



The Application of Self-Determination Theory on the Opportunities and Challenges for Blended e-Learning in Motivating Egyptian Logistics Learners

Aisha Tarek Noour¹ and Dr. Nick Hubbard²

1 Division of Logistics, Transport and Tourism,
The Business School,
University of Huddersfield, UK

2 Division of Logistics, Transport and Tourism,
The Business School, University of Huddersfield, UK

Abstract

Nowadays, there is a movement towards a Blended e-Learning (BL) method, consisting of a mixture of virtual learning and Traditional Face-to-Face Learning (TF2FL) methods. BL is the integrated mixture of multiple methods of learning and the blending of virtual and physical resources (Kilkelly, 2009). This present study investigates the learners' perspective of the opportunities and challenges of BL according to the Self-Determination Theory (SDT) framework of Deci and Ryan (1985). It also categorises the opportunities and challenges for using BL in Logistics Education in Egyptian Higher Education. Therefore, it explores the SDT framework approach among intrinsic motivation, extrinsic motivation and amotivation in relation to the Basic Psychological Human Innate Needs: autonomy, relatedness and competence. A case study methodology was adopted incorporating quantitative data collection by means of a self-administered questionnaire from learners who were studying at the three Colleges of International Transport and Logistics at the Arab Academy for Science, Technology and Maritime Transport in Egypt. Six hundred and sixteen undergraduate respondents were drawn from three branches in Greater Cairo, Alexandria, and Port Said. The study data analysis used SPSS²² and AMOS¹⁸. It suggests that the three Colleges of International Transport and Logistics at Arab Academy for Science, Technology and Maritime Transport should pay more attention to intrinsic motivation, extrinsic motivation and amotivation in relation to autonomy, relatedness and competence in the virtual learning environment, especially in BL.

Keywords: Blended e-Learning, Structural Equation Modeling, Self Determination Theory, and Learners Motivation.

Introduction

SDT proposes that motivation influences individual behaviour (Ryan & Deci, 2000). In an educational environment, learners can engage in virtual learning methods for the determination of increasing their degree of motivation. The rapid development of technology tools in education has been controversial, especially in terms of motivating learners. In a Traditional Face-to-Face Learning (from now on TF2FL) setting, learners can become more interested in using a virtual learning environment, as it provides them with powerful learning media tools. Dutton and Loader (2002) mentioned that the institutional providers of TF2FL classroom education should adapt to the virtual learning methods in order to survive in today's modern education industry. Blended Learning (from here on BL) is considered to be one of the modern virtual learning methods and is emerging as the new paradigm of alternative education. BL is a mixture of virtual learning and TF2FL methods, as it takes the advantages of both learning worlds. Throughout the virtual learning literature, BL is proven to be one of the best learning methods, as it improves learners' motivation internally and externally. Moreover, several studies from various domains have tried to explore the BL in motivating learners in higher education (Chen & Jang, 2010; Mahnken et al., 2011). There is a need to pay full attention to identifying the exact opportunities and challenges of BL. Up to now, there appears to be little interest in the BL method for Logistics Education (LE), therefore this study paid a great attention to exploring the opportunities and challenges of BL in LE in Egypt.

An Overview of Self-Determination Theory

Motivation theorists have primarily treated the concept of motivation as having multi-dimensional perspectives (Boekaerts, 1997; Deci & Ryan 2008) as well as multi-level constructs (Boekaerts, 1997). The term motivation is classified as "the process whereby goal activity is instigated and sustained" (Pintrich & Schunk, 2002:5). SDT is one of the innovative motivation theories of the 1970s conceived by Deci and Ryan, when it was first formulated, and has gained prominence ever since (Kirk, 2010). This definition is now widely accepted, as it is multidimensional. Deci and Ryan (2008:182) identified SDT:

As a macro theory of human motivation, self-determination theory (SDT) addresses such basic issues as personality development, self-regulation, universal psychological needs, life goals and aspirations, energy and vitality, non-conscious processes, the relations of culture to motivation, and the impact of social environments on motivation, affect, behavior, and well-being.

By the mid 1980's, several developments materialized due to publications dedicated to SDT in different domains (Hasenfeld, 1987; Solomon, 1976), including education, psychology, medicine, counselling, health-care and sports. SDT "is a theory of human motivation that addresses individuals' initiation of behaviour" (Grolnick, 2015: 65). According to the studies of motivation, SDT has been thought of as a key factor in the disciplines of individual Basic Psychological Human Innate Needs: autonomy, competence and relatedness. The need for autonomy refers to

an individual having the freedom of decision making while performing a task (Deci & Ryan, 1985), while the need for competence is felt in producing and bringing about desired outcomes (Darner, 2014; Ntoumanis & Standge, 2009), competence being the ability to successfully master a task. The need for relatedness refers to the experience individuals feel in connecting to others (Kapp, 2013). Relatedness of connectivity and belongingness increases the mutual interest in the classroom. SDT has three different types of motivation: intrinsic motivation, extrinsic motivation and amotivation. Intrinsic motivation refers to individuals' activated feelings derived from spontaneous satisfaction from tasks undertaken and/or their accomplishment (Gagne & Deci, 2005). As shown in Figure 1, the continuum of self-determination reveals the regulatory styles, ranging from highest to lowest self-determined (from left to right) by Deci and Ryan (1985).

