

# **The Correlation between Student's Demographic Information and Self-regulated Learning Strategy toward Online Learning Environments among Thai Students in USA (A Pilot Study)**

Buncha Samruayruen  
University of North Texas  
USA  
bs0142@unt.edu

Direk Teeraputon and Kingkaew Samruayruen  
Naresuan University  
Thailand  
jeabth@hotmail.com  
peerachaya@hotmail.com

**Abstract:** Studying in online learning environment requires a different set of skills as students are expected to take ownership of the learning process. Developing new study skill such self-regulated learning (SRL) strategy is becoming increasingly important. This study identified the effective SRL, and investigated the correlation between demographic information and SRL strategy. Thirty-one Thai students who enrolled in hybrid/online courses in the US participated in the SRL online survey based on Pintrich and Groot's MSLQ. Descriptive and inferential statistics were employed in factor analysis, correlation analysis, and multiple regression analysis. Three effective self-regulated components (Personal; Behavioral; Environmental) were illustrated as vital strategies in online learning environments. Multiple regression analysis revealed the effect of Internet experiences and Hybrid course experiences were positively significant; indicated that the greater experience of Internet and Hybrid course, the higher level in Personal SRL Component. Additionally, the same results indicated that students who greater Internet using, tend to be higher level in Behavioral SRL Component.

## **Introduction**

Evolutions of education innovation in our modern era have been moved forward all the times. Several forms of educational systems and learning strategies have been invented to assist and facilitate the process of teaching and learning. At a university level, the development of E-learning or online learning and the need of lifelong learning becomes more and more important during the last two decades. At the same time, advance of learning strategy such self-regulated learning (SRL) has been used in education and psychology to improve students' achievement; however, studies have shown that students have difficulty when learning with self-regulate in online learning environment. Thus, it is important for students to learn new skills as technology changes or technology is introduced (Perry, 2006). Students are increasingly expected to assess and manage their own learning need. SRL is a trend that offers benefits and needs to be better understood. Online learning is self-regulated when an instructor provides process to achieve his or her objective to acquire new skills. Online instructional system is easy and inexpensive compared to traditional learning methods. Students choose the best approach for learning the material and thus gain the skills they need. To manage these SRL experiences effectively, individuals make self-directed choices of the actions they will undertake or the strategies they will invoke to meet their goals. These processes are self-regulated learning strategies (Boekaerts & Corno, 2005; Dweck, 2002; Perry, 2006). Given the trend toward SRL of online learning, researcher needs to understand the learning mechanisms that students adopt in order to improve the effectiveness of such learning program.

Self-regulated learning (SRL) is a learning behavior that is guided by meta-cognition (thinking about one's thinking), strategic action (planning, monitoring, and evaluating personal progress against a standard), and motivation to learn (Boekaerts & Corno, 2005). In particular, self-regulated students become aware of their academic strengths and weaknesses, and they have a roster of strategies they appropriately apply to tackle the daily challenges of academic tasks. These students hold incremental beliefs about intelligence and attribute their successes

or failures to factors, such as effort expended on a task, effective use of strategies, within their control (Dweck, 2002). Students who are self-regulated learners believe that opportunities to take on challenging tasks, practice their learning, develop a deep understanding of subject matter, and exert effort will give rise to academic success (Perry, Phillips, & Hutchinson, 2006). Research found that SRL is an important aspect of learning and achievement in academic contexts. Students who are self-regulating are much more likely to be successful in school, to learn more, and to achieve at higher levels (Artino, 2007; Pintrich, Smith, Garcia, and McKeachie, 1993; Whipp & Chiarelli, 2004; Zimmerman, 1990).

The purpose of this study was to determine the correlation between the student's demographic information (such as classification, gender, age, and online learning experiences) and student's SRL strategy toward online learning environments. The main interrogatory for this study was: "How is the correlation between the student's demographic information and their self-regulation strategy?" This study focused on the challenges faced by Thai students when learning in online environments in the US. The study provided a general perspective on the nature of SRL in educational contexts and the components of effective SRL strategies. The results of this study will be used in the future studies in the field of educational research by providing information regarding the self-regulation of students and reflection on their own SRL strategy may improve performance of the participants. Also, the results of this study will be used in the new student orientation process in order to prepare and inform their learning skills before they attend in online learning environments.

## **Literature Review**

### **Self-regulated learning (SRL) in online learning**

Although many studies have been written about SLR in traditional classroom, there have been few that researched how to improve SRL skills in online environments. There are, however, studies emerging that begin to examine the impact of SRL in distance and distributed learning environments; specifically, whether SRL strategies should be implemented in a similar fashion to those that are implemented within traditional classroom environments, and whether there is a need to develop and recommend additional SRL strategies (Whipp & Chiarelli, 2004; Kitsantas & Dabbagh, 2004). These studies begin to provide general evidence SRL can be facilitated in online learning environments. They also begin to provide guidance on general web-based pedagogical tools that can facilitate such learning outcomes.

