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Fitting in a Blended Learning Educational System

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Abstract

Scholarship-holders have more pressure than regular students (keeping a GPA ≥3.5/4, managing financial stress, and completing some scholarship' duties). The research intends to determinate the significant self-regulatory and technological variables that help scholarship-holders (N=402) in a blended learning environment to reach a high GPA and avoid learning burnout. A validated online survey was employed to collect data that were analyzed using descriptive, inferential, and predictive statistical tests under a quantitative research method. It was found that discipline (p=0.000); self-efficacy (p=0.018); task management (p=0.043); goal setting (p=0.021), task persistence (p=0.004) and previous ICT experience (p=0.033) were statistically significant. Regardless limitations, some practical implications are discussed for the scholars.

Keywords: Self-Regulation; ICT; B-Learning; Scholarship-Holders; Learning Burnout.

1. INTRODUCTION

Universities explore paths to prepare students to face new challenges of the 21st Century such as being able to marshal the power of technology to create new knowledge, and stimulate human capacity and productivity (Binkley, Erstad, Herman, Raizen, Ripley, Miller-Ricci, & Rumble, 2012). In developing countries like Mexico, universities have included blended learning (b-learning) as a possible path to prepare students for the future.

Related to Mexican context, Uribe (2008) explained the ongoing challenge of Internet-based educational environment is to generate an impact, reaction, assimilation, different from mere consumption-informative media in which the individual comes framed. Self-regulation could be a way to face this challenge because it helps the students go beyond the consumption of the information.

Scholars might acquire new learning technology skills and self-regulation skills in order to success in the b-learning system (Smyth, Houghton, Cooney & Casey, 2012). Students under this modality should take more responsibility for their learning and exercise a higher level of self-regulation to achieve their learning goals than in traditional classroom setting (Vaughan, 2007; and Owston, York & Murtha, 2013).

It is well known that strong emotional reaction to a task provides cues about an anticipated educational success or failure (Schunk&DiBenedetto, 2016). For being high academic achiever, b-learners should avoid learning burnout which is a common problem in college students (Stoliker&Lafreniere, 2015). It is understood as a psychological state that produce uncomfortable emotions and low energy that conduce to emotional exhaustion and low efficacy (Wu, Zhu, Wang, Wang & LAN, 2007). Self-regulation could be a way of helping b-learners to academic success and managing properly the academic stress.

1.1 Problem of research

Scholarship-holders enrolled in a b-learning system have additional pressure than regular students because they need to keep a high Grade Point Average (GPA≥3.5/4); they might learn additional technology features; they might purchase new digital device for fitting in a blended learning system; they have to accomplish some scholarship assignments or

responsibilities; they have to handle the financial stress; and they have to maintain a full time course load without withdraw courses as part of scholarship policy; then, some psychosocial and technological factors should be considered for reaching high academic achievement and avoiding learning burnout.

This study focuses on the following research question: What components related to self-regulatory competency, technological skills and sociodemographic characteristics are significant to scholarship-holders for reaching high academic achievement in a b-learning system? The answer of this question will serve as input for developing a successful decision model for students willing to succeed in this system that help them to fit in this learning environment and being able to manage properly the learning burnout.

2. REVIEW OF LITERATURE

Scholarship holders are an important population for the universities because their cost. Many developed countries, such as the Czech Republic, have provided tertiary scholarships to students from developing countries. The recent program evaluation of European scholarship has revealed that it is characterized by a relatively poor performance (Němečková& Krylova, 2014). So more study that includes scholarship performance are still needed.

Specifically, this study focuses on some attributes of self-regulation that might help students to achieve high academicals performance. Some of these attributes are: planning, problem-solving, and evaluation of the self. Planning is the first phase for reaching goals (Schunk& Zimmerman, 2012); mastery goal emerged as a positive predictor of deep learning (Burnette, O'Boyle Van Epps, Pollack &Finkel, 2013). Self-regulation demands from the student the capacity of preparing procedures, adjusting them according to his or her goals (Cosnefroy, 2010; Abar&Loken, 2010). In this study, the component planning was clustered by three aspects: goal setting, time management, and outcome expectation.

