Investigating the Effectiveness of Self-regulation Learning strategies on Undergraduates' Perception of Motivation in Online Courses

Lei Wang

4 December 2019

Submitted to: Moon-Heum Cho, Ph.D.

Professor of Instructional Design, Development and Evaluation

Instructor, IDE 841: The Nature and Design of Inquiry

Common Theoretical Backgrounds

Enrollment in online courses rose at a faster pace between fall 2015 and 2016 compared with the previous three years, yet students are increasingly choosing local online degree programs, according to the "Grade Increase" report released by the Babson Survey Research Group Based on federal data from more than 4,700 colleges and universities, more than 6.3 million students in the U.S. – most of whom were undergraduates – took at least one online course in fall 2016, a 5.6 percent increase from the previous year. This is the 14th consecutive year that Babson has reported growth in online enrollment. (Friedman,2018).

However, Reported in *Inside Higher Education*, Straumsheim (2016, February 17) reveals that 48% of the students surveyed had no desire to take any of their college classes online. About 37% said they might take a few of their college classes online. About 9% were undecided and the remaining percentages thought they would take most (4%) classes online or half of their classes online (2%). This report indicated students were demotivated to take online courses.

Although motivation is essential to learning no matter the context, it is particularly critical when learning online, where whether students engage the material, how, and how long, is entirely within their control (e.g., Sansone et al. 2002). Successful online students must learn the material, and must maintain motivation to learn the material, on their own (Carol Sansone et al., 2010). Therefore, it's essential to know what instructors can do to motivate students in online classes.

Students in online learning settings do not physically present themselves in a classroom and do not have the opportunity to interact face-to-face with their instructors and classmates. Students in online courses are responsible for their own learning as they decide when, where, and how long to access the learning materials (McMahon & Oliver, 2001).

Success in an online learning environment heavily relies on a student's ability to autonomously and actively engage in the learning process (Wang, Shannon, & Ross, 2013). It is therefore particularly important that online learners compared to their traditional classroom peers, have the self-generated ability to control, manage, and plan their learning actions (Ally, 2004). Consequently, self-regulated learning (SRL) strategies are especially important when taking online courses (Wijekumar, Ferguson, & Wagoner, 2006). Zimmerman and Pons (1986) identified self-regulated learning strategies are actions directed at acquiring information or skill that involve agency, purpose (goals), and instrumentality self-perceptions by a learner.

Based on existing literature, a number of categories of self-regulated learning strategies were identified. The model of self-regulated learning includes three general categories of strategies: (1) cognitive learning strategies, (2) self-regulatory strategies to control cognition, and (3) resource management strategies (see Garcia& Pintrich, 1994; Pintrich, 1988a,b; Pintrich, 1989; Pintrich & De Groot, 1990;Pintrich & Garcia, 1991; Pintrich, Smith, Garcia, &

McKeachie, 1993). Zimmerman (1990) summarized a number of articles to indicate students who are better able to regulate their learning in an intentional and reflective way often demonstrate greater academic motivation.

Research has shown motivation and self-regulated learning promote the use of self-regulatory strategies (Moos, el ta., 2008; Schunk, 2010). Other research implicitly centered on how motivational beliefs predict self-regulation (Cho, el ta.2015; Duffy el ta., 2015; Pintrich,1999). However, there is little empirical research on how SRL strategies influence undergraduates' perception of motivation in online learning environments. Therefore, this study seeks to fill that research gap. In this paper, three study designs are proposed to investigate the effectiveness of self-regulated learning strategies on students' motivation in online courses. With this information, instructors can make students aware of effective learning strategies in learning environment and help students use the appropriate learning strategies in later learning situations. Possible benefits and limitations are discussed at the end of each design.

Assignment 5

Research Problems

A true experimental design can be applicable to explore students' motivation and responses to online instruction with the assist of self-regulated learning strategies.

In the previous research, Chang (2005) revealed one of the three general categories of strategies, named cognitive learning strategies enhanced learners' motivation perception. In this study, resource management strategies, which students use to manage and control their environment will be incorporated into online course instruction to see the effectiveness on undergraduates' perception of motivation in online courses. Examples of resource management strategies include managing and controlling their time, their effort, their study environment, and other people, including teachers and peers, through the use of help-seeking strategies (cf., Corno, 1986; Ryan & Pintrich, 1998;Zimmerman & Martinez-Pons, 1986,1988).