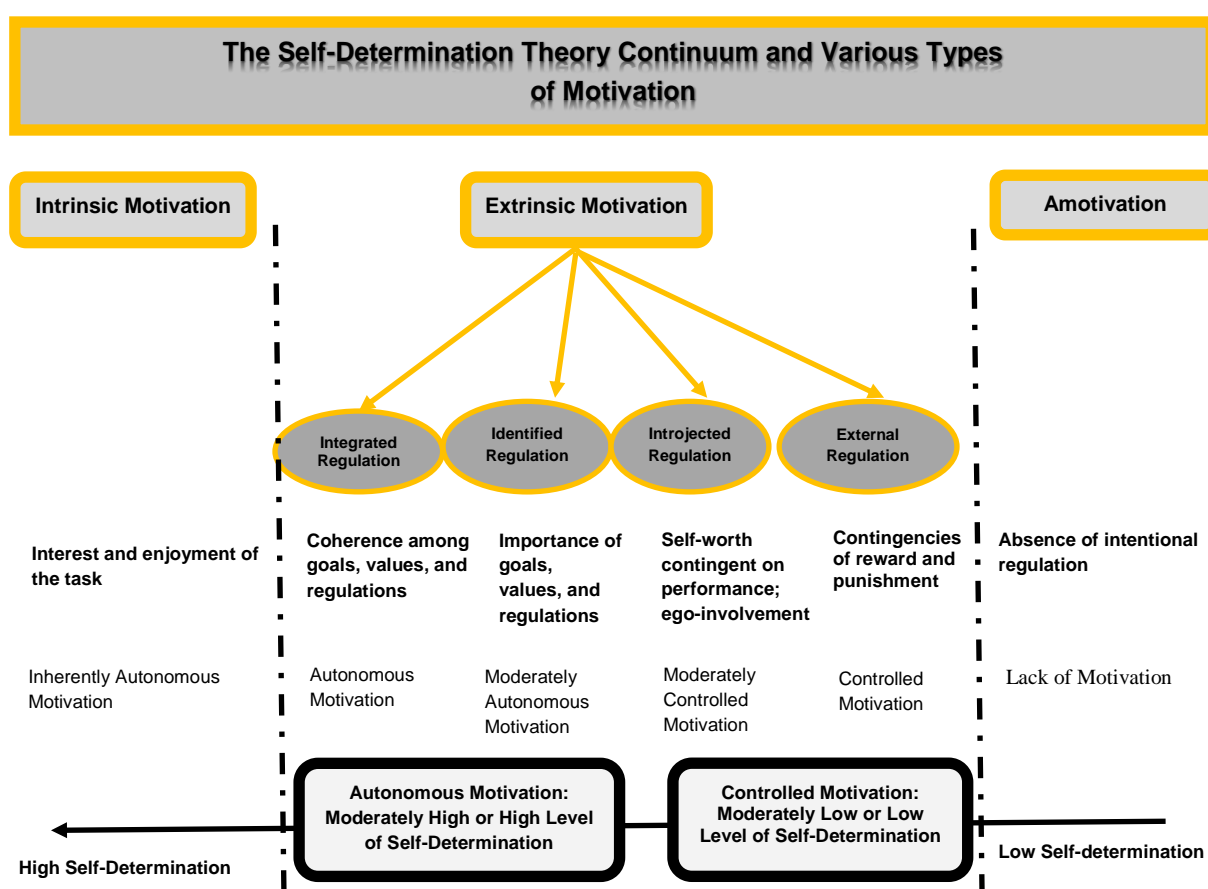


Figure 1 The Self-Determination Theory Continuum and Various Types of Motivation
Source: Gagne and Deci (2005) and Deci and Ryan (1985)

Intrinsic motivation occurs when individuals are accomplishing or undertaking an action or task for its own sense of pleasure, enjoyment, interest and inherent satisfaction (Vallerand & Ratelle, 2002). For example, intrinsic motivation provides learners with the advantages of greater creativity, flexibility, spontaneity, enjoyment, quality of work, increased attention, persistence, and study skills (Amabile, 1985; Deci & Ryan, 1985; Hidi & Harackiewicz, 2000). Extrinsic motivation is a concept identifying an individual experiencing a sense of accomplishing an activity because of a goal distinct from the activity itself (Lonsdale et al., 2011). Bidee et al. (2013)

mentioned that extrinsic motivation has been divided into the following sub-types: integration, identified, introjected and external regulations. Spittle, Jackson, & Casey (2009) classified integrated regulation as a valuable task being integrated in an individual's behavior and having a sense of an end, not as pleasure. Integrated regulation is an individual performing activities for the sake of the accomplishment, which is very close to intrinsic motivation. However, Deci, Pelletier & Ryan (1991) mentioned that integrated regulation and intrinsic motivation are different as the tasks are vital for a valued outcome, not in the interest of the tasks themselves, as with intrinsic motivation. Identified regulation refers to an individual's ability to determine the value of the activity involved and represents a high degree of autonomy and self-endorsement (Ryan et al., 2009). Introjected regulation is classified as an individual feeling a sense of pressure and perceived obligation (Lee & Reeve, 2012).

In an educational environment, Turban et al. (2007) mentioned individual learners are controlled by external rewards, mainly by choice, for instance by introjected regulation, not external regulation. Areepattamannil and Freeman (2008) defined external regulation as an individual's behavior being determined by external rewards, including rewards and constraints regulating their behavior. According to the SDT framework by Deci and Ryan (1985), intrinsic motivation is the highest level of self-determination, while extrinsic motivation is the lowest self-determination.