Whipp & Chiarelli (2004) describe findings from case study research that investigated the general question of how SRL strategies could be translated to online environments and attempted to identify whether SRL strategies recommended for traditional classroom instruction could, in fact, be applied to online learning environments or if additional/different strategies were needed. This study enlisted graduate students that were enrolled in an online education course that heavily utilized many components of a learning management system to deliver course content. During their participation in the course, participants were interviewed on strategies utilized as well as motivational and environmental influences on their use of SRL strategies. They concluded that some traditional SRL strategies were directly applicable to the online learning environments. However, they also found that there was a need to adapt significantly their strategies in a web-based environment in order to succeed. Specifically, participants cited the need for careful time management, utilizing traditional methods such as calendars and goal setting. However, in addition to utilizing traditional time management strategies, students also described their need to incorporate additional strategies such as daily logons, coordination of online work and planning for technical problems. Additionally, participants also cited the need for interaction with other students as a strategy needed to maintain motivation. They also affirmed the importance of web-based course schedules and assignments to make planning and time management easier. Whipp & Chiarelli (2004) summarize their findings by affirming that SRL can be helpful in facilitating learning in online environments, but that additional SRL models need to be developed that account for distributed learning processes that most of are encouraged in web-based courses. While Whipp & Chiarelli (2004) investigated the general feasibility of applying traditional SRL strategies in an online learning environment, the study of Kitsantas & Dabbagh (2004) attempts to identify specific web-based tools that can be used to facilitate SRL in web-based environments.

The study undertaken by Kitsantas & Dabbagh (2004) aligns its research goals with the previous two studies by investigating what SRL "looks like" in a distributed learning environment. Additionally, they investigated how some very specific web-based pedagogical tools (WBPT) within course management systems may be able to facilitate SRL strategies and processes. Kitsantas & Dabbagh (2004) frame their study by categorizing web-based tools according to (a) administrative tools, (b) collaborative and communication tools, (c) content creation and

delivery tools, and (d) hypermedia tools. By doing so, they are then able to investigate how the use of such tools support students' SRL in a distributed learning environment. After correlating web-based pedagogical tools with self-regulatory processes, they engaged students in a distributed learning experience that web-based pedagogical tools with the goal of facilitating higher levels of SRL, they administered the MSLQ at the beginning of the semester and, at the end of the semester, administered the supporting self-regulation on the web questionnaire (SSRW-Q) to determine whether the four categories of web-based pedagogical tools supported six processes of SRL – goal setting, self-monitoring, self-evaluation, time planning and management and help seeking.

Kitsantas & Dabbagh (2004) found that (a) goal setting was supported primarily through the use of content creation and delivery tools, and collaborative and communication tools; (b) administrative tools supported the self-regulatory process of self-monitoring; (c) content creation and delivery tools supported self-evaluation; (d) collaborative and communication tools assisted students with time management and planning strategies, and (e) both collaborative and communication tools and administrative tools supported students' help seeking behaviors. These results indicate that SRL can be facilitated in web-based environments and that, especially when utilizing a course management system, there are specific tools available that can effectively facilitate specific dimensions within the process of self-regulation.

### **Definitions of self-regulation strategies**

According to Barry Zimmerman (1989), SRL involves the regulation of three general aspects of academic learning. First, self-regulation of behavior involves the active control of the various resources students have available to them, such as their time, their study environment (e.g., the place in which they study), and their use of others such as peers and faculty members to help them (Garcia & Pintrich, 1994; Pintrich, Smith, Garcia, & McKeachie, 1993). Second, self-regulation of motivation and affect involves controlling and changing motivational beliefs such as self-efficacy and goal orientation, so that students can adapt to the demands of a course. In addition, students can learn how to control their emotions and affect (such as anxiety) in ways that improve their learning. Third and finally, self-regulation of cognition involves the control of various cognitive strategies for learning, such as the use of deep processing strategies that result in better learning and performance than students showed previously (Garcia & Pintrich, 1994; Pintrich, Smith, Garcia, & McKeachie, 1993). Many researchers have agreed with the importance of SRL for students at all academic levels, and self-regulation can be taught, learned and controlled. In fact, Zimmerman (1989, 1990), an expert in this area, has found evidence of many different types of self-regulation that are explained next. In Zimmerman's studies, successful students report that the use of SRL strategies accounted for most of their success in school.

