Epistemological Beliefs and Self-directed Learning Readiness of Hospitality Students: The Necessary Precursor to Academic Performance

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ABSTRACT

Throughout the philosophical literature, studies on epistemological beliefs have been well documented. However, within the educational context, this philosophical construct is a recent phenomenon. The purpose of this study is to explore the relationship between the conception of knowledge (epistemological beliefs) as measured by Schommer's Epistemological Questionnaire (SEQ), learner perception of self-directedness as measured by Guglielmino's Self-Directed Learning Readiness Scale (SDLRS) and academic achievement. The value of CMIN/DF was 2.22, below the recommended value of 3.0 (Kline, 1998). In this case, the $U^{sup 2}/df$ of 2.22 and CFI of .926 indicate an adequate fit between the hypothetical model and the sample data. The RMSEA for the measurement model was .077 (adequate fit). Other fit indices also point to an acceptable model fit between the model and the data (GFI = .921, AGFI = .879, CFI =.926). The entire model had an $R2$ of .064 and was not significant $F(12, 210)=1.112$, $p > .05$. The mediating effect of self-directed learning on GPA, falls short of statistical significance, $b = .133$, $p = .074$. However, when reviewing the effects of each of the regression coefficients, only 5 predictor

variables (innate, simple, self assessment, goal setter, self control) were found to be of practical significance. MANOVA shows that there was no significant difference in epistemological beliefs, self-regulated learning and gender at .05 level across GPA (Wilk's lambda = .94, F = 1.153' df = 5, p > .05).

Keywords: *Education, epistemology, beliefs, philosophy, education, hospitality, self-directed learning readiness.*

Introduction

In today's business environment, hospitality programs are expected to develop the necessary competences in order to meet the needs of working life and society. Increasing complexity in all facets of work coupled with persistent calls for educational relevancy present numerous challenges to higher educational institutions, particularly higher vocational programs. At the same time, the nature of hospitality work and management expectations, workers are expected to shoulder greater responsibility over their own action and performance. It is an imperative for educational institution to provide the opportunity and equip students with the right competences and attitude to find direction and purpose in their world of work. The need to revise or eliminate outdated curriculum and develop new programs to meet emerging work requirements is a seemingly endless discourse and occurrence not to mention the ineffectiveness of the education system. In the midst of finding the right formula, however, we sometimes overlook the most crucial element in students' learning experiences; our own educational culture of learning. Apparently, understanding students' learning behavior has been recognized as one of the fundamental issues that need special consideration when developing educational contents. Within the curriculum context, issues such as curriculum structure, course contents, learning behavior have been given great consideration.

Since the hospitality industry has grown and become more global, traditional learning approaches have been found to be inefficient and lacking in effectiveness. Haywood (1992) stressed that learning involves the individual and the environment around him or her.

When a person and his environment interact, the individual will be stimulated and become responsible for the learning of any knowledge (Tessmer, Wilson, & Driscoll, 1990). Reigeluth (1996) argued that the

current paradigm of education should focus on customization instead of standardization. Any learning program that is based on conformity and compliance where the learners listen and obey the instructors need to be replaced with self-initiated learners who will solve problems and bring diversity in terms of perspectives to the workplace. It is imperative for educational institution to understand this predicament if higher education institution is to continue its relevancy in preparing future workforce that is capable of facing local and global challenges.

In our efforts to understand the ways students learn, their motivation for learning, and the factors that can affect learning, we must recognize the concept of multidimensionality. In any individual learner's experience, there are many factors that can affect learning (Kardash & Scholes, 1996). Students need to understand that the way they see things depend on their epistemological beliefs. The more they have been exposed to relevant knowledge, the more they tend to see things from a dualistic approach to a more relativistic approach (Schommer, 1990). Hence, students' epistemological beliefs dictate their attitude towards learning. At the same time, understanding individual's epistemological beliefs enables educators to define the learning environment and deploy effective instructional approaches (Anders and Evan,1994).

Problem Statement

The industry has lamented that today's graduates lack certain critical abilities to perform effectively in the workplace. Apparently, there is a growing concern about the quality of today's hospitality management graduates. Despite the criticism, there has also been no initiative or concerted efforts taken by hospitality schools to understand the multidimensionality of the issue. Many of the initiatives taken to correct or respond to this allegation have concentrated on the curriculum itself and neglected the students' role in the learning process.