Previous studies have shown that problem-solving help learner to be aware of their responsibilities and take control of their own learning (Yukselturk&Bulut, 2007). Problem-solving allows students to monitor their learning and include effort management strategies as persistence predict positive academic performance (Wig field, Hoa&Klauda, 2008; Yukselturk&Bulut, 2007). The problem solving component managed by this study, was clustered by three elements: discipline, task management, and task persistence.

Zimmerman &Schunk (2008) explained that self-evaluation components such as positive self-perception, motivation, and personal efficacy contribute to student to success. When scholarship-holders feel motivated and confident, they gain positive learning outcomes (Reed & Hurd, 2014). The self-evaluation factor, it is clustered by three components: Self-motivation, self-esteem, and self-efficacy. The self-regulation attributes and technological components were conceptualized as explained below (table 1).

There are links between students' personal perceptions and their use of self-generated learning strategies in a blended learning environment that guide students to be successful (Wu, Tennyson, & Hsia, 2010). Additional to that, Ling, Qin & Shen (2014) found a negative correlation between learning burnout and self-efficacy.

Since ICT has pervaded the fields of education (Tayeinik, &Puteh, 2012), it was important to take into consideration in this study. The ICT dimension is composed by: ICT accessibility, technological attitudes, computer experience, computer skills, Internet efficacy, and previous ICT experience. Zurita, Hasbun, Baloian& Jerez (2015) explained how a blended learning environment could enhance students' meaningful learning, practicing learning with ICT.

The factors considered in this study were: planning, problem-solving, evaluation of the self, ICT accessibility, and technological skills (see Table 1).

Table 1. Self-regulatory competence, technological skills and their conceptualization.

Categories	Conceptualization
Planning	Goal setting: Process of establishing what to achieve and well defined steps that transcend to gain specific goals. Time management: The ability to use students' time effectively and productively. Outcome expectation: Estimate of action leading to achievement.
Problem-solving	Disciplined: Ability to create new habits toward improving oneself on pursuing what is appreciated as right as learner. Task management: Process of handling and monitoring task as students. Task persistence: Effort toward task accomplishment and maintenance of activity despite any emotional fluctuation.
Evaluation of the Self	Self-motivation: Ability to do what needs to be done with enthusiasm in an autonomous way.

	Self-esteem: Self-confidence and feelings of worth. Self-efficacy: Belief in one's ability, be able to organize actions to attain the goals, and execute behaviors towards the management of different academic situations.
Technological dimension	ICT accessibility: Electronic devices' access for academic duties. Technological attitudes: Attitude related to use of technology. Computer experience: Domain of computer usage for some years. Computer skills: High level of familiarity with the basic hardware and software of computer. Internet efficacy: Feelings of confidence working with Internet. Previous ICT experience: Experience with ICT learning environment.

The objectives of this study were:

1) Describe the self-regulatory competence and technological skills that scholarship-holders, evaluated as high achiever, apply for being high academic achievers.

2) Determine what components of self-regulatory competence and technological dimension are significantly related to high academic achievement and managing functionally the academic stress.

3) Develop an academic successful decision model based on self-regulatory competence, socio-demographic aspects and technological dimension for scholarship-holders with the responsibility of keeping a high GPA (>3.5/4) .

In Latin America there has not been any study that explores the interplay between technological skills, self-regulatory competence, and sociodemographic factors related to the high academic achievement and healthy learning burnout management reached by scholarship-holders under a b-learning system. Moreover, Cigdem (2015) concluded that more studies are needed in order to determine successful learners' characteristics in blended learning environments.

The b-learning combines face-to-face classroom methods with computer-aided exercises based on some pedagogical principles for the benefit of student learning. It transforms the approach to teach and learn (Hoic-Bozic, Mornar&Boticki, 2009; Owston, York & Murtha, 2013). This system allows taking the best from each modality for learning purpose.

The b-learning system of this university applied some recommendations of previous authors (Poon, 2013; Larson & Sung, 2009; Köse, 2010): the teaching materials were available online and the lecturers communicated with students using Webex or Skype; student and teachers use discussion board responses and progressive report journal; students and teachers share blogs and academic resources; podcast is used for learning subjects; social networking service for keeping connected students and teachers for group activities; wiki project work; RSS subscription to the teacher blog; and Web 2.0 technologies like web widgets and collaborative editing tools.