In this pilot study, researcher applied the study of Ley and Young (2003) illustrated that the individual set of self-regulation strategies that are usually used by successful students fall into three categories: personal, behavioral, and environmental.

#### **A. Personal self-regulation strategies:**

*Organizing:* Identifying, prioritizing, and breaking down large sets of information, assignments and daily activities into sets workable high, medium, and low priority tasks or chunks of information to be understood. This behavior is expected to lead to successful completion of multiple requirements over a set period of time. Related to planning, but in this context, we restrict the definition the identifying and prioritizing behaviors related to understanding the activities and assignments as a process.

*Transforming:* Related to organizing, this step has students transform the information into something they better understand, possibly through the development of visual relationships. Examples of this are when students put information on index cards organized by topic, create diagrams showing relationships amongst concepts, or create maps.

*Goal-setting:* Planning often also includes goal setting in which students set their own particular daily, weekly, monthly, etc. goals for completing the tasks they have planned. These are often inserted into the timeline.

*Planning:* Focused on inserting organized, prioritized learning tasks into a chronological sequence that will allow successful completion of small and large tasks as classified by priority, leading from part to whole completion of learning tasks of differing sizes.

*Time management:* This relates to how students manage their time at a more meta- level. Are they providing themselves with sufficient time to complete their assignments in this and all other courses? How are they structuring their time? Are they playing video games and at the bar 12 hours a day? The major question here is whether they are managing their time properly to be successful in an individual course as well as across all their courses.

*Self-monitoring:* This asks students to monitor whether or not they are meeting the goals they have set. It is

not as deep a skill as self-evaluation, which really is asking them to see what they have learned. This skill instead is focused on them daily monitoring whether or not they are completing their goal-based activities and assignments, without really evaluating whether or not they are learning anything from them. As part of this process, they should keep track of errors noted in instructor or peer feedback, take notes, and keep drafts of assignments.

*Keeping records:* Often, as part of the process of self-monitoring, students will keep records of completed activities including grades.

*Review notes.* A form of record, whether handwritten to remind the student of a changed due date or detailed, typed class notes, students should review these notes during the self-monitoring process.

*Reviewing tests.* Upon receiving assessment feedback, we expect students to review that feedback to determine where their weaknesses lie.

*Rehearsing & Memorizing:* Considered part of “studying,” by many students, rehearsing and memorization is an important set of skills, especially in courses that use regurgitation of information-style assessments. As it says, students will verbally or mentally review the information they have collected in their information seeking phase or note taking phase if the course is a lecture or text reading format.

### ***B. Behavioral self-regulation strategies:***

*Self-evaluating:* Being able to estimate extent of one's own learning progress and development. A process in which an individual rates the quality of his or her own work to determine whether it meets the learning goals they or an instructor has set.

*Self-consequating:* This is one outcome of the self-monitoring behaviors. While extrinsic punishment can work, it often fades in effectiveness fairly quickly. What we want is for students to set their own consequences for failure to complete the goals they set for themselves. They must be severe enough to be meaningful.

### ***C. Environmental self-regulation strategies:***

*Seeking information:* While self-explanatory, this construct involves students actively using multiple means of information seeking behaviors ranging from using the Internet or libraries to asking using reviewing cards and rereading records, tests, textbooks.

*Environmental structuring:* This involves selecting or arranging the physical setting, as well as minimizing distractions, like turning off the TV or iPod. It can also involve breaking up study periods and spreading learning activities out over time to ensure completion.

*Seeking social assistance:* Seeking behaviors that learner are asking peers or teacher or expert for help, such as seeking assistance from teachers; seeking assistance from peers/classmates; or seeking assistance from experts/others.

## **Methodology**

### **Subjects:**

In this pilot study, fifty-four participants were drawn from a simple random sampling from Thai students who are the membership of the Thai Student Association in the University of North Texas. Participants who enrolled in the Spring 2011 semester were asked to complete the survey online. Participants were asked about their demographic information, their experience in online learning, and their SRL strategy. An online web survey system, “Kwik Surveys,” was used to gather data through Thai student’s self-regulation behaviors toward online learning environments in the US. The survey lasted 3 weeks and received 33 responses (61%), but there were completed only 31 responses (n = 31). Participants consist of 7 males and 24 females from 4 under graduate students, 11 Master students, 14 Doctoral students, and 2 other students.

The demographic data of 31 participants are showed that most of participants are graduate students; 45.2 percent are doctoral students and 35.5 percent are master students. About 13 percent are under graduate students, and also there is 6.5 percent of other classification, which are the IELI students who study in the English program only. Almost eighty percent are female and thirty-three percent are male. Most of respondents (45%) are age between 31-40 years old, while 6.5 percent are age below 21 and 1 participant is age over 40 years old. Most of participants are single (71%), and completed in Master’s degree (60%). Even though, some of them graduated in Master’s degree they are still studying in the Second Master program.