The motivation perception in this study will be focused on students' intrinsic goal orientation, perception of task value and self-efficacy for learning and performance.

Intrinsic goal orientation is motivation that stems from primarily internal reasons (e.g., being curious, wanting to challenge, wanting to master the content). It would likely promote both short-term and long-term persistence toward the learning subject (Vansteenkiste, Lens, & Deci, 2006).

Task value is defined as an incentive to engage in academic activities, which represents a composite construct encompassing perceived importance, usefulness, and interest (Wigfield & Eccles, 1992).

Self-efficacy was defined as a "belief in one's capabilities to organize and execute the courses of action required to manage prospective situations" (Bandura, 1995, p. 2). It has shown convergent validity in predicting diverse forms of motivation (Zimmerman, 2000).

Because self-regulation is not a personality trait, students can be taught how to use self-regulatory strategies to improve their academic success (Pintrich, 1995). Studies have suggested that self-regulated instruction benefits students across a wide spectrum of disciplines (Mace, Belfiore, & Shea, 1989).

This study will be designed to explore undergraduates' perception of motivation with embedded SRL strategies in the instruction in an online course. The questions are described below:

1. Do students improve their intrinsic goal orientation from the instruction embedded SRL strategies than those only receive regular instruction?
2. Do students improve their perception of task value from the instruction embedded SRL strategies than those only receive regular instruction?
3. Do students improve their self-efficacy for learning and performance from the instruction embedded SRL strategies than those only receive regular instruction?

Sampling

200 freshmen or sophomores from the same instructor's different sections of her online course from iSchool will be randomly selected from different online courses and assigned into two groups of learners. 100 individuals in the experimental group receive the experimental treatment, the others in the control group don't. The experimental group will receive a semester-long, 2-hour class for each week, with the guidance of applying self-regulated learning strategies in the instruction.

Measures

The Motivated Strategies for Learning Questionnaire (MSLQ), developed by Pintrich et al. (1991), is a self-report, Likert-type (1 = not true of me, to 7 =very true of me) instrument designed to measure undergraduates' motivational orientations and their use of different learning strategies. In this study, sub-scales designed to assess students' intrinsic goal orientation, students' perception of the task value, and students' self-efficacy beliefs about learning and performance will be used.

Appendix A lists the items in these subscales. Responses to these subscales were provided by participants using a 7-point rating scale.

Procedures

Written consent with all the undergraduates and course instructors for conducting this research, the MSLQ will be administered at the beginning of the semester. In motivation section, there are 31 items that assess students' goals and value beliefs for a course, their beliefs about their skill to succeed in a course, and their anxiety about tests in a course. In this study I focus on three parts of the motivation section, totally 18 items. All the learners will take pretest by using the tailored MSLQ.

Students in the control group will be instructed by regular instruction without treatment, while students in the experimental group will be instructed via instruction embedded SRL strategies. In the experimental group, students will learn and apply resource management strategies by using tutorials which would last approximately 15 minutes. The tutorials that contains interactive videos, self-challenge questions, checklists, and extra information about the strategies will be given to the experimental group by their instructors each week. The tutorials will be divided into 4 parts. Time management involve scheduling, planning, and managing

study time. Effort regulation includes students' ability to control their effort and attention in the face of distractions and uninteresting tasks. Peer learning will teach students how to cooperate with peers to have a positively effect on learning. Help seeking help students to identify someone to aid when they meet difficulty.

At mid-semester, students will have a group discussion in the discussion board. When the semester ends, they will document a study report, which contains students' daily records. Students will have the records of applying the SRL strategies in their learning process and comparing different strategies. Students will focus on the strategies they use when studying the course content each week and write reflective summary score from self-challenge questions. When the semester ends, the MSLQ will be measured again for all students as posttest. All scores will be saved for data analysis.

Data Analysis

To examine whether effectiveness differed across the control group and the experimental group, an independent-samples t-test will be conducted to answer the research questions about learners' goal orientation, perception of task value, and learners' self-efficacy for learning and performance.

Possible Benefits and Problems

Benefits

By considering the features of the sampling, this research will reach a great level of control. Most of the threats to internal validity don't arise because I will randomly assign individuals to the groups. I will use the same instrument for the pre- and post-test during the study, I will hold the instrumentation threats to a minimum. With specific instruction to help learners apply self-regulated learning strategies, they develop their self-regulation skills and take

more responsibility for their own learning and learn with less intervention from the instructor. The results will be supportive for both instructional designers and instructors who will facilitate students' self-regulated learning.