Intrinsic motivation is the most autonomous form of motivation (Friederichs et al., 2015). In the extrinsic motivation, integrated regulation is the highest degree of self-determination in the extrinsic regulations, while external regulation is the lowest degree of self-determination of extrinsic regulations. In addition, amotivation is a lack of self-determination. Amotivation refers to individuals lacking intrinsic and extrinsic motivations (Deci & Ryan, 1985). Amotivation classifies individuals who have a lack of experience and intention to act upon their tasks. This means that if individuals have a lack of motivation, they have non-self-determination.

Self Determination Theory and Motivation in Blended e-Learning

The BL method is becoming increasingly popular in educational environments (Kim et al., 2013), but Pahnis et al. (2007) argued that to date there are few research studies in the BL method. In the late 1980s, BL started to gain in popularity due to e-Learning; this was a result of the industry's belief that mass produced resource content materials would replace all other traditional forms of training programmes (Ireland et al., 2009). Researchers have used other terminologies for the BL method, such as Hybrid Learning, Integrated e-Learning and "Mixed Mode Learning" (Brunner, 2007). However, the term BL method is the most commonly used by researchers in which the TF2FL classroom environment has blended in various combinations of virtual supported media tools (Fleck, 2012), such as asynchronous and synchronous technology tools.

There are two different types of e-Learning: asynchronous distance learning and synchronous distance learning. Asynchronous distance learning refers to the flexibility in interaction between participants, while synchronous distance learning signifies a real time interaction. Asynchronous distance learning appeared before synchronous distance learning. The BL educational concept provides the opportunity to integrate the advances offered by the virtual learning environment with the best

practices and benefits of TF2FL classroom environment (Tselios, Daskalakis, & Papadopoulou, 2011).

Throughout the literature, there are several reported advantages and disadvantages of BL, which vary from country to country, as well as from one educational field to another. However, based on the research by Osguthorpe and Graham, (2003) BL is recognized as an alternative educational method to access daily knowledge and information content, social interaction, personal agency, cost effectiveness and ease of revision. In addition, Graham, Allen, & Ure (2003) claimed that BL provides opportunities for its participants, such as improved pedagogy, increased flexibility, increased access to information, and increased cost effectiveness, compared to TF2FL environment. These opportunities could increase learners' motivations, as it provides them with several different advantages in adapting the BL method. It would lead to an increase in the level of enjoyment and contentedness throughout the learning environment. However, there are still some challenges of e-Learning that are important to mention including: time and space savings; expanding an institution's geographical reach; giving the possibility of providing multiple learning practices based on self-regulated learning for adults; improving educational quality; providing interactivity in the process of communication; increasing efficiency for institutions and for students, and achieving customer satisfaction and cost effectiveness compared to traditional classroom-based teaching and learning (Adams & Seagren, 2004). Therefore, there is a need to state the opportunities and challenges of BL; however, these vary according to the participants' levels of motivation.

Logistics Education

There is a need for more research in the content of Logistics Education to meet the demands of industry and government. Logistics Education draws from several disciplines and an increasing number of teaching methods demonstrate the complexity associated with it (Johnson & Pyke, 2000). Onar et al. (2013) stated that Logistics programmes are offered at a combination of many engineering and business administration institutes.

In this study, the essential need for teaching the use of technology in Logistic Education is considered. Development of Information and Communication Technology based systems required to support Logistics Education is now occurring (Prajogo & Sohal, 2013). This has resulted in an obvious gap in the literature given the essentiality of Logistics Education and the growth of advanced technology in shaping a competent logistician with high technological skills. There has been a proliferation of growth in Logistics Education software, warehouse management, and transportation management systems, and supply chain planning and execution (Prajogo & Sohal, 2013). However, Clark (1994) stated that the technology factor alone could not change the learning outcomes; there are other factors. In addition, Sokolova (2011) mentioned that the growth of technology and innovation leads to greater mobility and flexibility in an educational environment. Considering Logistics Education, synchronous technology is the most efficient method for managing tacit knowledge of communication and education, which increases the speed of informational flows in the organization.

Research Method

Data Collection

This current research study used a self-administered face-to-face questionnaire survey. A total of 616 respondents were elicited from three branches of the Colleges of International Transport and Logistics, Arab Academy For Science, Technology and Maritime Transport located in Egypt. These branches are in Greater Cairo, Alexandria and Port Said. The data was collected in the Fall Semester of 2012-2013. The questionnaire survey was prepared in English for learners studying on the undergraduate programme which is delivered in English. Logistics students were told that all of their answers would be confidential and data would be aggregated. SPSS²² and AMOS¹⁸ were used to analyse the data. A Confirmatory Factor Analysis technique determined the dimensions of the study and these were verified by SDT. In addition, structural equation modeling was applied to verify the effect of the SDT on Logistics learners' motivation. Finally, the structural equation modeling analysis was utilized to test the moderating effect of the hypotheses. Nine hypotheses were tested in this study.

Participants

A pilot study based on 70 learners indicated that the content of the questions and instructions were clear. The questionnaire was then distributed to the learner groups in the three locations which yielded 616 fully answered questionnaires. The demographic questions asked respondents to report their location, gender, age, and education. Among the respondents who participated in this survey, 81.2% (N=500) of them were from Greater Cairo, 14.9% (N=92) were from Alexandria and 3.9% (N=24) were from Port Said, as shown in Figure 2. 72.2% (N=445) were male and 27.8% (N=171) were female. In the terms of age range, approximately 25.2% (N=155) of the respondents were under 18 years, 67.7% (N=417) were 18-22 years of age, 6.5% (N= 40) were 23-25 years of age, and 0.6% (N=4) were above 26 years of age. The majority 57% (N=351) of the respondents were regular high School Diploma Holders, while 27% (N=169) were American Diplomat Holder and 15% (N=92) IGCSE.