To date, no attempt has been made (within the hospitality domain) to analyze the interrelationships between epistemological beliefs and self-regulated learning to explain students' achievement. The study of the relationship between epistemological beliefs, self-regulated learning behavior and achievement is essential to the understanding of students' learning processes.

Lord and Emrich (2001) state that "changes in *learning* behavior require changes in meta-cognitive processes (emphasis added)". Student's

epistemological beliefs influence their conception about learning and goals. Accordingly, epistemological beliefs have a direct influence or act as "stimulant" on the individuals' learning behavior (Russell, 2001). Therefore, a fuller understanding of epistemological beliefs and self-regulated learning behavior held by students would be of much value to students and educators in promoting better classroom learning experience. The beliefs and learning behavior students hold will eventually influence their professional practices (Russell, 2001).

Relationships between the constructs need to be studied and understood well. The preliminary findings from this study would be able to inform hospitality schools of its existence (epistemological beliefs) in influencing students' learning behavior and raising the awareness of the issue on factors affecting academic achievement.

The first objective of this study is to explore the relationship between epistemological beliefs, self-regulation and student academic achievement. The second is to compare epistemological beliefs and self-directed learning behavior according to gender. The study's research questions are as follows:

1. Do the students' epistemological beliefs and self-regulated learning behavior influence academic achievement?
2. Is there a statistically significant relationship between learner's perceptions of self-regulated behavior and learner epistemological beliefs across gender?

Literature Review

Teaching and Learning in Hospitality Education

The teaching and learning styles in Malaysia, whether they are academic or industry based, follow the objectivist education model. This theory purports that an objective reality can be delivered to the learner or trainee who will, in turn, modify his or her behavior accordingly. A teacher or trainer, as an expert, transfers the knowledge in an environment where the trainee or learner accepts the reality as it is. This didactic approach, which is widely used in schools and institutions of higher learning, is also applied in the training situation. Most hospitality programs have been conducted in the traditional teacher-centered or lecture-based learning methods. A student-centered learning environment requires, students' total engagement in their learning activities and hold students responsible

for their own learning. Therefore, if a person wishes to be successful, he or she will need considerable self-regulatory competencies. In education, personal epistemology is an important dimension. This is related to how someone conceptualizes knowledge which will eventually affect his or her learning behavior.

Epistemological Beliefs

According to Schommer (1990), epistemology is a "system of belief constructs, comprised of multiple dimensions rather than as a general construct". Epistemological beliefs refer to individuals' beliefs about the nature and structure of knowledge (Schommer, 1998; Buehl, Alexander & Murphy, 2002). Throughout the philosophical literature, studies on epistemological beliefs have been well documented. However, within the educational context, this philosophical construct is a recent phenomenon.

Recent educational research has begun to focus on the importance of linking students' epistemological beliefs and achievement motivation constructs (Buehl, Alexander & Murphy, 2002). According to Ryan (1984), students' beliefs about knowledge are either dualistic or relativistic. Ryan also found that those with relativistic epistemological beliefs said they achieved understanding when they could apply the information to new situations and when they could see connections between ideas. On the other hand, those with dualistic beliefs tend to focus only on fact finding and develop concepts loosely.

Perry (1970) was known to be the pioneer in investigating how college students relate knowledge, learning and the environment. Using an interactionist model, he attempts to interpret students' epistemological responses to the college learning environment. Perry observes that students would start their studies thinking in a dualistic ('Yes' or 'No', 'True' or 'false') manner and gradually shift to a more relativistic approach (absolutes are no longer the norm, but the exception) to understand the world. Starting from Perry's research on beliefs, several authors have adopted the model and developed further different lines of thought. Two perspectives of research have received much attention over the past decades; the meta-cognitive perspective (Purdie, Hattie & Douglas, 1996) and phenomenographic (Gregorc, 1984). The meta-cognitive perspective is said to focus on the analysis of students' beliefs about knowledge and learning (Ryan, 1984; Schommer, 1993). Activities such as planning how to approach a given learning task, comprehension, and progress toward

the completion of a task are meta-cognitive in nature. It is argued that meta-cognitive activities play a critical role in determining how well learners apply their cognitive resources (Borkowski, Carr & Pressely, 1987).

