLS when just beginning their graduate work, and then to gage, after students had been introduced and reminded of the impact of SRLS, how students' perceptions may or may not have changed.

The survey design included 15 questions (on a Likert rating scale of 1-10, with 1 representing a strong disagreement to the statement of impact or use and 10 representing a strong agreement), each of which highlighted one of the following self-regulated learning strategies:

1. Goal Setting
2. Time Management
3. Environment Setting
4. Task Strategies
5. Help Seeking
6. Self-Evaluation of Learning

Results and Analysis

For the first week's survey, 41 graduate students participated. The mean scores of their responses for each of the fifteen questions given are featured in Table 1.

Table 1
First week of program

GOAL SETTING	Mean of all responses
Prior to or during the first week of the course, I set specific goals and deadlines for assignment completion or assignment “chunk” completion.	7.51
Prior to or during the first week of the course, I considered the program as a whole and set specific goals for my learning and my program completion.	7.29
ENVIRONMENT SETTING	
During the first week of the course, I engaged in my course (reading material, completing assignments, engaging in discussions) in environments that were conducive to task completion and learning.	8.12
During the first week of the course, I changed my physical surroundings when I found them to be non-conducive to my learning.	8.61
During the first week of the course, I minimized electronic distractions (television, cell phone, etc.) while engaging in my online course.	7.29
TIME MANAGEMENT	
During the first week of the course, I managed my time to complete work well ahead of course deadlines.	7.34
During the first week of the course, I met the goals I had set for assignment completion.	8.00
TASK STRATEGIES	
During the first week of the course, I used strategies that I know to be successful for me in understanding and utilizing new information.	8.00
During the first week of the course, I approached difficult tasks as challenges that I was well-equipped to successfully complete.	7.63
During the first week of the course, I monitored my thought processes as I was working towards my goals.	7.61
During the first week of the course, I established clear rewards or consequences for myself.	5.78

HELP SEEKING	
During the first week of the course, I was comfortable and proactive in seeking others' help (instructor, fellow students) as needed.	7.20
SELF-EVALUATION	
During and at the conclusion of the first week of the course, while working on my assignments and tasks, I evaluated my work and performance in terms of my potential and self-efficacy.	7.73
During and at the conclusion of the first week of the course, after the completion of my assignments and tasks, I evaluated my work and performance in terms of my potential and self-efficacy.	7.81
During and at the conclusion of the first week of the course, for those areas of my first week in which I believe I could have performed better, I am confident I can adapt in order to improve.	8.98

Analysis of First Week's Survey

The graduate participants appear, from their responses, to be familiar with self-regulated learning strategies and how these strategies are used to improve learning. Every strategy featured and question featured, with the exception of the question on rewards, resulted in a mean score of over 7.00. This mean response would appear to indicate a group of graduate students who were already very familiar with SRLS and were already employing these strategies even during the first week of the first course of the graduate program. It is interesting to note that, out of fifteen strategies presented, the one that received the highest mean score was:

During and at the conclusion of the first week of the course, for those areas of my first week in which I believe I could have performed better, I am confident I can adapt in order to improve. Score of 8.98

As shared earlier, through the research of Demiroren et al. (2020), self-efficacy is related to and can be indicative of strong self-regulated skills. This extremely high mean score would certainly support the assumption of a graduate cohort with strong efficacious behaviors.

As a self-regulated category, Environment Setting had two of three questions receive high mean scores, with only "I minimized electronic distractions (television, cell phone, etc.) while engaging in my online course" receiving lower mean scores. There could be several possibilities for the way in which electronic distractions may be perceived differently in terms of environment. These could range from telephones that are needed close by for family or personal reasons; music, television, or "white" noise that is perceived as contributing to a better focus; or other electronic tools that are actually needed to assist with the learning process. For whatever reason, participants were much more likely to choose what they felt were conducive environments for learning as opposed to actually removing themselves from electronic distractions.

The question receiving the lowest mean response was the following:

During the first week of the course, I established clear rewards or consequences for myself. Score 5.78.

Rewards and consequences are critical components to task management, yet it would appear that these online graduate participants did not perceive the need for such or had forgotten that these are parts of task management strategies. This is interesting to consider since all students in the MEL program are, themselves, K-12 teachers or counselors. These are students who are very familiar, on a practitioner basis, of the use of rewards and consequences, yet apparently not so much in terms of their own learning. Thus, based on the first survey's responses and mean scores, several questions were evident as the researcher awaited the end of the course:

1. How might student perceptions of their use of certain self-regulated strategies change as the course, which included self-regulated reminders and tips, progressed?
2. How might the use of rewards or consequences be incorporated into learning after students were exposed to a reminder of task strategies?
3. How might students view their removal of electronic distractions after reaching the end of the course?