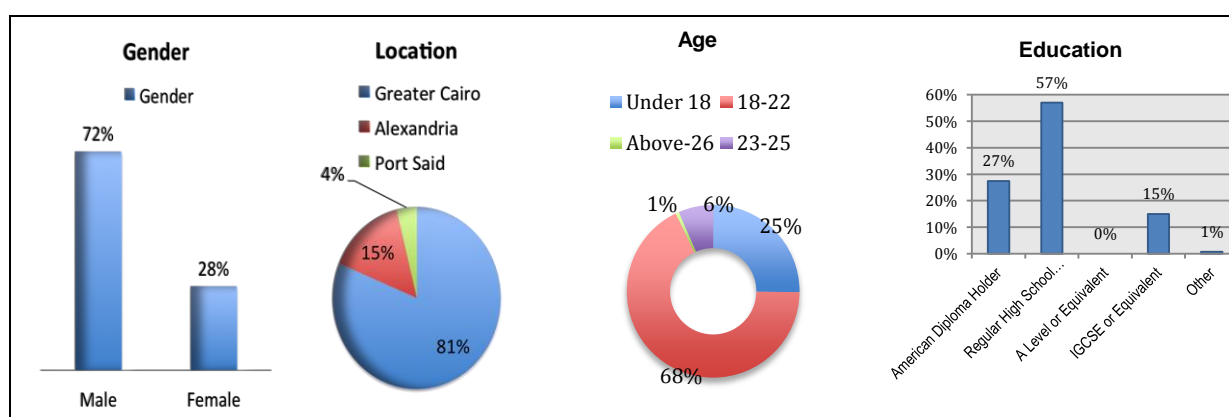


Figure 2 Respondents' Demographic Characteristics

Instruments

The respondents were asked about their opinions of the BL method. “Intrinsic Motivation”, “Extrinsic Motivation”, “Amotivation”, “Autonomy”, “Competence” and “Relatedness” were measured using 106 items. The measure of academic “Intrinsic Motivation” was composed of 66 items and divided into eleven sub-variables (53 items), including “Time Management” (3 items), “Cost Effectiveness” (3 items), “Flexibility in Access” (6 items), “Social Interaction” (16 items), “Feedback and Assessment” (6 items), “Learning Style” (4 items), “Attendance Issues” (4 items), “Ease of Use” (2 items), “General Awareness” (3 items), “Geographical Audience” (3 items), and “Learning Experience” (3 items). Furthermore, “Extrinsic Motivation” (19 items) was divided into “Integrated Regulation” (2 items), “Identified Regulation” (4 items), “Introjected Regulation” (2 items) and “External Regulation” (11 items), “amotivation” was split into six sub-variables (24 items), which are “Technological Infrastructure” (2 items), “Lack of Social Awareness” (5 items), “Lack of Technical and Facilities Support” (2 items), “Isolation and Lack of Social Interaction” (7 items), and “Lack of Technological Skills” (4 items). In addition, the basic psychological human innate needs were divided into three variables, which are “Autonomy” (4 items), “Competence” (3 items) and “Relatedness” (3 items).

Reliability and Validity Tests

This section presents an empirical study for the current research through displaying statistical analyses and the findings of the sample of learners in the College of International Transport and Logistics at Arab Academy for Science, Technology and Maritime Transport. The data findings for all the variables were reliable and valid. All items having an alpha coefficient greater than α 0.7 (Chronbach’s Alpha) are considered as recommended by Hair et al. (1998). As can be shown in Table 1, the internal reliability of the “Intrinsic Motivation” scale was α 0.968, the “Extrinsic Motivation” scale was α 0.949, and the “Amotivation” scale was α 0.919. All items under study Cronbach’s Alpha have a greater than α 0.7. This indicates adequate validity for the variables under study, whose “Intrinsic Motivation” scale was 0.984, “Extrinsic Motivation” scale was 0.976 and “Amotivation” scale was 0.959. Cronbach’s Alphas for all the sub-variables ranged from α 0.967 (Social Interaction/ Intrinsic Motivation) to α 0.885 (Lack of Technical and Facilities Support/ Amotivation). The reliability of “Autonomy” was α 0.918, while “Competence” was α 0.900. The reliability for “Relatedness” was α 0.907, while total validity was 0.989.

Variables	No. of Items	Reliability [Chronbach's Alpha (α)]	Validity
Intrinsic Motivation	53	α 0.968	0.984
Extrinsic Motivation	19	α 0.949	0.976
Amotivation	24	α 0.919	0.959
Autonomy	4	α 0.918	0.958
Competence	3	α 0.900	0.949
Relatedness	3	α 0.907	0.952
Total	106	α 0.978	0.989

Table 1 Reliability and Validity Results by Variables_ Note: Validity is the $\sqrt{\text{Reliability}}$

Hypotheses Testing

The hypothesized relationships between variables were tested using AMOS. Thus, this study proposes the following hypotheses:

H₁: There is an Effect of Intrinsic Motivation on Perceived Autonomy

H₂: There is an Effect of Intrinsic Motivation on Perceived Competence

H₃: There is an Effect of Intrinsic Motivation on Perceived Relatedness

H₄: There is an Effect of Extrinsic Motivation on Perceived Autonomy

H₅: There is an Effect of Extrinsic Motivation on Perceived Competence

H₆: There is an Effect of Extrinsic Motivation on Perceived Relatedness

H₇: There is an Effect of Amotivation on Perceived Autonomy

H₈: There is an Effect of Amotivation on Perceived Competence

H₉: There is an Effect of Amotivation on Perceived Relatedness

Results and Discussion

A five point Likert Scale was used in the questionnaire and the summary of responses according to the aggregated variables under study are detailed in Table 2. There are no responses for either "Extremely Disagree" or "Disagree". Most of the respondents noted "Agree" or "Extremely Agree" with the variables under study.