Problems

This study contains the threats to both internal and external validity. Testing is a potential threat to internal validity because both groups will take the same test multiple times. Also, selection, mortality, and diffusion of treatments may compromise the experiment. Since the study lasts for one semester, students in the two groups may communicate with each other and affect the test scores. As for external validity, it's skeptical whether the results can be applied to generalization since this study will be done within one university. Moreover, the population with different characteristics that I study should be more clearly in the future.

Assignment 6 A Cross-Sectional Survey Design

A cross-sectional study can examine current attitudes, beliefs, opinions, or practices (Creswell, 2019). The purpose of the current study is to test the relationships between graduate students' motivation and use of Self-Regulated Learning Strategies in online courses.

Research Problems

A cross-sectional study has been shown to be an efficient research method to investigate current behaviors, attitudes, and perspectives of participants (Gay, Mills, & Airasian, 2009).

The research question is described below:

What SRL learning strategies should be instructed to enhance students' perception of self-efficacy for learning and performance?

Design

A cross-sectional survey design

Participants

In this study, a cross-sectional study with undergraduates who will be enrolled in an online course in Spring 2020 will be conducted. 100 participants will be chosen from School of Education at Syracuse university in New York State. The students will take asynchronous online courses and they have no previous experience of taking any online courses.

Measures

The Motivated Strategies for Learning Questionnaire (MSLQ; (Paul R. Pintrich, Smith, Garcia, & McKeachie, 1993) will be used to measure students' self-reported learning strategies. MSLQ is a validated self-report instrument to measure students' learning strategies. Thirty items for self-reported learning strategies were used. These items are classified into three subscales: (1) cognitive strategies (i.e., rehearsal, elaboration, organization, and critical thinking, (2)

metacognitive strategies; and (3) resource management strategies (e.g., time management, effort regulation, help seeking and peer learning).

A demographic form will be assigned before MSLQ to obtain the information including gender, race, age as well as their learning preferences, the reasons why they take online course, how many other courses have they taken, and how many hours they have spent on this course.

Procedures

Online questionnaire will be used to collect data. The link of the survey administered by SurveyMonkey will be sent through students' email. The data will be analyzed for each category using descriptive statistics. The students will be asked for their anonymous participation in a 25-minute study to test the roles of SRL learning strategies and motivation in their learning. First, students have to complete the electronic consent. Then, with consent, students are required to complete the survey using the link. Lastly, follow-up email will be sent to lead to a high response rate.

Data Analysis

Descriptive statistics will be then generated for demographics data and questionnaire scores (i.e., means, standard deviations). Path analysis will be used to identify relationships between SRL learning strategies and perception of motivation variables. The hypothesized path model for this study is displayed in Appendix B.

Benefits

This is useful to examine current attitudes, beliefs, opinions, or practices. With this design, researchers can define the correlations between the SRL learning strategies and motivation perception. Besides, it's a convenient and cost-effective to collect and analyze

extensive data. Additionally, since the data will be collected only once, there will be fewer variables so that researchers will complete the data much better than other designs.

Limitations

Frequently, surveys are not based on probability sampling strategies, so drawing inferences o a general population is difficult. (Creswell, 2019). This survey might not represent an entire population because we only get data from one specific school located in Syracuse University, the findings may not be generalized on a large population. Therefore, a larger sample size is typically required in this survey design compared to others. Also, the design may run into a risk of low response rate, overly negative or positive, security issues, and other technological problems. To prevent this, the approach wave analysis should be implemented.

Assignment 7 A Case Study Design

A case study is an in-depth exploration of a bounded system (e.g., activity, event, process, or individuals) based on extensive data collection (Creswell & Poth, 2018).

Research Problems

What Self-Regulated Learning strategies do students use to motivate themselves and regulate their own learning?

Design

A case study

Participants

In this study, the samples, 3 freshmen volunteers would be oblige to three hours of interviews totally (one hour each time) in one semester and the access to online journals and postings, and interview the instructor about their performance will be allowed. Students have the rights to privacy, confidentiality, and leaving the study at any time will be assured. A homogenous questionnaire will be conducted to collect the information about their technology background, interest in participation, gender, age, ethnic background so that the balance will be achieved.