During the final week, students were once again given the option to take the survey. This time, the questions were in the same order and categories, but statements were given in relation to student behaviors during the course and the final week. In each week of the course, students had been reminded of self-regulated strategies and their potential impact on learning through weekly SRLS tips and research (see Figures 1, 2 and 3 for examples). The final survey was given with the purpose to provide insight into how self-regulatory behaviors may have changed during the course of these eight weeks of learning, based on the reminders and introductions to self-regulated learning strategies. Twenty-seven students opted to complete the second survey, the responses of which are analyzed below.

Table 2

Post Assessment (at the conclusion of the first course) with Comparison

GOAL SETTING	Mean of all responses in first survey	Mean of all responses in second survey	Difference
Prior to or during the final week of the course, I set specific goals and deadlines for assignment completion or assignment "chunk" completion.	7.51	9.04	+1.53
Prior to or during the final week of the course, I considered the program as a whole and set specific goals for my learning and my program completion.	7.29	9.07	+1.78

ENVIRONMENT SETTING			
During the final week of the course, I engaged in my course (reading material, completing assignments, engaging in discussions) in environments that were conducive to task completion and learning.	8.12	9.16	+1.03
During the final week of the course, I changed my physical surroundings when I found them to be non-conducive to my learning.	8.61	9.33	+0.72
During the final week of the course, I minimized electronic distractions (television, cell phone, etc.) while engaging in my online course.	7.29	8.93	+1.64
TIME MANAGEMENT			
During the final week of the course, I managed my time to complete work well ahead of course deadlines.	7.34	8.67	+1.33
During the final week of the course, I met the goals I had set for assignment completion.	8.00	8.60	+0.60
TASK STRATEGIES			
During the final week of the course, I used strategies that I know to be successful for me in understanding and utilizing new information.	8.00	9.07	+1.07
During the final week of the course, I approached difficult tasks as challenges that I was well-equipped to successfully complete.	7.63	8.93	+1.30
During the final week of the course, I monitored my thought processes as I was working towards my goals.	7.61	9.04	+1.43
During the final week of the course, I established clear rewards or consequences for myself.	5.78	7.78	+2.00
HELP SEEKING			
During the final week of the course, I was comfortable and proactive in seeking others' help (instructor, fellow students)	7.20	8.68	+1.48

as needed.			
SELF-EVALUATION			
During and at the conclusion of the final week of the course, while working on my assignments and tasks, I evaluated my work and performance in terms of my potential and self-efficacy.	7.73	9.19	+1.460
During and at the conclusion of the final week of the course, after the completion of my assignments and tasks, I evaluated my work and performance in terms of my potential and self-efficacy.	7.81	9.19	+1.39
During and at the conclusion of the final week of the course, for those areas of my first week in which I believed I could have performed better, I am confident I did adapt in order to improve.	8.98	9.48	+.50

Analysis of Final Week's Survey Results

In analyzing the responses garnered from the second survey, and in comparing these mean responses to the first survey, several immediate observations are noteworthy:

- For all 15 self-regulated strategies featured in the survey, mean responses increased. This across-the-board increase in self-regulation could be attributed to different factors, one of which could be the introduction and reminders of SRLS embedded throughout the course.
- The strategy realizing the highest degree of positive change in mean score was: "During the final week of the course, I established clear rewards or consequences for myself." This strategy gained 2.03 in mean percentage over the first week's responses. It should also be noted, however, that while realizing these increases, this strategy remained as the lowest mean response rate in the entire survey, at 7.78.
- Another strategy realizing a high degree of positive change in mean score was: "Prior to or during the final week of the course, I considered the program as a whole and set specific goals for my learning and my program completion," under the Goal Setting category, with a 1.78 positive change. It is encouraging to think that perhaps being introduced to self-regulatory goal setting, students were more apt to plan ahead and to think of their own goals in more comprehensive terms.
- Another result of note was the change in the "electronic devices" question under environment setting:

During the final week of the course, I minimized electronic distractions (television, cell phone, etc.) while engaging in my online course. First mean 7.29, second mean 8.93, difference +1.64.

With this positive change of 1.64, this strategy moved to be more consistent with the other

two strategies in this Environment Setting category. This could be interpreted to mean that the participants considered environment not only in terms of what they perceived as conducive or non-conducive to learning, but also in terms of removal of electronic devices that they knew to be counterproductive to learning.

Conclusions and Implications

This research was the first phase in ongoing research that is planned in this area and with this program in terms of self-regulated learning and the impact of such on graduate student success. While the participant group was relatively small, and there were clear threats to validity based on the optional nature of the survey and the varying number of participants, there are some early conclusions that may be drawn nonetheless.

It cannot be overlooked that in all 15 questions, across all self-regulated categories, higher mean scores were posted by the end of the course than at the beginning. Whether this indicates that students became more comfortable and tapped into self-regulated experiences from prior learning, or whether this indicates that the self-regulated weekly tips embedded in the course were meaningful and impactful, that distinction cannot be made. However, it does appear to be a strong possibility that, when given information and reminders of self-regulation of learning, graduate students perceive themselves as having the ability to adapt and improve.