Items of the Variables	Measure	Extremely Disagree	Disagree	Neutral	Agree	Extremely Agree	Mean	Median	Standard Deviation	Results
Intrinsic Motivation	F	1	41	57	419	98	3.929	4.000	0.7268	Agree
	%	0.2	6.7	9.3	68.0	15.9				
Extrinsic Motivation	F	2	47	49	322	196	4.076	4.000	0.8529	Agree
	%	0.3	7.6	8.0	52.3	31.8				
Amotivation	F	1	55	156	356	48	3.641	4.000	0.7584	Agree
	%	0.2	8.9	25.3	57.8	7.8				
Autonomy	F	5	55	20	253	283	4.224	4.000	0.9345	Extremely Agree
	%	0.8	8.9	3.2	41.1	45.9				
Competence	F	17	45	27	275	252	4.136	4.0000	0.9882	Agree
	%	2.8	7.3	4.4	44.6	40.9				
Relatedness	F	28	41	38	259	250	4.075	4.0000	1.0673	Agree
	%	4.5	6.7	6.2	42.0	40.6				

Table 2 Frequency, Mean, and Mode for Variable and Sub-Variables Under Study

The data findings also were analysed with AMOS¹⁸. In our analysis, we first used Confirmatory Factor Analysis in the AMOS¹⁸ statistical package to test the adequacy of the measurement mode. Each variable was used as an input of AMOS to analyse structural relationships between variables. In recent years, the use of structural equation modeling has increased among educational researchers (Teo & Khine, 2009). Edwards and Bagozzi (2000) pointed out that structural equation modeling is particularly useful when the theoretical model involves relationships among the latent constructs and relationships between the latent constructs and the indicators of these constructs. Based on the acceptance of the structural equation modeling complete model, the present study can depend on it to test the relationships between variables under study using structural equation modeling estimates, which display the model fit indicators of the structural equation modeling. In addition, Hox and Bechger (1998) mentioned that structural equation modeling is a powerful technique that can combine complex path models with latent variables (factors) (p.354). Table 3 shows the structural equation modelling parameters, thereby providing acceptance of the goodness of fit of the different measurements of the model.

Measure	Model Results	Threshold
Chi-square/df (cmin/df)	2.164	< 3 good; < 5 sometimes permissible
P-value for the model	0.000	< 0.05
GFI	0.925	> 0.95
AGFI	0.910	> 0.80
NFI	0.934	> 0.90
TLI	0.958	> 0.95
IFI	0.963	> 0.95
CFI	0.963	> 0.95 great; > 0.90 traditional; > 0.80 sometimes permissible
RMR	0.037	< 0.09
RMSEA	0.044	< 0.05 good; 0.05-0.10 moderate; > 0.10 bad
PCLOSE	0.989	> 0.05

Table 3 Some Fit Measures of the Overall Structural Equation Model

Confirmatory Factor Analysis was used to test the factors that could be included in the dimensions “Intrinsic Motivation”, “Extrinsic Motivation”, “Amotivation”, “Autonomy”, “Competence” and “Relatedness”. Confirmatory Factor Analysis is a type of structural equation modeling that deals specifically with measuring models, that is, the relationship between observed measures or indicators and latent variables. According to Byrne (2010), Hu and Bentler (1999), and Kline (1998), a Goodness-of-Fit Index (GFI) and a Comparative Fit Index (CFI) between 0.9 and 1.0 indicate a good fit. This table displays the model fit indicators of Confirmatory Factor Analysis which have the minimum discrepancy (CMIN/DF)=2.164, *P*-Value < 0.000, Goodness of Fit Index (GFI)= 0.925, Comparative Fit Index (CFI)=0.963, Incremental Fit Index (IFI)=0.963, Tucker-Lewis Index (TLI)= 0.958, Root Mean Square Residual (RMR) =0.037, Normed-Fit-Index (NFI) =0.934, Adjusted Good-Fit-Index (AGFI)= 0.910, Root Mean Square Error of Approximation (RMSEA)= 0.044, and Root Mean Square Error of Approximation (RMSEA)= 0.044. It was found that the values of the below mentioned indicators are acceptable, which means that all the divisions’

estimated dimensions are fitting. Figure 3 represents the standardized path coefficients of the research model.