By using Cross-tabulation Analysis, there is no male enrolled in under graduate and other classification, while ten female students enrolled in Ph.D program. Most of female student are age between 31-40 years old, one female is age over than 40 years old. In addition, each of four of under graduate students graduated from High

school, 2-year College, BA/BS degree, and Master's degree, while three of Master's degree graduate students are still enrolling in Master program. Surprisingly, there is one Ph.D student graduated from BA/BS degree, while thirteen's graduated from Master degree. In order to know the relationship between self-regulation behaviors and demographic data, these demographic data will be used to correlate with participants' self-regulation behaviors.

#### Instrument:

This pilot study used the online web survey system as known as "Kwiksurveys" to collect data from Thai students who are membership of Thai Student Association (TSA) at University of North Texas. The URL link of the Kwiksurveys was send via email directly to each member of Thai Student Association by the permission of TSA's president. The survey instrument consists of two parts. Part 1 of the survey collected basic demographic data; student classification, gender age, status, and education completed. Also the data about experiences of online learning and using Internet were gathered from the participants. Part 2, the Likert-scaled was used to conduct eighteen questions of self-regulation behaviors with positive and negative statements. The scale used ranged of frequency from Seldom (1), Occasionally (2), Frequently (3), to Most of the time (4). Initially, participants were measured on their self-regulation behaviors toward three factors; (1) Personal self-regulation strategies, (2) Behavioral self-regulation strategies, and (3) Environmental self-regulation strategies. After finished the design questionnaires, the conduct of survey was sent directly via email to participants during the week 9<sup>th</sup> and week 11<sup>th</sup> of the Spring 2011 semester.

#### Data Analysis:

Totally thirty-one (31) valid survey instruments had been done during this process. After retrieving those data from the result of the online survey system, Kwiksurveys, keying the code into computer spreadsheet, then SPSS is the statistic software to process the data.

|                    | N  | Minimum | Maximum | Mean | Std. Deviation |
|--------------------|----|---------|---------|------|----------------|
| Q15 - f            | 31 | 1       | 4       | 3.52 | .811           |
| Q15 - b            | 31 | 1       | 4       | 3.23 | .762           |
| Q15 - a            | 31 | 1       | 4       | 3.16 | .898           |
| Q15 - g            | 31 | 1       | 4       | 3.13 | .846           |
| Q15 - e            | 31 | 1       | 4       | 3.00 | .775           |
| Q15 - q            | 31 | 1       | 4       | 2.94 | .892           |
| Q15 - d            | 31 | 1       | 4       | 2.94 | .680           |
| Q15 - p            | 31 | 1       | 4       | 2.94 | .814           |
| Q15 - n            | 31 | 1       | 4       | 2.94 | .814           |
| Q15 - l            | 31 | 1       | 4       | 2.81 | .792           |
| Q15 - m            | 31 | 1       | 4       | 2.71 | .693           |
| Q15 - r            | 31 | 1       | 4       | 2.68 | .909           |
| Q15 - j            | 31 | 1       | 4       | 2.68 | .871           |
| Q15 - i            | 31 | 1       | 4       | 2.68 | .832           |
| Q15 - h            | 31 | 1       | 4       | 2.58 | .923           |
| Q15 - k            | 31 | 1       | 4       | 2.45 | .925           |
| Q15 - o            | 31 | 1       | 4       | 2.45 | .995           |
| Q15 - c            | 31 | 1       | 4       | 2.19 | .980           |
| Valid N (listwise) | 31 |         |         |      |                |

**Table 1:** The descriptive statistics result of all 18 questions

**Descriptive Analysis:** The first step of analysis was trying to reproduce the fundamental data set on SPSS and to confirm the same picture was obtain out of this data set. The descriptive statistics result, as seen in Table 1, all 18 questions have been responded by 31 subjects (N = 31). The highest mean score of the total 18 questions is the question number 15-f, "I used library resources and Internet resources for seeking information," ( $\bar{x} = 3.52$ ), and the minimum and maximum are between 1 and 4. That means all of respondents use the library resources and Internet resources for seeking information. On the other hand, the lowest mean score of these data is at the question number 15-c, "I transform information, for example create flash cards, index cards, draw pictures, diagrams, maps," ( $\bar{x} = 2.19$ ), and the minimum and maximum are between 1 and 4. Also, the standard deviation score is quite high (SD = 0.980). Assume that respondents' self-regulation strategies for this question are diversity, or because of the act of this strategies are not quite used in college level, so respondents might not response in high frequency.