In addition, the idea of providing rewards or consequences for achieving tasks or goals may seem like an elementary idea, but this research would appear to suggest that graduate students are willing to try this strategy when given information and research links on how it might make a difference in learning and success. The increase in the mean scores for this question, the highest increase in the entire survey, would indicate that more students in the MEL program were utilizing rewards and consequences in the end than had thought to in the beginning.

Lastly, the high mean scores initially posted in the first week of the course would appear to indicate that, as a whole, the participating group in this research began graduate studies with a solid knowledge of and engagement in self-regulated learning. However, the change in the responses in terms of removal of electronic devices, would also appear to suggest that even at the graduate level, students are willing and able to explore self-regulation even in areas in which they may not have noted previous concerns. This particular conclusion has significant implication for research moving forward into how self-regulated learning strategies may improve the learning experience for graduate students engaged in online programs.

References

- Abernathy, D. (2020). MEL course: EDU 642 – Leading in a Global Community.
- Britton, B., & Tesser, A. (1991) Effects of time-management practices on college grades. *Journal of Educational Psychology*, 83(3). 405-410.
- Burns, M. (2013, December). Staying or leaving? Designing for persistence in an online educator training program in Indonesia. *Open Learning: The Journal of Open and Distance Learning*, 28, (2) 141-152. <http://dx.doi.org/10.1080/02680513.2013.851023>
- Burns, M. (2020, March 19) Turning on, tuning in, and dropping out. eLearning Industry. <https://elearningindustry.com/self-regulation-in-online-learning>.
- Cassidy, S. (2011). Self-regulated learning in higher education: Identifying key component processes. *Studies in Higher Education*, 36(8), 989-1000.

- <https://www.tandfonline.com/doi/full/10.1080/03075079.2010.503269?scroll=top&needAccess=true>.
- Chen, C. (2002, Spring). Self-regulated learning strategies and achievement in an introduction to information systems course *Information Technology, Learning, and Performance Journal*, 20(1), 11-25.
<https://pdfs.semanticscholar.org/d92f/d0d0207191f7806852f93c3f37d61a4438eb.pdf>
- Dash, C.K. (2014, May 8). Motivation, self-regulated learning, and graduate education. *Adventures in Human Development and Science*.
<https://u.osu.edu/adventuresinhdfs/2014/05/08/motivation-self-regulated-learning-and-graduate-education/>
- Demiroren, M., Turan, S., & Tasdelen Teker, G. (2020). Determinants of self-regulated learning skills: the roles of tutors and students. *Advances in Physiological Education*. 44, 93-98.
<https://journals.physiology.org/doi/pdf/10.1152/advan.00121.2019>
- Flaherty, C. (2018, December 6) A very mixed record on grad student mental health. *Inside Higher Education*. <https://www.insidehighered.com/news/2018/12/06/new-research-graduate-student-mental-well-being-says-departments-have-important>
- Flanagan, L. (2014, December). Why understanding obstacles is essential to achieving goals. *MindShift, KQED News*. <http://www.kqed.org/mindshift/2014/12/26/why-understanding-obstacles-is-essential-to-achieving-goals/>.
- Khan, S. (2015). The impact of time management on students' academic achievements. *Journal of Literature, Languages, and Linguistics*. <https://www.semanticscholar.org/paper/The-Impact-of-Time-Management-on-the-Students%E2%80%99-Khan/5323eda5c428e91bc050823c972234f3266068e6>
- Koc, S. & Liu, X. (2016). An investigation of graduate students' help-seeking experiences, preferences, and attitudes in online learning. *The Turkish Online Journal of Educational Technology*, 15(3). <https://files.eric.ed.gov/fulltext/EJ1106358.pdf>.
- Levy, Y. (2007). Comparing dropouts and persistence in e-learning courses. *Computers & Education*, 48, 185-204.
- Pintrich, P. (2020). Self-regulated learning. *Motivation*.
<https://education.stateuniversity.com/pages/2249/Motivation-SELF-REGULATED-LEARNING.html>
- Radhakanta, G. (2012). Correlates of academic achievement and family environment of undergraduate students. *Journal of Psychological Research*, 7(1). 139-145.
- Sage 2YC. (2020). What is self-regulated learning?
https://serc.carleton.edu/sage2yc/self_regulated/what.html
- University of Nebraska-Lincoln (2020). Self-regulation. Special education and communication disorders. <https://cehs.unl.edu/secd/self-regulation/>.
- Zimmerman, B. J. (1989). Models of self-regulated learning and academic achievement. In B. J. Zimmerman & D. H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theory, research, and practice* (pp. 1-25). New York: Springer-Verlag.
- Zimmerman, B. J. (2002). Becoming a self-regulated learner: An overview. *Theory into Practice*, 41(2), 64-70.
- Zimmerman, B. J. (2011). Motivational sources and outcomes of self-regulated learning and performance. In B. J. Zimmerman & D. H. Schunk (Eds.), *Handbook of self-Regulation of learning and performance* (pp. 49-64). Routledge.