On the other hand, the phenomenographic perspective does not depict learning in terms of mental models (for example, the cognitive perspective). In the educational setting, the term basically refers to relationship between the learner and the phenomenon (Marton, 1986).

According to Schommer (1990), epistemology is a "system of belief constructs, comprised of multiple dimensions rather than as a general construct". This refutes Perry's unidimensionality scheme of epistemological beliefs construct. Epistemological beliefs refer to individuals' beliefs about the nature and structure of knowledge (Schommer, 1998; Buehl, Alexander & Murphy, 2002). Schommer (1990) realizes that an individual's epistemological worldview is best explained as a "system of more or less independent beliefs". This leads to the development of five distinct dimensions (simple knowledge, certainty of knowledge, omniscient authority, learning is innate and learning is quick or not at all) that can be measured independently.

Recent educational research has begun to focus on the importance of linking students' epistemological beliefs and achievement motivation constructs (Buehl, Alexander & Murphy, 2002). Schommer (1993a) also postulates that epistemological beliefs predict academic achievement. Later, she advances this initial hypothesis to include the epistemological beliefs effects on learning strategies and comprehension. According to Schommer (1993b), gender plays an important role in conceptualizing knowledge. Female students believe to a greater extent than boys that learning takes place gradually, which may give them a slight epistemological advantage in their efforts at comprehension and this would enable girls to perform better in examinations. This aspect is related to different ways of studying, or approaches to learning. Hence, a person holding naïve epistemology generally believes that knowledge is simple and clear, knowledge resides in authorities, concepts are learned quickly or not at all, and learning is innate - a transmissive approach. On the other hand, if a person holds a sophisticated (relativistic) epistemological beliefs, he or she tends to view knowledge as complex, knowledge can be learned, and knowledge can be developed accordingly by the learner – a constructivist approach (Schommer 1990; Qian & Alvermann, 1995; Brownlee, 2001).

Self-directed Learning

Merriam and Caffarella (1999) stated that from a learning theory perspective, humanism emphasizes that perceptions are centered in experience, freedom and responsibility to become what one is capable of becoming. These tenets underlie much of adult learning theory that stresses the selfdirectness of adults and the value of experience in the learning process.

Self-directed learning (SDL) or sometimes known as Learner-Controlled Instruction (LCI) is defined as a process in which learners or individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating relevant learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes (Knowles, 1975). Knowles's process model recommends a shift in the distribution of power and control over instructional functions and task. Learners together with teachers should engage in a collaborative environment of planning, managing and evaluating. The responsibility for learning shifts from teacher-controlled to learner-controlled in constructivist-oriented instructional design such as SDL and pedagogy. Therefore, the primary thrust and difference between the Pedagogical Process Model and the generic Instructional System Design (ISD) model is its foundation in constructivism and learner's self-concept, experience, readiness to learn, problem-centered focus and internal motivation.

Self-directed Learning Readiness (SDLR)

The concept of self-directed learning is open to a range of interpretations. At one end of the spectrum, it is characterized by the skills, techniques, and procedures by which learning goals and objectives are determined, resources are located, strategies are planned, and outcomes evaluated (Knowles, 1990). At the other end of the spectrum, self-directed learning incorporates the notion of critical awareness as the capacity to identify and challenge assumptions previously taken for granted. Zimmerman (1990) defines self-regulated behavior as self-regulated thoughts and actions that are intended to systematically regulate one's learning. The philosophical assumptions underlying self-directed learning (SDL) are humanistic and constructivist orientations (Caffarella, 1993). Humanistic theories consider learning from the perspective of the human potential for growth. Thus, the focus of learning is on self-development. Learners

are expected to assume primary responsibility for learning which leads to the process of learner centered learning. Self-regulated learning behavior is said to have a mediating effect on learning outcomes (Pintrich, 1995; Zimmerman, 1994).

Guglielmino (1992) highlighted issues engulfing empowerment and self-direction in learners. She found that not all students are equally prepared for self-directed learning, and that some factors are involved in promoting self- directed learning behavior. This includes: academic policies, curricular requirements, traditional educational concepts and educators' capabilities. See Figure 1 for the conceptual framework of the study. Based on these assertions regarding students' knowledge conceptualization and their learning experiences, the following hypotheses were formulated:

H1: Students' knowledge conceptualization mediated by their learning behavior will affect their academic achievement (GPA).