**Reliability analysis for the Instrument:** The alpha is a conservative measure which sets and upper limit on reliability (Nunnally, 1967). According to DeVellis (1991), a Cronbach's alpha coefficient of over 0.7 implies respectable to high reliability. Cronbach's alpha theoretically ranges from zero to one with the following guidelines.

| DeVellis Reliability Grudelines |                               |
|---------------------------------|-------------------------------|
| Below .60                       | Unacceptable                  |
| Between .60 and .65             | Undesirable                   |
| Between .65 and .70             | Minimally acceptable          |
| Between .70 and .80             | Respectable                   |
| Between .80 and .90             | Very good                     |
| Much above .90                  | Consider shortening the scale |

**Table 2:** Cronbach's alpha theoretically ranges (DeVellis, 1991, p. 85).

The internal consistency reliability of the instrument with 18 Likert-scaled items was determined by calculating Cronbach's alpha for the study data. It was found to be high reliability score at 0.92, or very good reliability ( $\alpha = 0.80$ ) of the Cronbach's alpha theoretically ranges, and 0.925 at Cronbach's Alpha Based on Standardized Items for this survey instrument. The item-total statistics of "Cronbach's alpha if item deleted" has shown that the reliability score will not be increased if anyone of these items has been removed. That means all 18 questions were able to use in this study.

**Factor Analysis:** Even though, this study had been set initially to be three factors; (1) Personal self-regulation strategies, (2) Behavioral self-regulation strategies, and (3) Environmental self-regulation strategies, an exploratory factorial analysis was performed to measure its construct validity in order to find the possible factorial structure of the survey. The 31 subjects for 18 items were submitted to Principal Component Analysis and Varimax rotation with Kaiser Normalization. The results showed five rotated components matrix (Table 3) or produced five factors; however, some of these items in each factor were weak and were negative. Also, examination of the Scree Plot (Figure 1) illustrated that there were approximately 3 or 4 factors.

|         | Component |      |       |       |      |
|---------|-----------|------|-------|-------|------|
|         | 1         | 2    | 3     | 4     | 5    |
| Q15 - h | .772      | .118 | -.118 | .427  |      |
| Q15 - i | .751      | .430 |       |       |      |
| Q15 - g | .748      | .296 | .238  | -.102 |      |
| Q15 - m | .729      |      | .324  | .255  |      |
| Q15 - k | .547      | .150 | .317  | .346  | .217 |
| Q15 - d | .523      | .367 | .383  | .211  | .314 |
| Q15 - e | .516      | .465 | .472  | .212  |      |
| Q15 - q | .185      | .872 | .268  |       |      |
| Q15 - p | .233      | .830 | .376  |       |      |
| Q15 - o | .130      | .820 |       | .203  | .176 |
| Q15 - j | .506      | .625 |       | .363  |      |
| Q15 - r | .489      | .622 | .148  |       | .170 |
| Q15 - f | .220      |      | .864  |       |      |
| Q15 - n | .181      | .165 | .754  |       |      |
| Q15 - b | -.112     | .278 | .667  | .295  | .334 |
| Q15 - l | .287      |      |       | .892  |      |
| Q15 - c | .196      |      | .107  |       | .921 |
| Q15 - a |           | .421 | .371  | .357  | .535 |

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.  
a. Rotation converged in 9 iterations.

**Table 3:** Factor analysis with Rotated Component Matrix(a)

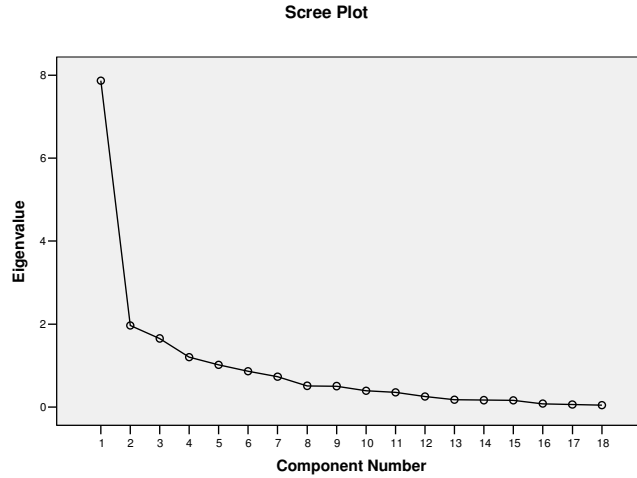


**Figure 1:** Scree Plot of Factor analysis

From the factor analysis results and the scree plot, the researcher decided to run the factor analysis again by forcing the results into 3 factors. The results and analysis can be viewed in Table 4. Reviewing the questions and checking with the scree plot and the results of the factor analysis, the author design to use 3 factors, and named the new factors are (1) Personal, (2) Behavioral, and (3) Environmental, and ran reliability test on each factor. As shown in Table 4, It appears that the alpha values for the first 2 factors are quite strong,  $\alpha = 0.83$  and  $\alpha = 0.86$  respectively, while the alpha value of the third factor was considerably weaker ( $\alpha = 0.69$ ). Although the alpha value of the third factor was high enough to be acceptable at the level of minimally acceptable (DeVellis, 1991), the author feels that a review the questions associated with this factor is desirable to increase its reliability in measuring the construct.