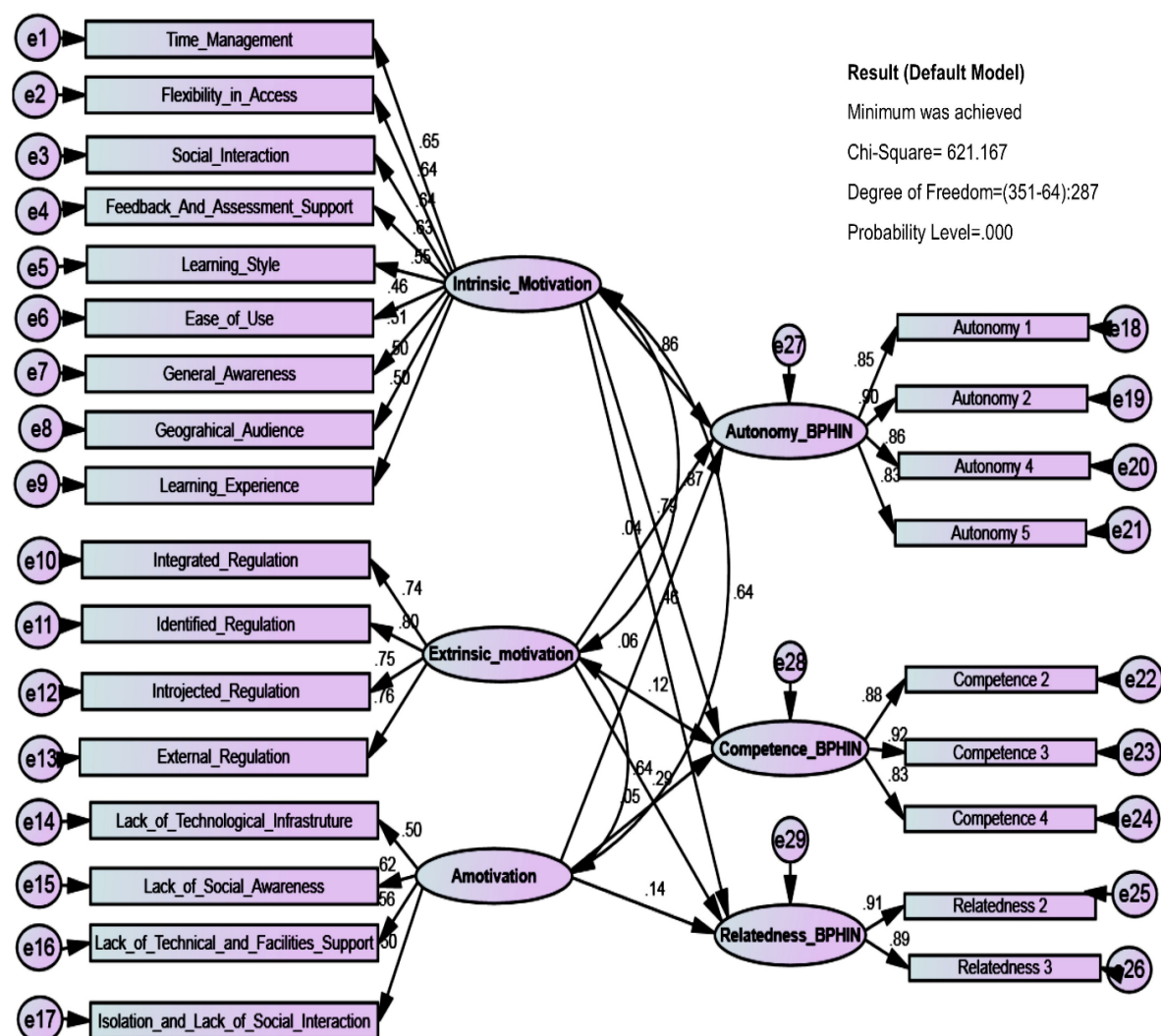


Figure 3 Confirmatory Factor Analysis for Variables with Relations
Note: Standardized Structural Coefficient for the 6-Factors Structure

As seen in Table 4, the research identifies the relationships between variables. Consistent with H₁-H₃, there are direct effects of “Intrinsic Motivation” on perceived “Autonomy”, “Competence” and “Relatedness” ($\beta = 0.862, p < 0.001$; $\beta = 0.786, p < 0.001$; $\beta = 0.456, p < 0.001$, respectively). The findings seem to support the assertion of Ryan and Deci’s (2000) SDT posits that intrinsic motivation is sustained by the satisfaction of the three Basic Psychological Human Innate Needs for perceived “Autonomy”, “Competence” and “Relatedness”. Furthermore, there is an effect of “Intrinsic Motivation” on “Time Management”, “Flexibility in Access”, “Social Interaction”, “Feedback and Assessment”, “Learning Style”, “Ease of Use”, “General Awareness”, “Geographical Audience” and “Learning Experience” ($\gamma = 0.651, p < 0.001$; $\gamma = 0.640, p < 0.001$; $\gamma = 0.644, p < 0.001$; $\gamma = 0.632, p < 0.001$; $\gamma = 0.549, p < 0.001$; $\gamma = 0.458, p < 0.001$; $\gamma = 0.511, p < 0.001$; $\gamma = 0.501, p < 0.001$; $\gamma = 0.496, p < 0.001$, respectively).

Hypothesis	Path			Est.	S.E.	C.R.	ρ	Results
H ₁ : There is an Effect of Intrinsic Motivation on Perceived Autonomy	Autonomy	←	Intrinsic Motivation	1.015	.106	9.554	***	Accepted
H ₂ : There is an Effect of Intrinsic Motivation on Perceived Competence	Competence	←	Intrinsic Motivation	.888	.096	9.242	***	Accepted
H ₃ : There is an Effect of Intrinsic Motivation on Perceived Relatedness	Relatedness	←	Intrinsic Motivation	.640	.125	5.129	***	Accepted
H ₄ : There is an Effect of Extrinsic Motivation on Perceived Autonomy	Autonomy	←	Extrinsic Motivation	.039	.087	.452	.652	Rejected
H ₅ : There is an Effect of Extrinsic Motivation on Perceived Competence	Competence	←	Extrinsic Motivation	.124	.081	1.534	.125	Rejected
H ₆ : There is an Effect of Extrinsic Motivation on Perceived Relatedness	Relatedness	←	Extrinsic Motivation	.376	.117	3.220	.001	Accepted
H ₇ : There is an Effect of Amotivation on Perceived Autonomy	Autonomy	←	Amotivation	.078	.061	1.284	.199	Rejected
H ₈ : There is an Effect of Amotivation on Perceived Competence	Competence	←	Amotivation	.060	.058	1.039	.299	Rejected
H ₉ : There is an Effect of Amotivation on Perceived Relatedness	Relatedness	←	Amotivation	.206	.087	2.384	.017	Accepted