3. METHODOLOGY

It was a quantitative study. It was conducted in a Northern Mexican Private University; a stratified sampler was used since it gives a higher statistical precision compared to simple random sampling. The researchers chose entire scholarship holders population that accomplished the following requeriments: students enrolled in a b-learning modality; evaluated by school counselors as high academic achievers for their cognitive and emotional skills; they have reported healthy management of learning burnout; and they have kept a GPA≥3.5/4 at least for two semesters. Then, they were divided into different subgroups or strata (two genders, from different states of Mexico, from different minors and from sophomore to senior).

All the population that reached the mentioned criteria was invited, 526 b-learners. The researchers sent an online survey to these b-learners. 473 students agreed to participate in this study, but 402 responded. This research followed the American Psychological Association Ethics Code, the study was conducted in accordance with the approved research protocol and the informed consent forms were signed by educational authorities and the participants.

The data collection tools was a Questionnaire of Self-regulation and ICT (CPIE-A). It was developed in Spanish, including 37-items with a five-point Likert-type response format. It has three scales. The Scale 1 consists of sociodemographic questions. The Scale 2, includes learners' experiences related to self-regulatory competence. The Scale 3 consists of the technological dimension.

The CPIE-A is an adaptation of CPIE (Rodriguez, Ávila, Gonzalez, & Heredia, 2008). A factor analysis was performed to validate the constructs of the self-regulation scale and technological scale. For the CPIE-A, a content validity was performed by checking the operationalization variables considering the relevant content domain of self-regulatory competence of previous literature (Barnard, Lan, To, Paton, & Lai, 2009; and Zimmerman &Schunk, 2007).

The reliability of the CPIE-A was achieved when pilot tested using 60 sample student test entries rated at Cranach's alpha (0.84); specifically on scale 2 (0.83) and on scale 3 (0.85). Three experts in related fields reviewed each question to

verify content validity. The content and the language in the statements were adapted based on the feedback from the experts and the results from the pilot.

After the validation process of this questionnaire and the informed consent form was signed by the scholar authorities and the participants, the URL link of the instrument was sent via e-mail directly to each student by the research group.

The translated sample of items from CPIE-A into the English language are included in table 2.

Table 2. Items samples

Categories	Sample of items
Scale 2, Planning	Goal setting: "I know the procedure for reaching the realistic academic goals" Time management: "I usually organize my time using a deadline schedule system" Outcome expectation: "Every day I take actions toward becoming a success student".
Scale 2, Problem-solving	Disciplined: "Usually I accomplish with my school obligation" Task management: "I consider myself be able to face any academic difficulty" Task persistence: "I believe that my academic achievement is based on my effort, persistence and emotional management"
Scale 2, Evaluation of the Self	Self-motivation: "I feel motivate to accomplish my daily academic duties" Self-esteem: "I feel proud of myself as student" Self-efficacy: "I evaluate myself as responsible of my own learning"
Scale 3, ICT usage and technological skills	ICT accessibility: "I have access to some electronic devices for doing my academic duties" Technological attitudes: "I think the ICT is NOT helpful for the students" Computer experience: "I domain the computer usage at least two years" Computer skills: "I have some technological skills using hardware and software that allow me to use in my school duties" Internet efficacy: "I feel confident using Internet as student" Previous ICT experience: "I have experience in a distance learning environment"

4. DATA ANALYSIS

Two analyses were performed for achieving the investigation' objectives: descriptive and the statistical decision model. After the data were collected, some items were recorded and reversed per instrument instructions. Data were imported from the Web into MS Excel format and then imported into SPSS 21 and it performed the corresponding analyzes.

The distribution of frequency of individual values was displayed using percentages related to the self-regulation and technology clusters. Some measures of central tendency and dispersion (mean, median, mode, and standard deviation) were used in this study.

The second analysis used consisted in a statistical modeling decision related to self-regulatory competence, sociodemographic aspects, and technological dimension to the b-learning. Because the decision model is an algorithm that performs a recursive binary partitioning of the feature space, it was used for this study.