| Factor | Factor Name       | Items number                                           | Cronbach's Alpha |
|--------|-------------------|--------------------------------------------------------|------------------|
| 1      | Personal (8)      | q.15b, q.15c, q.15d, q.15e, q.15g, q.15h, q.15k, q.15r | .83              |
| 2      | Behavioral (5)    | q.15a, q.15j, q.15o, q.15p, q.15q                      | .86              |
| 3      | Environmental (5) | q.15f, q.15i, q.15l, q.15m, q.15n                      | .69              |

**Table 4:** Factor names and alpha values with all questions included.

## Research Finding

**Correlations:** The convergent and discriminate validity were examined through the inter-factor correlations. Table 10 shows the correlations among the factor 1 (Personal), factor 2 (Behavioral), and factor 3 (Environmental) were significantly correlated in a positive way at 0.01 level, implying that Personal self-regulation factor has influenced with Behavioral self-regulation factor and Environmental self-regulation factor; more Personal strategies behaviors tend to be more Behavioral strategies behaviors and more Environmental strategies behaviors. On the one hand, if students have more other strategies behaviors factor, either Behavioral or Environmental, they tend to be more Personal strategies behavior also. Similarly, the results of the multidimensional method show the Personal items, Behavioral items, and Environmental items are closer to the each other in the two-dimension output graphic.

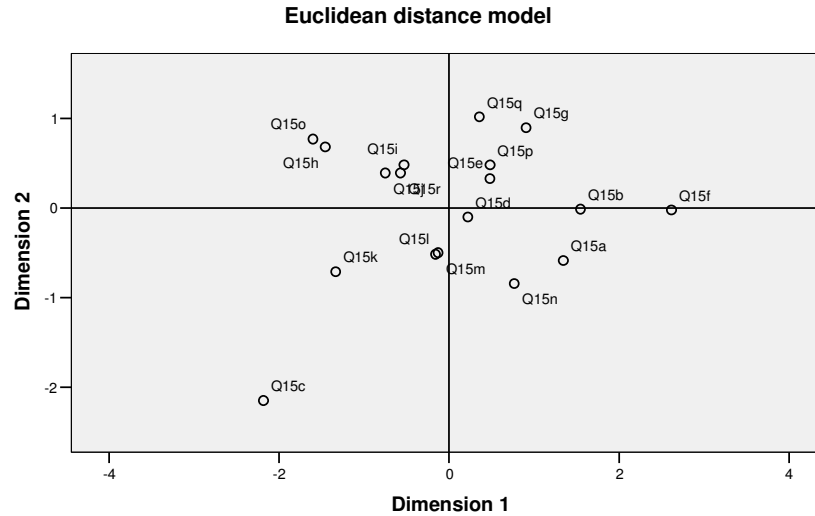


**Figure 2:** Two dimensional output graphic

When ran the correlation analysis with all variables; 3 factors and demographic variables, there are few statistically significant between the SRL factors and any demographic variable. However, the correlation results illustrated that there are statistically significant between 3 factors of self-regulation behaviors as mentioned before, and there are statistically significant between some of demographic variables, such as the classification of students is statistically significant with age and graduated; graduated variable is statistically significant with married status, etc.

|               |                     | Personal | Behavioral | Environmental |
|---------------|---------------------|----------|------------|---------------|
| Personal      | Pearson Correlation | 1        | .714(**)   | .819(**)      |
|               | Sig. (2-tailed)     |          | .000       | .000          |
| Behavioral    | Pearson Correlation | .714(**) | 1          | .580(**)      |
|               | Sig. (2-tailed)     | .000     |            | .001          |
| Environmental | Pearson Correlation | .819(**) | .580(**)   | 1             |
|               | Sig. (2-tailed)     | .000     | .001       |               |
| N             |                     | 31       | 31         | 31            |

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Table 5: The Inter-Factor Correlations**

**Comparison:** When researcher compared self-regulation behaviors on 3 factor scales against each demographic variable by using an analysis of One-way Anova compare means, the results are showed in the following below:

“Undergraduate students have higher level of self-regulation behaviors than other classification in all 3 factors, while Master’s students have lower level in 2 factors; Behavioral and Environmental.”