Table 4 Unstandardized Estimates of Confirmatory Factor Analysis for the Variables Under Study

Note: Estimate=Est.; Standard Error=S.E; Critical Ratio =C.R; ρ -value= ρ

Inconsistent with H₄-H₅, there are no direct effects of “Extrinsic Motivation” on perceived “Autonomy” and “Competence”, which were not significant as ($\beta = 0.036$, $\rho < 0.652$; $\beta = 0.117$, $\rho < 0.125$, respectively). Therefore, these two null hypotheses were rejected in this study. This result contradicts the study of Reeve et al. (2002), where “Autonomy” was positively associated with task interest, conceptual understanding, grades, and psychological well-being. In addition, De Charms (1968) claimed that “Extrinsic Motivation” has typically been characterized as a pale and impoverished form of motivation in contrast with Intrinsic Motivation. However, concerning H₆, the path from “Extrinsic Motivation” to perceived “Relatedness” was significant ($\beta = 0.286$, $\rho < 0.001$). Kaufman & Dodge (2009) showed that “Relatedness” and value might foster internalization or integration of extrinsic motivators. Moreover, the standardized path of “Extrinsic Motivation” to “Integrated Regulation”, “Identified Regulation”, “Introjected Regulation” and “External Regulation” were significant as ($\gamma = 0.738$, $\rho < 0.001$; $\gamma = 0.804$, $\rho < 0.001$; $\gamma = 0.748$, $\rho < 0.001$; $\gamma = 0.748$, $\rho < 0.001$, respectively). According to H₇- H₈, there are no direct effects of AM on Perceived “Autonomy” and “Competence” ($\beta = 0.062$, $\rho < 0.199$; $\beta = 0.050$, $\rho < 0.299$, respectively).

However, there is a direct effect of “AM” on “Relatedness” ($\beta = 0.139$, $p < 0.017$), consequently, H_9 has been accepted. Additionally, the standardized path of “Amotivation” to “Technological Infrastructure”, “Lack of Social Awareness”, “Lack of Technical and Facilities Support” and “Isolation and Lack of Social Interaction” showed significance ($\gamma = 0.500$, $p < 0.001$; $\gamma = 0.620$, $p < 0.001$; $\gamma = 0.555$, $p < 0.001$; $\gamma = 0.501$, $p < 0.001$, respectively). According to the hypotheses testing results of the structural equation modeling data analysis, all variables were generally acceptable, and, the study model is considered a satisfactory. However, H_4 , H_5 , H_7 and H_8 are rejected in this study. This reflects that it is important to pay attention to the learners’ types of motivation in relation to their needs, and that these factors could affect their performance.

Conclusion

Motivation has been recognized as a critical issue affecting learning. In the history of distance education, BL is considered as the third generation of distance education (Sue & Brush, 2008). In virtual learning literature, BL has been shown to be one of the best learning methods, as it improves learners’ motivation internally and externally. An increasing body of data from higher education studies tested this use of virtual learning and BL (Bloomfield, While & Roberts, 2008; Lindeman et al., 2015). Several studies have shown different opportunities and challenges of BL (El-Seoud et al., 2014; Kamel & Hussein, 2002; Mohammad, 2008). In the current study, SDT shows that a learner’s motivation is determined by the satisfaction of three universal basic psychological needs: Autonomy, Competence and Relatedness, as well as Intrinsic Motivation, Extrinsic Motivation and Amotivation. In a matter of a few short years, Egyptian higher educational institutions could be transformed in a manner consistent with the opportunities and challenges of a virtual learning environment, improving the quality of the classroom experience.

In closing, as this study explores the opportunities and challenges of BL, it is essential that the researcher evaluates BL effectiveness. This study examined the influence of learner motivation on the opportunities and challenges of the BL method. It showed that Extrinsic Motivation and Amotivation have no effect on “Competence” or “Autonomy”, while Intrinsic Motivation has an effect on three Basic Psychological Human Innate Needs. SDT identifies that there are three universal Basic Psychological Human Innate Needs which lead to Intrinsic Motivation. There is a need for a comparison between developed and developing countries. In addition, future research could highlight more opportunities and barriers of BL. Currently in Egypt, there is a lack of instructors using BL, and there is little research on these instructors’ perspectives, compared with the numerous studies concerning learners.