Measures

Because this study will explore a rich picture of undergraduates' SRL strategies to motivate and regulate themselves in an online course, a naturalistic and descriptive method of inquiry (Lincoln & Guba, 1985), using a small group of students and their instructor as informants. Student individual interviews, an instructor interview, and the students' reflective journals will be primary data sources. Archived course documents (course syllabus, assignment descriptions, threaded discussions, course bulletin board, and student Web pages) will be secondary data sources.

Procedures

Student interviews. Each of the three students will be interviewed for one hour three times during the semester (third, seventh and twelfth week) and once during the second week after course completion. Interviews will be directed on the course assignment completion while students are working to see how they use SRL strategies to motivate themselves and regulate their learning. Students will be asked to describe how they participate the Discussion Board for the previous task, what strategies they have used, their challenges, and what support them. Additionally, they will be asked to describe their opinions, affections, and motivations while learning online, and evaluate how well they have performed in the course. (A sample of interview questions will be in the Appendix C.) All interviews will be recorded and transcribed.

Reflections. Students will be asked to write reflections after their assigned readings each week. The course instructor will assess each journal entry on idea development, evidence of how they accomplish the tasks, and timeliness.

Instructor interview. Before the course submission, the instructor of the course will be interviewed on the observation of 3 students' self-regulation learning strategy use on motivation. 2 hour-long interviews will be recorded, transcribed, and used primarily to triangulate analysis of the student interviews and journals.

Data Analysis

The individual case and cross-case analytic techniques (Patton, 1990; Stake, 1995; Yin, 1994) will be used in this study. A search for patterns within the data on each of the students, and then across all students, using a constant comparative method (Glaser & Strauss, 1967). Interviews and journals will be coded, Frequencies for strategies used, significant strategy

adaptations, motivational beliefs, social supports, and other environmental supports will be discussed in the same coding categories to summarize the interviews and online journals.

Benefits

Case studies allow the researchers collect a lot of in-depth and multi-sided detail that would not normally be easily obtained by other research designs. The data collected is normally a lot richer and of greater depth than can be found through other experimental designs. Additionally, the researchers can use the collected data to turn opinions from the participants into useful information that can be verified as fact.

Limitations

One of the problems in this study is that the data collected cannot necessarily be generalized to the wider population. This leads to data being collected over longitudinal case studies not always being relevant or particularly useful. Also, conducting the case study is very time-consuming. It takes researchers a long time to develop one case study and analyze a detailed data.

References:

A. Bandura (Ed.), *Self-efficacy in changing societies* (pp. 1-45). Cambridge, England: Ablard, K. E. and Lipschultz, R. E. 1998. Self-regulated learning in high-achieving students: Relations to advanced reasoning, achievement goals, and gender.. *Journal of Educational Psychology*, 90: 94–101.

Alexander, P, & Zimmerman, B. (2000). Self-efficacy: An essential motive to learn. *Contemporary Educational Psychology*, 25(1), 82.

Bandura, A. (1995). Exercise of personal and collective efficacy in changing societies. In Cambridge University Press.

Chang, M. M. (2005). Applying self-regulated learning strategies in a web-based instruction—an investigation of motivation perception. *Computer Assisted Language Learning*, 18(3), 217-230.

Chang, M. M., & Wu, Y. M. (2003). EFL learners' self-efficacy and strategies use in a web-based learning environment. *Proceedings of the 2003 International Conference on English Teaching and Learning in the Republic of China, Taiwan*, ROC,117 – 125. Taiwan, Province University.

Chen, C. C. (2002). Self-regulated learning strategies and achievement in an introduction to information systems course. *Information Technology, Learning, and Performance Journal, 20*(1), 11.

Cho, M., & Heron, M. L. (2015). Self-regulated learning: The role of motivation, emotion, and use of learning strategies in students' learning experiences in a self-paced online mathematics course. *Distance Education, 36*(1), 80-99. doi:10.1080/01587919.2015.1019963

Cleary, T. J., & Platten, P. (2013). Examining the correspondence between self-regulated learning and academic achievement: A case study analysis. *Education Research International,* 2013, 1-18.

Cohen, L., Manion, L., & Morrison, K. (2000). *Research methods in education* (5th ed.). New York, NY: Routledge.