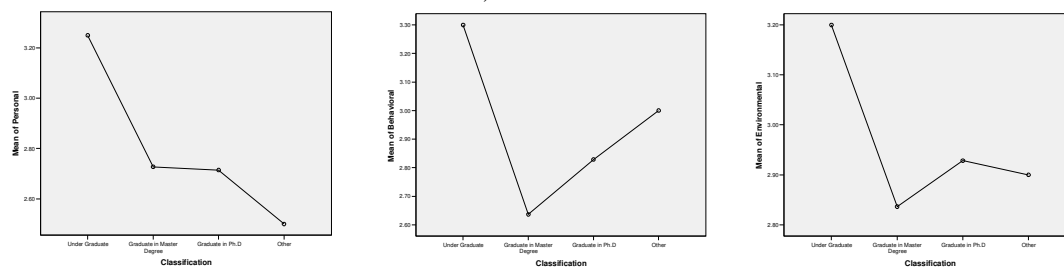


**Figure 3:** Plot mean; 3 factors and Classification

“Female students have higher level than male in all 3 factors”

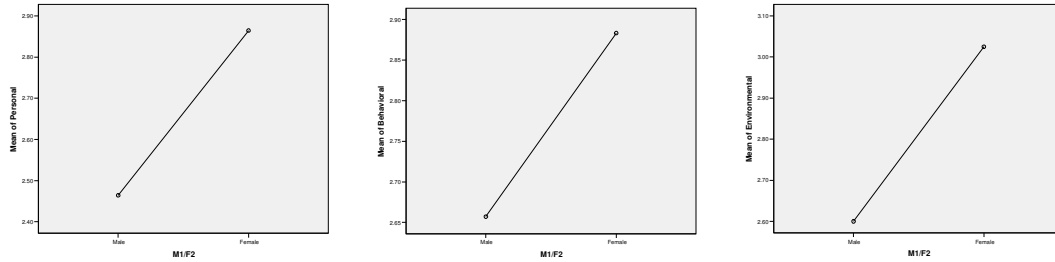


**Figure 4:** Plot mean; 3 factors and Gender

“Students in age range over than 40 have highest level, while student in age range 21-30 have lowest level in Personal self-regulation behaviors and Behavioral self-regulation behaviors. Students in age range 31-40 have highest level in Environmental self-regulation behaviors.”

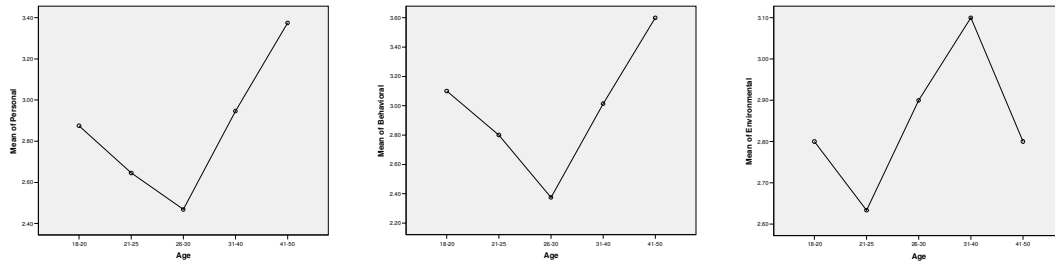


**Figure 5:** Plot mean; 3 factors and Age range

“Single students have highest level in 2 factors; Personal and Behavioral, while Married students have highest level in Environmental factors.”

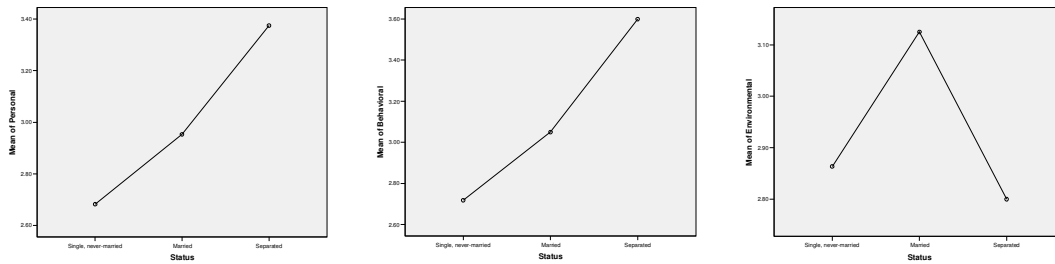


**Figure 6:** Plot mean; 3 factors and Marital status

“Students who have just graduated from high school have highest level in all 3 factors, while students who have just graduated BA/BS have lowest level in 2 factors; Personal and Environmental.”