The decision model predicts the same label for each area partition and it selects the best split from a set of possible splits. In other words, the decision models enable to develop classification systems that predict or classify future observations based on a set of decision rules that are mentioned below. Specifically, the node generates decision model using chi-square statistics to identify optimal splits.

5. RESULTS

Regarding to the sociodemographic aspects of blended learners are described in the following paragraphs and graphics. (See Graph 1).
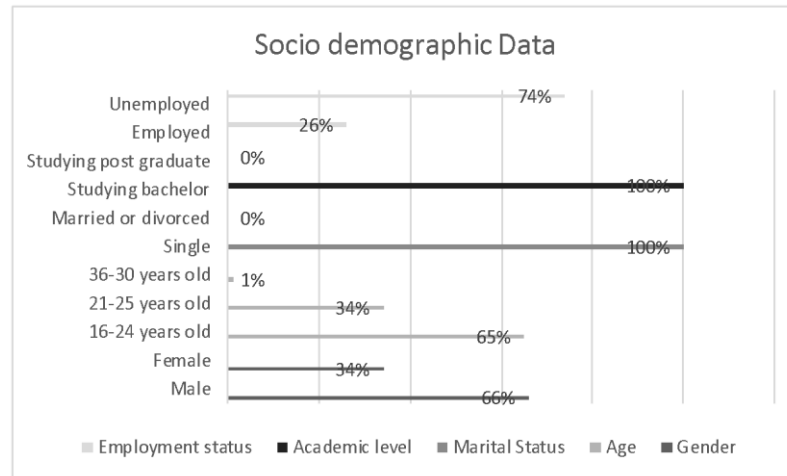
Graph 1. B-learners socio demographic data

The graph 1, shows the majority of participants are unemployed, 16 to 24 years old and they are male.

Regarding to the parents' educational attainment is described in the graph 2. (See Graph 2)
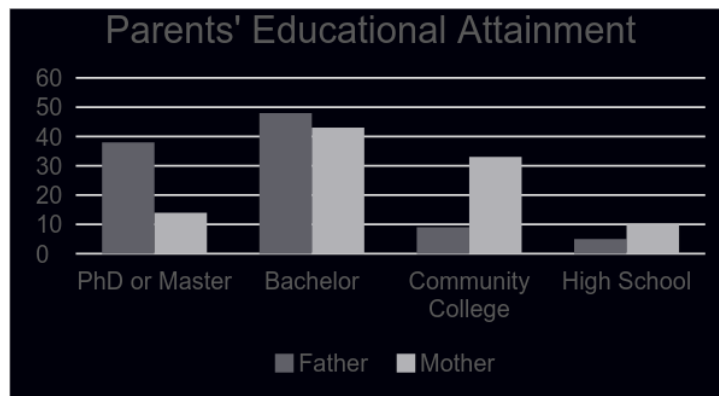
Graph 2. Parents' educational attainment

As the previous graph 2, shows that 48% of their father got a bachelor's degree. Referring to mothers' educational attainment, 43% got a bachelor's degree.

The table 3, introduces descriptive data in a blended-learning environment (see Table 3)

Table 3. Descriptive analysis for b-learning

Categories	B-learning				
	N	Mean	Median	Mode	DE
1) Planning1	402	7.09	7.00	6.00	2.5
1) Problem-solving1	402	7.86	8.00	8.00	2.5
1) Evaluation of the Self1	402	6.95	7.00	7.00	2.5
2) Technological dimension3	402	6.60	5.00	5.00	3.3

Note: 1 Excellent: 1-4; Good: 5-8; Average: 9-12; Fair: 13-16; Poor: 17-20

2 Excellent: 1-5; Good: 6-10; Average: 1115; Fair: 16-20; Poor: 21-25

As seen from table 3, planning, problem-solving, technological dimensions and evaluation of the self, are categorized as good.