Corno, L. (1986). The metacognitive control components of self-regulated learning. *Contemporary Educational Psychology,11,* 333-346

Creswell, J. W., & Guetterman, T. C. (2019). *Educational research: planning, conducting, and evaluating quantitative and qualitative research.* New York, NY: Pearson.

De Munck, V. C., & Sobo, E. J., 1963. (1998). *Using methods in the field: A practical introduction and casebook.* Walnut Creek, CA: AltaMira Press.

Dianne L. Conrad (2002) Engagement, Excitement, Anxiety, and Fear: Learners' Experiences of Starting an Online Course, *American Journal of Distance Education*, 16:4, 205-226, DOI: 10.1207/S15389286AJDE1604_2

Duffy, M. C., & Azevedo, R. (2015). Motivation matters: Interactions between achievement goals and agent scaffolding for self-regulated learning within an intelligent tutoring system. *Computers in Human Behavior, 52*, 338-348. doi:10.1016/j.chb.2015.05.041

Duncan, T. G., & McKeachie, W. J. (2005). The making of the motivated strategies for learning questionnaire. *Educational Psychologist,* 40(2), 117-128.

Garcia, T., & Pintrich, P. R. (1994). Regulating motivation and cognition in the classroom: The role of self-schemas and self-regulatory strategies. In D. H. Schunk, & B. J. Zimmerman, *Self-regulation of learning and performance: Issues and educational applications*(pp. 127}153). Hillsdale, NJ: Lawrence Erlbaum Associates

Hughes, M. D. (2018). *Examining the role of self-regulated learning instruction on the performance and self-efficacy beliefs of struggling writers*

in self-determination theory: Another look at the quality of academic motivation.

Joo, Y., & Maeng, U. (2018). The effect of self-regulated learning strategy instruction on the reading comprehension of L2 learners. *The Journal of Linguistics Science, 87,* 587-615. doi:10.21296/jls.2018.12.87.587

Kormos,J.,&Csizer,K. (2014). The interaction of motivation, self-regulatory strategies, and autonomous learning behavior in different learner groups. *TESOL Quarterly*, 48(2), 275-299.

Lee, J., & Martin, L. (2017). Investigating students' perceptions of motivating factors of online class discussions. *International Review of Research in Open and Distance Learning*, 18(5), 148-172.

Lincoln, E., & Guba, E. (1985). Naturalistic inquiry. Newbury, CA: Sage.

Marshall, C., & Rossman, G. B. (2006). *Designing qualitative research* (4th ed.). Thousand Oaks, CA: Sage.

McMahon, M., & Oliver, R. (2001). Promoting self-regulated learning in an online environment. Ed-Media 2001 World Conference on *Educational Multimedia, Hypermedia & Telecommunications* (pp. 1299–1305). Charlottesville, VA: Association for the Advancement of Computing in Education (AACE).

Meyers, L. S., Gamst, G., & Guarino, A. J. (2006). *Applied multivariate research: Design and interpretation*. Thousand Oaks, CA: Sage. Miltiadou, M., & Yu, C. H. (2000). Validation of the online technologies self-efficacy scale (OTSES). (Publication No. ED 445 672). Retrieved from http://www.www.creative-wisdom.com/pub/efficacy.pdf

Mezei, G. (2008). Motivation and Self-Regulated Learning: A Case Study of a Pre-Intermediate and an Upper-Intermediate Adult Student. WoPaLP, 2, 79-104.

Moos, D. C., & Azevedo, R. (2008). Exploring the fluctuation of motivation and use of self-regulatory processes during learning with hypermedia. *Instructional Science, 36*(3), 203-231. doi:10.1007/s11251-007-9028-3

Ozturk, N. (2017). An analysis of teachers' self-reported competencies for teaching metacognition. *Educational Studies*, *43*(3), 247-264.

Paechter, M., Maier, M., & Macher, D. (2010). Students' expectations of, and experiences in e-learning: Their relation to learning achievements and course satisfaction. *Computers & Education*, 54, 222–229. doi:10.1016/j.compedu.2009.08.005

Parsad, B., Lewis, L., & Tice, P. (2008). *Distance education at degree-granting postsecondary institutions*: 2006–07. Washington, DC: National Center for Education Statisitics. Retrieved from http://nces.ed.gov/pubs2009/2009044.pdf

Patton, M. A. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage.