H2: There is significant difference in epistemological beliefs and self-regulated learning behavior between male and female.

Methodology

The purpose of this study was to explore the effects of epistemological beliefs on learning behavior amongst hospitality management students enrolled in the Faculty of Hotel & Tourism Management, UiTM, Malaysia. Accordingly, it is also important to recognize the fact that data and methods of capturing data are inextricably interdependent (Leedy 1980, p. 75). In order to understand the scope of the study, a thorough knowledge of the subject matter and figuring out the way respondents react to the questions are vital. Not wanting to reinvent the wheel, the initial construct list was adapted from Schommer (1998) and Guglielmino (1989). The study sample was derived from a large public university offering hotel and tourism management, which is predominantly dominated by one particular ethnic group. In order to secure responses, the questionnaire was administered during class sessions. The context of this study, a large public university, limits the extent to which the findings can be generalized to other institutions of higher learning.
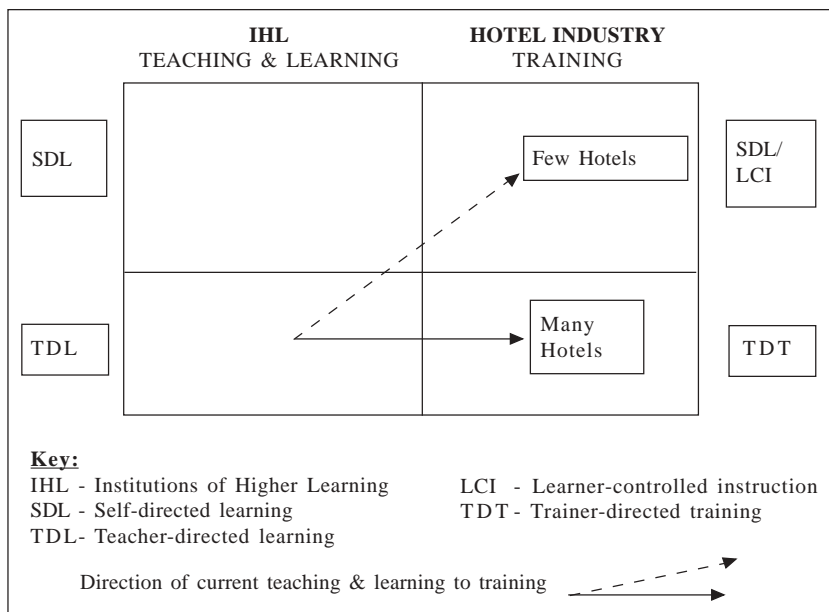
Figure 1: Current Hospitality Teaching, Learning and Training
Situation In Malaysia

Sampling

The sample frame/or population and the size were drawn from the faculty's students registration database (convenience sampling). The size of the sample was 210 students.

Among the 210 respondents (final year students), approximately 57.6 % were female and 42.4 % were male. This distribution is considered normal for the faculty of Hotel and Tourism Management in which the student population is dominated by female students. Bentler and Chou (1987) recommend that 5 to 10 participants per estimated parameter rule for computing sample size. Sample size is an important consideration in SEM analysis, as low sample size has several consequences of low power to detect significant path coefficients and variances and decrease of fit indices (sampling error).

In total, there are 53 parameters, 28 of which are to be estimated. Using Bentler's and Chou's (1987) rule of thumb for calculating sample size, the upper bound will be $10 \times 28 = 280$, and the lower bound will be $5 \times 28 = 140$; the sample size for this study is 210, indicating moderately statistical power. See Table 1 for the parameter summary.

Table 1: Parameter Summary

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	16	0	0	0	0	16
Labeled	0	0	0	0	0	0
Unlabeled	12	10	15	0	0	37
Total	28	10	15	0	0	53

Research Instrument and Data Collection

A cross-sectional study was designed and executed through a survey. The instruments used in this study were a self- administered form of Self-Directed Learning Readiness Scale (SDLRS) and Epistemological Beliefs Questionnaire (EBQ). The questionnaire survey comprised of three sections. The first section solicited descriptive data on the respondents, which enable this study to have a comprehensive profile such as program, including grade point average (GPA).