After Chi-square test applied, the results showed significant values for being high academic achievers under b-learning modality that manage functionally their academic stress. It is introduced in the **Graph 3**. (See Graph 3)

Graph 3. Significant values

The graph 3 showed the components related to self-regulatory competence that were significant are: discipline ($p=0.000$); self-efficacy ($p=0.018$); task management ($p=0.043$); goal setting ($p=0.021$); and task persistence ($p=0.004$). Considering the sociodemographic aspect, was significant the academic fathers' level ($p=0.048$), they should have completed tertiary education. Also, a component of technological dimension was significant, it was previous experience with ICT ($p=0.033$).

The profile of a scholarship-holder of high academic achiever consisted on being able to: establish what to achieve and to define steps that transcend to gain specific goals; to create new habits toward improving oneself on pursuing what is appreciated as right as learner; to handle and monitor task as students under the b-learning modality; to make effort toward task accomplishment and maintenance of activity despite any emotional fluctuation; to trust in their own ability, be able to organize actions to attain the goals, and execute behaviors towards the management of different academic situations; also, to have experience with ICT learning environment.

The previous results serve as inputs for proposing an academic successful model for b-learners under academic stress. The interplay and the respective outcomes of self-regulation, sociodemographic, and technological dimension are depicted as a model in Figure 1. In this model, each path represents the likelihood of a correct response. The **Figure 1** illustrates how the model predicts high academic achievement related to sociodemographic aspects, technological dimension and self-regulatory competence in a b-learning modality. (See Figure 1).
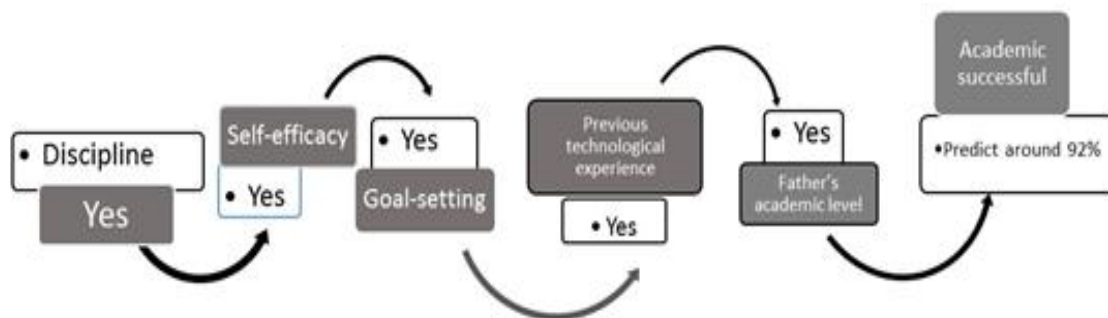

Figure 1. Predicting high academic achievement main model

As shown in the Figure 1, the predicting model might guide scholarship-holders under b-learning modality to reach academic success and handle functionally their academic pressure. B-learners must have high discipline and self-efficacy, adequate goal-setting process and have previous technology experience. From the sociodemographic aspect, when their fathers completed tertiary education, it helps to increase their success. It predicts 92% of possibility for being high achiever under this modality.

If the pupils under this system cannot follow the previous profile, the **Figure 2**, illustrates an alternate model. (See Figure 2)
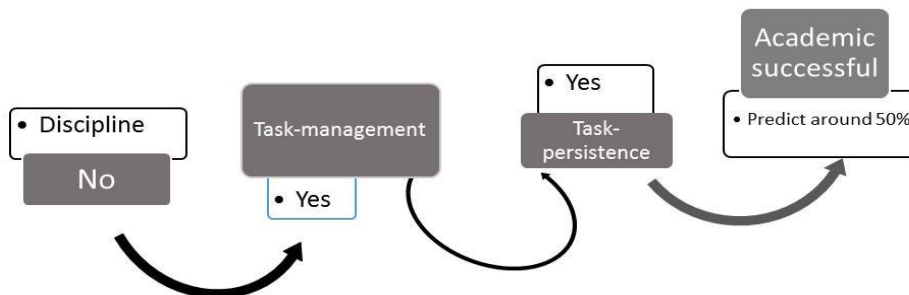

Figure 2. Predicting high academic achievement alternative model

As shown in the Figure 2, students should go to node problem-solving if the students are not disciplined. The students might develop task management and task persistence for increasing their chance to 50% of being successful in the b-learning modality.