Pérez Cereijo, M. V., Young, J., & Wilhelm, R. W. (2001). Factors Facilitating Student Participation in Asynchronous Web-Based Courses. *Journal of Computing in Teacher Education*, 18(1), 32-39.

Pintrich, P. R. (1995). Understanding self-regulated learning. *New Directions for Teaching and Learning*, 63, 3–12. doi:10.1002/tl.37219956304

Pintrich, P. R. (1999). The role of motivation in promoting and sustaining self-regulated learning. *International Journal of Educational Research*, 31, 459–470. doi:10.1016/ S0883-0355(99)00015-4

Pintrich, P. R., Smith, D. A., Garcia, T., & McKeachie, W. J. (1993). Reliability and predictive validity of the Motivated Strategies for Learning Questionnaire (MSLQ). *Educational and Psychological Measurement*, .53(3), pp.

Pintrich, P., R., Smith, D., Garcia,T.,& McKeachie, W. (1991). A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ).

Ryan, A., & Pintrich, P. R. (1998). Achievement and social motivational influences on help-seeking in the classroom. In S. Karabenick, *Strategic help seeking: Implications for learning and teaching* (pp. 117-139). Mahwah, NJ: Lawrence Erlbaum Associates.

Sansone, C., Fraughton, T., Zachary, J. L., Butner, J., & Heiner, C. (2011). Self-regulation of motivation when learning online: The importance of who, why and how. *Educational Technology Research and Development, 59*(2), 199-212. doi:10.1007/s11423-011-9193-6

Sansone, C., Rodriguez, W., Nakatani, K., Wynekoop, J., Boggs, R., & Fornaciari, C. J. (2002). Best practices for motivating students in e-courses. AASA (*American Association of School Administrators) Professor*, 25, 36–42.'

Schraw, G. (1998). Promoting general metacognitive awareness. *Instructional Science, 26*, 113-125. Available at http://www.springerlink.com/content/w884l0214g78445h/

Schunk, D. H. (2005). Self-regulated learning: The educational legacy of Paul R. Pintrich. *Educational psychologist*, *40*(2), 85-94.

Schunk, D. H., & Zimmerman, B. J. (1994). *Self-regulation of learning and performance: Issues and educational applications*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Sletten, S. R. (2017). Investigating flipped learning: Student self-regulated learning, perceptions, and achievement in an introductory biology course. *Journal of Science Education and Technology*, 26(3), 347-358.

Song, L., Singleton, E. S., Hill, J. R., & Koh, M. H. (2004). Improving online learning: Student perceptions of useful and challenging characteristics. *The internet and higher education*, 7(1), 59-70.

Stake, R. E. (1995) *The art of case study research.* Thousand Oaks, CA: Sage.

States, Districts Require Online Ed for High School Graduation(2012, October 24) Retrieved from https://www.usnews.com/education/blogs/high-school-notes/2012/10/24/states-districts-require-online-ed-for-high-school-graduation

Straumsheim, C. (2016, February 17). *Remaining Residential: Study Suggests Acceptance of Online Education Still Lags Among High School Students.* Inside Higher Education. Retrieved from https://www. insidehighered.com/news/2016/02/17/study-suggests-high-school-students-hold-negative views onlineeducation?utm_content=buffer7c68f&utm_medium=social&utm_source=facebook&utm_campaign=IHEbuffer

Study: More Students Are Enrolling in Online Courses（2018， January 1st）Retrieved from https://www.usnews.com/higher-education/online-education/articles/2018-01-11/study-more-students-are-enrolling-in-online-courses

Tanner, K. D. (2012). Promoting student metacognition. *Life Science Education, 11,* 113-120.

Vansteenkiste, M., Lens, L., & Deci, E. L. (2006). Intrinsic versus extrinsic goal contents

Wigfield, A., & Eccles, J. S. (1992). The development of achievement task values: A theoretical analysis. *Developmental Review*, 12, 265–310.

Whipp, J. L., & Chiarelli, S. (2004). Self-regulation in a web-based course: A case study. *Educational Technology Research and Development,* 52(4), 5-22. doi:10.1007/BF02504714

Yin, R. K. (1994). *Case study research, design and methods* (2nd ed.). Newbury Park, Ca: Sage.

Zimmerman, B., & Martinez-Pons, M. (1986). Development of a structured interview for assessing student use of self-regulated learning strategies. *American Educational Research Journal*,23, 614-628

Zimmerman, B. J., & Schunk, D. H. (2001). *Self-regulated learning and academic achievement:* Theoretical perspectives. Mahwah, NJ: Lawrence Erlbaum Associates.