The second section requested the respondents to provide their opinion about statement related to the SDLRS ranging from 1 (strongly disagree) to 5 (strongly agree). These ratings are measures of an individual's current level of readiness to engage in self-directed learning. The final section on EBQ asked respondents to rate their level of agreement for each item on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

The 44 items of Self-Directed Readiness Scale (SDLRS) comprised of 8 factors namely; (1) openness to learning opportunities; (2) self-concept as an effective learner; (3) initiative and independence in learning; (4) informed acceptance or responsibility for one's own learning; (5) love of learning; (6) creativity; (7) future orientation; and (8) ability to use basic study skills and problem solving skills. The Epistemological Beliefs Questionnaire (EBQ) comprised of 4 factors scores of epistemological beliefs, namely; (1) knowledge is certain, (2) learning is innate, (3) structure of knowledge is simple, and (4) speed of learning (quick), which made up a total of 63 items. This 63-item Epistemological Beliefs Questionnaire by Schommer (1994) is one of the most widely used instruments available for the examination of college students' epistemological beliefs as multidimensional constructs. A number of empirical studies have documented the statistical rigor and theoretical

soundness of this instrument as well as the sufficiency of the four-factor structure for a set of epistemological beliefs.

Data Analysis and Discussion

Since the study took place in a different cultural context, exploratory factor analysis was used as an attempt to identify the multidimensionality of the constructs. As in Schommer's experience, the 63 items (epistemological beliefs) did not produce a sensible result. Factor analysis using the 12 subset items were used and produced a much more parsimonious result than using each single item (Schommer, 1998). This approach is said to reduce the problem of multicollinearity between the endogenous variables (Cohen and Cohen, 1983). Subscales were considered to load on a factor if its loading was equal to or greater than .40. Principal factoring extraction with varimax rotation was used and produced four factors, which accounted for approximately 65% of the variance. The KMO measure of sampling adequacy is .89. The adapted EBQ questionnaire yielded factors of similar beliefs and the original labels are maintained - knowledge is certain, knowledge is simple (discrete), ability to learn is innate and learning is quick. The SDLRS yielded eight factors labeled as: willingness to learn, self assessment, self confidence, systematic learning, goal setter, enthusiasm, self control and critical thinker. The coefficient alpha of each factor assesses the overall reliability of the scales along with the item-to-total correlation for each item. To improve the reliability, items with correlations below .3 were deleted from the scale (Nunnally, 1978). The final reliability of the scales' (EBQ) alpha ranged from .80 to .95. and the SDLRS alpha ranged from .75 to .91. Students' GPA ranged from 2.03 to 3.92, with a mean of 2.95 (SD= .366). See Table 2 and Figure 2.

In order to test the study's hypotheses, Confirmatory Factor Analysis (CFA) test was used. CFA is a statistical technique that enables a researcher to assess relationships among both manifest (i.e., observed) and latent variables for the purpose of testing a theoretical model or confirming the factor structure of a research instrument (Tomarken & Waller, 2005). The chi-square value of 109.7 is significant at the $p < .001$ level.

Given the sensitivity of sample size affecting chi square test in CFA (SEM), it is more meaningful to use other indices. The results from the CFA indicate a good fit of the 12 dimensions. The value of CMIN/DF was 2.22, below the recommended value of 3.0 (Kline, 1998). In this

Table 2 : Frequency Distributions of Grade Point Average
Across the Sample

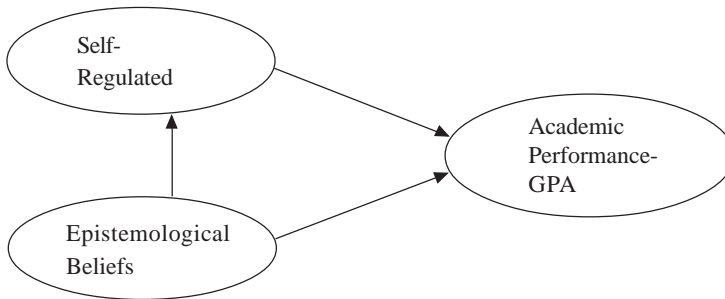|	Frequency	Percent
3.6 and above	9	4.3
3.2-3.5	43	20.5
2.8-3.1	107	51
2.4-2.7	34	16.2
2.3 or below	17	8

Figure 2: Research Model

case, the $\_^{sup} 2^{\wedge}/df$ of 2.22 and CFI of .926 indicated an adequate fit between the hypothetical model and the sample data. The RMSEA for the measurement model was .077. By convention (Schumacker & Lomax, 2004), there is good model fit if RMSEA is less than or equal to .05 or adequate fit if RMSEA is less than or equal to .08. Other fit indices also point to an acceptable model fit between the model and the data (GFI = .921, AGFI = .889, CFI =.926). Figure 3 depicts the structural model.