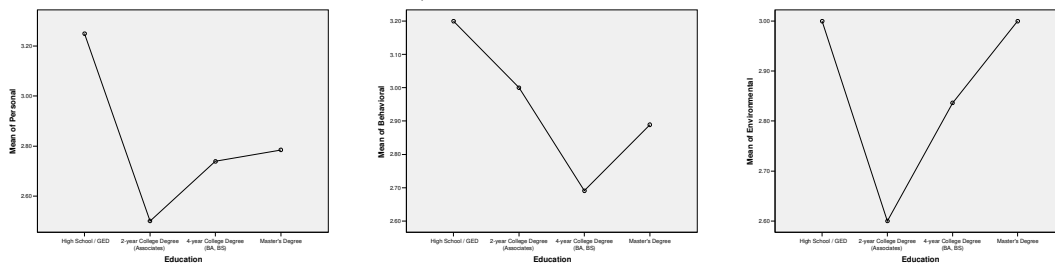


**Figure 7:** Plot mean; 3 factors and Graduated

## Discussion and Conclusion

This pilot survey study consists of 2 parts; demographic data and self-regulation behaviors. In the first part of the survey, the demographic data part consists of 2 sub-section; background information (item 1 to 6) and online

learning experiences (item 7 to 14). The second part of the survey, the self-regulation behaviors which consists of 18 questions designed with the intent of measuring 3 factors of self-regulation strategies; Personal factor, Behavioral factor, and Environmental factor. The results of this study reveal that there are few statistically significant and some relationships between demographic data and self-regulation behaviors. However, there are some interesting results from comparison analysis between groups in each factor. For instance, this study found that undergraduate students have higher level of self-regulation behaviors than other classification in all 3 factors, while Master's students have lower level in 2 factors; Behavioral and Environmental. That means undergraduate students have more self-regulation strategies than other groups of student. This result is not support the prior researches that presented many problems from lack of self-regulation skills of college students. The reason for this issue might happened from a number of sample in this pilot study is quite small (31 participants), and also the question items in the survey might not clear enough for respondents. And also, these two reasons might result for other errors in this research finding. Moreover, this study has not found the results of the online learning experiences yet. For the results of instrument, however, the pilot study resulted in 3 factors with the totally Cronbach's alpha value over 0.80, implying that the instrument can be a valuable tool for real testing of students' self-regulation behaviors toward online learning environments. However, since the alpha value of the third factor (Environmental) is quite low, more questions for this factor need to be increased.

Next finding was about the influenced between students' demographic information and SRL strategies. Due to the fact that many research studies investigated the affect of SRL strategies to student achievement or student performance or the studies about comparison SRL strategies between the difference in class designed rather than finding the affect of other factors to SRL strategies, while this study intended to report the individual different of online students from their demographic information in order to improve Self-regulatory skills for online learning environments. This study, however, found only one SRL component, Personal self-regulated learning, that was significant affected by three of seven demographic information, which were Education level, Highest graduation, and Age range. Some of Self-regulation studies pointed out about the involved of demographic information; Pintrich and others (1993) pointed about gender that boys were differ from girls in self-efficacy; boys rated themselves more efficacious than did girls, and boys felt less test anxious than did girls. Lynch and Dembo (2004) suggested in their research study that individual difference variables (such as age and gender) should be investigated in future research into the relationship between self-regulation and online learning generally (Lynch & Dembo, 2004). In this study, MANOVA was used to analyze the differences of mean square of students' demographic information. Research found that students who had higher level of education, graduation, and age range tend to be higher level of Personal component. Applying those students who were lower lever of education, graduation, and young age may need to be more improved in Personal SRL strategy such as Study and Time management. Unfortunately, this study did not found any significant related of other demographic variables such as Academic status, GPA, Gender, and Marital status. Even though, an Academic status was found a negative significant effected in Behavioral component, it did not mean that Behavioral SRL strategy was more affected by part time students than full time students. An appropriate research design and data analysis might help further research to reveal the individual differences among students' demographic information.

In addition, the lower mean score ( $\bar{x} < 2.80$ ), the minimum and maximum are between 1 and 4, and standard deviation score is quite high ( $SD > 0.90$ ) of some questions, such as the question number 15c, 15h, 15i, 15j, 15k, 15m, 15o, and 15r. Assuming that respondents' perceived for these questions are diversity, or because of the meaning of those statements are not quite clear, so respondents might be thinking in different ways. Hence, adjusting and revising the survey questions need to be done before using for real testing.

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