Zimmerman, B. J., & Schunk, D. H. (2003). Albert Bandura: The scholar and his contributions to educational psychology. In B. J. Zimmerman & D. H. Schunk (Eds.), *Educational psychology:* A century of contributions (pp.431-457). Mahwah, NJ: Lawrence Erlbaum Associates.

Appendix A

Motivated strategies for Learning Questionnaire (MSLQ)

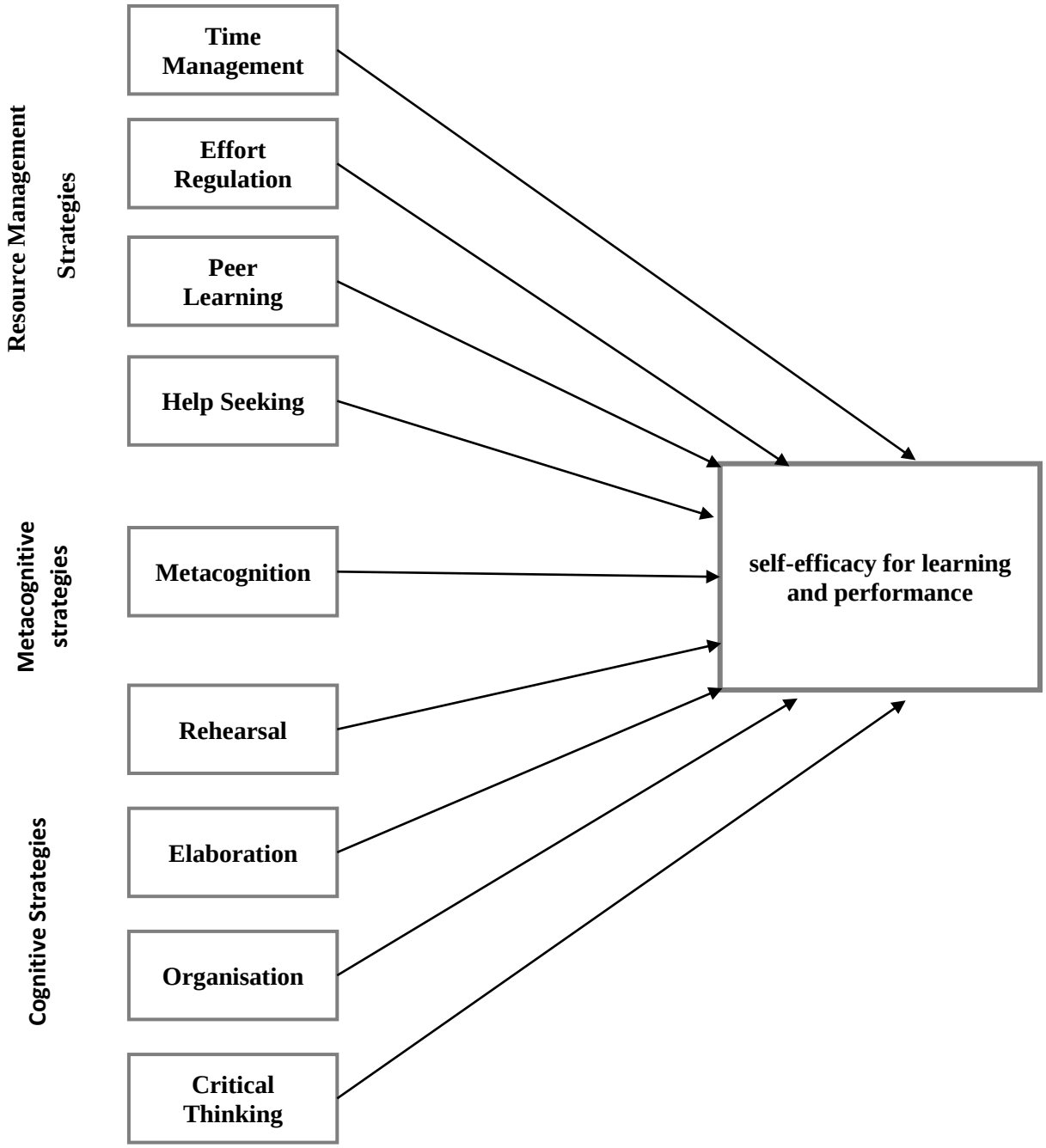
The Motivated Strategies for Resources Management Strategies Modules(adapted)

The following questions ask you about how you regulate your time and your study environments. Use the scale to answer the question. If you think the statement is very true of you, circle 7; if a statement is not true at all of you, circle 1. If the statement is more or less true of you, find the number between 1 and 7 that best describes you.