Following the factor analyses used to determine the fit of the factor structure to the conceptual model, multiple regression was conducted to determine the amount of variability in predicting students' academic achievement. The entire model had an $R2$ of .064 and was not significant $F(12, 210) = 1.112, p > .05$. The mediating effect of self-directed learning on GPA falls short of statistical significance, $b = .133, p = .074$. In this case, H1 is rejected. However, when reviewing the effects of each of the regression coefficients (Table 3), only five predictor variables (innate, simple, self assessment, goal setter, self control) were found to be of practical significance. This is based upon the recommendation by Tate (1998). She recommended that a standardized coefficient of approximately 0.1 is at the threshold of practical importance.
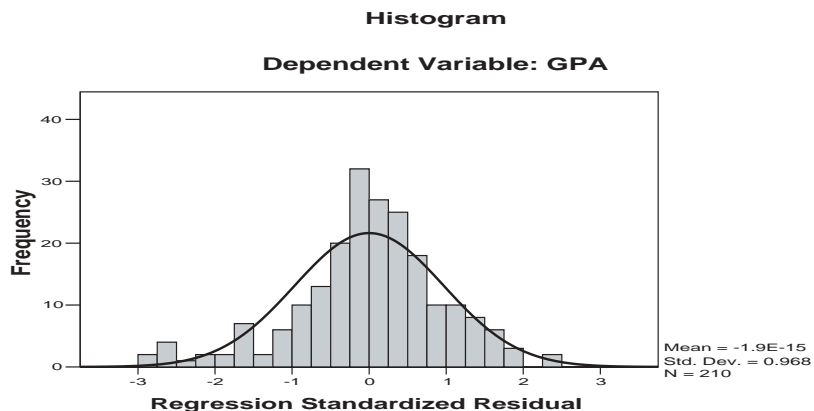
Histogram

Dependent Variable: GPA

Mean = -1.9E-15
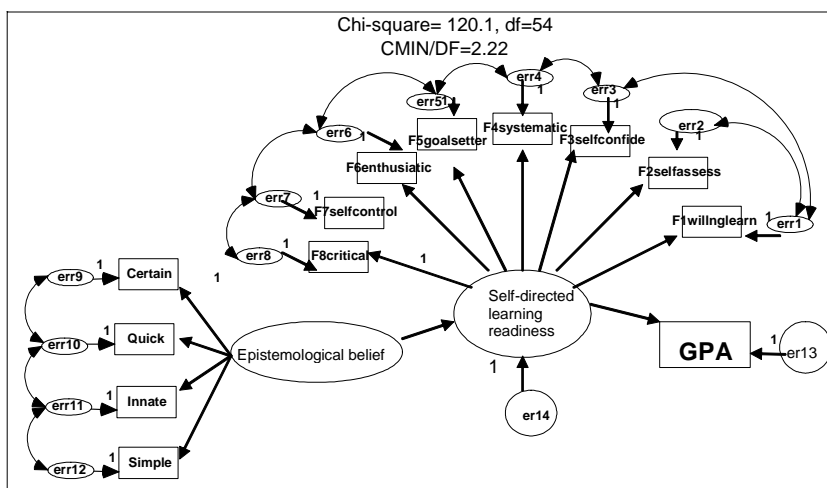Std. Dev. = 0.968
N = 210

Figure 3: GPA distribution

Figure 4: Structural Model

No significant Levene's Tests for Equality of Variance (p = .666) were produced for the cells used in the study implying that the homogeneity of covariance assumption is met. MANOVA shows that there was no significant difference in epistemological beliefs, self-regulated learning and gender at .05 level across GPA (Wilk's lambda = .94, F = 1.153, df = 5, $p > .05$). With regard to epistemological beliefs and self-regulated behavior against gender, no significant difference was recorded ((Wilk's lambda = .920, F = 1.42' df = 12, p = .158). The data

Table 3: Coefficients(a)