6. DISCUSSION

This study contributed to define high achiever scholarship-holders profile related to self-regulatory competence, sociodemographic aspects, and technological dimension in a b-learning system. This study will provide a current glimpse of a profile of online learner success. In this particular study may indeed support the students similar to the described profile under b-learning environment. Furthermore, this study may serve other institutions' online program efforts as a reference.

According to the statistical results, one planning factor of the self-regulatory competence is significant to high achievers in a b-learning modality, it is the goal settings. It is possible that scholarship-holders enable themselves for achieving emotional management and reaching academic goals. This result is similar to Huang (2012) because this author found that achievement goals predict academic achievement.

Related to problem solving dimension, discipline, task persistence and task management have been identified as significant in this research. These findings are analogous to other studies. For instance, Shea&Bidjerano (2010) stated there is a connection between effort and the subsequent positive performance.

In relation to the dimension evaluation of self, self-efficacy was significant for being high achiever. It corroborates findings of previous authors (Richardson, Abraham & Bond, 2012; and Cigdem, 2015) learners' academic achievement has been positive affected by the self-efficacy skill.

Concerning to sociodemographic aspects, in this study was found that the highest level of father's education attained, it is an important factor for being high academic achievers. The results from this study pointed out scholarship-holders whose fathers have completed a tertiary education, have more possibility to keep a high GPA, comparing to others whose parents have lower educational levels. It supports the findings that academic achievement is likely to come from family environments where their parents have a strong academic background (Jacobs & Harvey, 2005).

According to technological results, previous ICT experience appears to be significant for being successful in this modality. This result is similar to others (Samruayruen, Enriquez, Natakuatoong, & E. Samruayruen, 2013; and Poon, 2013) learners who had more technological experience reported higher levels of self-regulation than others with less technological experience.

While the results of the current study provide insight into self-regulatory profiles under b-learning, one limitation must be addressed regarding the current study; the data were collected from only one university. However, the participants were involved from different states of Mexico.

In terms of learning outcome, high-grade students have positive perception of improved understanding of key course concepts than low-grade students under a blended learning educational environment (Bidder, Mogindol, Saibin, Andrew &Naharu, 2016). So, it is suggested that future research explore more about the psychosocial profile of low-grade students in this educational environment.

Could be interesting to do more research about what actions the universities are taking for supporting low-grade scholarship-holders because sometimes the educational system instead of fomenting academic effort and excellence of the grant-holders, they foment among low-income student, self-defeatism pressuring them to reach so high academic goals (Río-Ruiz, Jiménez-Rodrigo & Caro-Cabrera, 2015).

It is recommended to rethink what kind of services, strategies or programs offers the universities to avoid learning burnout in scholarship-holders and what role takes the counselor in these emotional services. Also, how teachers are using ICT for supporting self-regulatory competence and academic success of their students.

7. CONCLUSION

A blended learning approach might mitigate the technological gap that traditional classroom are not covering. This system enhances knowledge and development of technical and professional skills. However, fitting in this system demands some psychosocial and technological skills.

A research question and some objectives were established at the beginning of this study and they were responding throughout this study. The self-regulatory competence, the technological skills and the socio-demographic that were significant related to high academic achievement were: discipline, self-efficacy; task management; goal setting; task persistence; academic fathers' level; and previous experience with ICT.

It was proposed an academic successful decision model related to self-regulatory competence, socio-demographic aspects and technological dimension for scholarship-holders with the responsibility of keeping a high GPA (>3.5/4). The model would help scholarship-holders to think over how to fit in this modality and being successful.

The introduced models are tools for helping administrators and stakeholders to understand better what self- regulation components, sociodemographic aspects, and technological factors are important for building a more effective educational system. Also, this study would guide teachers about what factors are relevant for taking into consideration when they are developing their courses in this educational environment.

A practical implication for school counselors and teachers consists on designing together learning activities that help students integrate technology and develop self-regulatory competence such as an e-portfolio for registering their self-regulatory and stress management progress.

Finally, educational administrators and stakeholders should consider offering services like online tutoring that support scholarship-holders willing to manage properly the learning burnout and to reach academic success.

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