			Not at all True of me						Very true of me
Intrinsic Goal orientation	1	In this online course, I prefer course material that really challenges me so I can learn new things.	1	2	3	4	5	6	7
	2	In this online course, I prefer course material that arouses my curiosity, even if it is difficult to learn.	1	2	3	4	5	6	7
	3	The most satisfying thing for me in this course is trying to understand the content as thoroughly as possible.	1	2	3	4	5	6	7
	4	When I have the opportunity in this class, I choose course assignments that I can learn from even if they don't guarantee a good grade.	1	2	3	4	5	6	7
Task Value	5	I think I will be able to use what I learn in this course in other courses.	1	2	3	4	5	6	7
	6	It is important for me to learn the course material in this class.	1	2	3	4	5	6	7
	7	I am very interested in the content area of this course.	1	2	3	4	5	6	7
	8	I think the course material in this class is useful for me to learn.	1	2	3	4	5	6	7
	9	I like the subject matter of this course.	1	2	3	4	5	6	7
	10	Understanding the subject matter of this course is very important to me.	1	2	3	4	5	6	7
Self-Efficacy for Learning and Performance	11	I believe I will receive an excellent grade in this class.	1	2	3	4	5	6	7
	12	I'm certain I can understand the most difficult material presented in the readings for this course.	1	2	3	4	5	6	7
	13	I'm confident I can understand the basic concepts taught in this course.	1	2	3	4	5	6	7
	14	I'm confident I can understand the most complex material presented by the instructor in this course.	1	2	3	4	5	6	7
	15	I'm confident I can do an excellent job on the assignments and tests in this course.	1	2	3	4	5	6	7
	16	I expect to do well in this class.	1	2	3	4	5	6	7
	17	I'm certain I can master the skills being taught in this class.	1	2	3	4	5	6	7
	18	Considering the difficulty of this course, the teacher, and my skills, I think I will do well in this class.	1	2	3	4	5	6	7

Pintrich, P., R., Smith, D., Garcia,T.,& McKeachie, W. (1991). A manual for the use of the Motivated Strategies for Learning Questionnaire (MSLQ). National Center for Research to Improve Postsecondary Teaching and Learning, Ann Arbor, MI: Office of Educational Research and Improvement(ED), Washington DC

Appendix 2


Resource Management Strategies
Time Management
Effort Regulation
Peer Learning
Help Seeking
Metacognitive strategies
Metacognition
Cognitive Strategies
Rehearsal
Elaboration
Organisation
Critical Thinking
self-efficacy for learning and performance

Appendix 3

Student Interview Questions *(adapted from Schraw, 1998 and Tanner, 2012)*
1. What kinds of tasks do you have for this online course? 2. Do you plan them out when you want to complete? 3. What strategies would you use? 4. What strengths can you bring to the task? 5. What are your weaknesses and how can you make up for them? 6. How interested and motivated are you to do the task, and how can you increase your interest and motivation if they are low? 7. If tests come, do you create a study plan? 8. What is your goal? How will I know you have reached it? 9. What's the value or relevance of what you'll be learning? 10. How confident are you in your ability to learn this material? 11. If not very, how can you increase your belief in your ability to learn it, without becoming over-confident? 12. What similar tasks can you recall doing well in the past? 13. What is the best environment for the task that you can create? 14. Are you in a good physical place and position to do this task? 15. How much time and what resources will you need? Are these resources handy? 16. Are you making good progress toward your goal? 17. How focused Are you? Are you getting tired? If so, how can you keep yourself focused and alert?

18. How does what you are learning relate to what you already know?
19. If your interest and motivation are sagging, how is what you're learning relevant to your experience or your future?
20. What material is challenging what you've thought about the subject? Are you resisting it?
21. Are you starting to get discouraged or give up? How can you change this negative thinking?
22. What similar tasks can you recall doing well in the past?
23. How are you reacting emotionally to your evaluation of your learning?
24. How well did you avoid distractions and stay on task?