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Certain	- .019	.140	-.011	-.132	.895
Quick	.037	.063	.043	.583	.561
Innate	.088	.058	.108	1.4991	.135
Simple	.139	.092	.122	508	.133
Willing to learn	-.001	.064	-.001	-.009	.993
Self assessment	.093	.071	.137	1.299	.196
Self confidence	-.004	.065	-.007	-.063	-.950
Systematic	-.024	.063	-.039	.388	-.699
Goal-setter	-.097	.062	-.166	1.559	.121
Enthusiastic	.008	.058	.013	.131	.896
Self control	.111	.069	.157	1.607	.110
Critical	- .017	.054	-.031	-.320	.749

a Dependent Variable: GPA

was unable to detect any influence of gender on the dependent variables. The result therefore fails to accept H2.

Conclusion

This study was carried out to explore the predictive value of the epistemological variables (certain, innate, quick and simple) and the values of self-regulated learning readiness (willing to learn, self-assessment, self-confidence, systematic learning, goal setter, enthusiastic, self-control and self-critical) on students' academic achievement (GPA). The findings, however, did not yield a clear explanation. In the post hoc analysis of the model, there is a positive but not significant relationship. The causal steps approach does not, here, provide strong evidence of mediation, given the lack of significance of the partial effect of academic achievement. However, there are several items that appear more promising as a measurement variable for epistemological beliefs and self-regulated learning predicting academic achievement. If sample size were greater, however, the critical effect would, of course, be statistically more significant.

Statistically, the hypotheses indicated no significant result that could support their acceptance. This could be due to the fact that situational demands (tests and exam formats) and the traditional dominant perspective on teaching and learning may also influence how students conceptualize knowledge and the adoption of the learning behavior. While there may be several possible explanations for this phenomenon, it is clear that epistemological beliefs do not translate directly into constructivist learning styles in this present study. Nevertheless, the findings could provide some basis to explain why some students were unable to connect or integrate knowledge. If students are able to conceptualize their knowledge, it will positively assist them in controlling their learning process, thus, leading to better academic performance. This will be consistent with Hammond and Collins (1991) who describes learners take the initiative for increasing self awareness with the support and collaboration of others. The learners critically analyze and reflect on their situations and diagnose their learning needs with specific reference to competences they have helped identify.

Why students' knowledge conceptualization and learning behavior (self-directed learning readiness) did not directly influence their academic achievement (GPA)? In considering self-directed learning in hospitality, one must account for the current conditions that influence the performance of self-directed learning. This may arise when there is a mismatch between the role and style of the educators and the learning stage of the learners. This may be due to the fact that students are not accustomed to SDL as a teaching strategy in the faculty, where the teaching or learning process addresses realistic, relevant problems and situations and the students are immediately stimulated to become actively involved and to develop analytical thinking, which is required by the real-life workplace. The role of cognition in making practice changes the work environment, the importance of peers, and accountability schemes. Students are not being asked merely to take on new skills or to adjust their attitudes toward learning but also to rethink the way they see themselves, their work and their on-going academic and professional development.

What can we conclude from this present study of EBQ and SDLRS? More study is needed to examine the relationships between the multidimensionality of personal epistemological beliefs, self-regulated learning behavior and academic achievement. In particular, the question of how differences in instructional contexts may relate to differences in epistemological beliefs, self-regulated learning readiness, cultural contexts

and academic performance should be locked into. Examining the EBQ and the SDLRS factors bring awareness of how important epistemological beliefs and self directed learning readiness can explicitly or implicitly affect students' academic achievement (GPA).

The subsequent modification may lay the path for teaching improvement. The close relationships of epistemological beliefs and teaching and learning conceptions would also mean that educators have to take their students' prior beliefs and conceptions into consideration when designing appropriate curriculum and instruction that facilitates their students' learning and advancement. If the educators start their education with relatively unsophisticated epistemological beliefs that predispose them to traditional teaching conception, educators could help incubate the constructivist teaching conception by providing students with classroom experience that may increase the sophistication of their epistemological beliefs.

Therefore, to help students develop more sophisticated (and relational) epistemological beliefs that connect self and knowledge, it is imperative for educators to consider how the facilitating conditions can help students learn better. Subsequently, to develop an effective instruction and delivery system, educators could adopt instructional practices that encourage collaboration among students and enhance critical thinking, which may lead to the achievement of better grades. Understanding students' beliefs and learning motivation in relation to their learning environment is vital.

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