References

- Adams, J., & Seagren, A. (2004). Distance education strategy: Mental models and strategic choices. *Online Journal of Distance Learning Administration*, 7(2), 1-13.
- Amabile, T. (1985). Motivation and creativity: effect of motivational orientation, on creative writers. *Journal of Personality and Social Psychology*, 48(2), 393-399.
- Areepattamannil, S., & Freeman, J. (2008). Academic achievement, academic self-concept, and academic motivation of immigrant adolescents in the greater Toronto area secondary schools. *Journal of Advanced Academics*, 19(4), 700-743.
- Bidee, J., Vantilborgh, T., Pepermans, R., Huybrechts, G., Willems, J., Jegers, M., & Hofmans, J. (2013). Autonomous motivation stimulates volunteers' work effort: A self-determination theory approach to volunteerism. *Voluntas: International Journal of Voluntary and Non-profit Organizations*, 24, 32–47.
- Boekaerts, M. (1997). Self-regulated learning: A new concept embraced by researchers, policy makers, educators, teachers, and students. *Learning and Instruction*, 28(2), 161–186.
- Bloomfield, J., While, A., & Roberts, J. (2008). Using computer-assisted learning for clinical skills education in nursing: an integrative review of the literature. *Journal of Advanced Nursing*, 63(3), 222–235.
- Brunner, D. (2007). Using "Hybrid" Effectively in Christian Higher Education. *Christian Scholar's Review*, 36(2), 115-126.
- Byrne, B. (2010). *Structural Equation Modeling with AMOS*, (2nd ed.). New York: Rutledge.
- Chen, K., & Jang, S. (2010). Motivation in online learning: Testing a model of self-determination theory. *Computers in Human Behavior*, 26 (4), 741-752.
- Clark, R. (1994). Media will never influence learning. *Educational Technology, Research and Development*, 42(2), 1-21.
- Darner, R. (2014). Influences on Students' Environmental Self Determination and Implications for Science Curricula. *International Journal of Environmental & Science Education*, 9(3), 21-39.
- DeCharms, R. (1968). *Personal Causation: The internal effective determinants of behavior*. New York. Academy press.
- Deci, E., & Ryan, R. (1985). *Intrinsic Motivation and Self Determination In Human Behavior*. (pp.1-371). New York: Plenum.
- Deci, E., Pelletier, L., & Ryan, M. (1991) Motivation and education: The self-determination perspective, *Educational Psychologist*, 26(3&4), 325-346.
- Deci, E., & Ryan, R. (2008). Self-determination theory: A macrotheory of human motivation, development, and health, *Canadian Psychology Copyright 2008 by the Canadian Psychological Association*, 49(3), 182–185.
- Dutton, W., & Loader, B. (2002). *Digital Academe: New Media and Institutions in Higher Education and Learning*, Taylor and Francis, Routledge, UK.
- Edwards, J., & Bagozzi, R. (2000). On the nature and direction of relationships between constructs and measures. *Psychological Methods*, 5(2), 155-174.
- El-Seoud, S., Taj-Eddin, I., Seddiek, N., El-Khouly, M., & Nosseir, A. (2014). E-learning and students' motivation: A research study on the effect of e-learning on higher education. *International Journal of Emerging Technologies in Learning*, 9(4), 689-695.

- Fleck, J. (2012). Blended learning and learning communities: opportunities and challenges. *Journal of Management Development*, 31(4), 398-411. doi: 10.1108/02621711211219059.
- Friederichs, S., Bolman, C., Oenema, A., & Lechner, L. (2015). Profiling physical activity motivation based on self-determination theory: a cluster analysis approach. *BMC Psychology*, 3(1), 1-12.
- Gagne, M., & Deci, E. (2005). Self-determination theory and work motivation. *Journal of organizational Behavior*, 26(4), 331-362. doi: 10.1002/job.322
- Graham, C., Allen, S., & Ure, D. (2003) *Blended Learning Environments: A Review Of The Research Literature*. Brigham Young University.
- Grolnick, W. (2015). Mothers' motivation for involvement in their children's schooling: mechanisms and outcomes. *Motivation and Emotion*, 39, 63-73.
- Hair, J., Anderson, R., Tatham, R., & Black, W. (1998). *Multivariate Data Analysis*. Australia: Prentice Hall NSW.
- Hasenfeld, Y. (1987). Power in Social Work Practice. *Social Service Review*, 61(3), 469–483.
- Hidi, S., & Harackiewicz, J. (2000). Motivating the academically unmotivated: A critical issue for the 21st century. *Review of Educational Research*, 70(2), 151-179.
- Hox, J., & Bechger, T (1998). An introduction to structural equation modeling. *Family Science Review*, 11, 354–373.
- Hu, L., & Bentler, P. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6(1), 1-55.
- Ireland, J., Martindale, S., Johnson, N., Adams, D., Eboh, W., & Mowatt, E. (2009). Blended learning in education: effects on knowledge and attitude. *British Journal of Nursing*, 18(2), 124-130.
- Johnson, M., & Pyke, D. (2000). A framework for teaching supply chain management. *Production and Operations Management*, 9(1), 2-18.
- Kamel, S., & Hussein, M. (2002). The emergence of E-commerce in a developing nation case study. *Benchmarking: An International Journal*, 10(2), 146-153.
- Kapp, K. (2013). *The Gamification of Learning and Instruction Game-Based Methods and Strategies From Training and Education*. Pfeiffer, Essential Resources for Training and HR Professionals, John Wiley and Sons, Inc. San Francisco, CA.
- Kaufman, A., & Dodge, T. (2009). Student perceptions and motivation in the classroom: Exploring relatedness and value. *Social Psychology of Education*, 12(1), 101-112.
- Kilkelly, E. (2009). Blended Learning: pathways to effective project management, *Development and learning in organizations: An international Journal*, 23(1), 19-21.
- Kim, K., Sharma, P., Land, S., & Furlong, K. (2013). Effects of active learning on enhancing student critical thinking in an undergraduate general science course. *Innovative Higher Education*, 38(3), 223-235.
- Kirk, D. (2010) *Physical Education Futures*. London: Rutledge.
- Kline, R. (1998). *Principles and Practice of Structural Equation Modeling*. New York: Guilford Press.

- Lee, W., & Reeve, J., (2012). Teachers' estimates of their students' motivation and engagement: being in synch with students, *Educational Psychology, An International Journal of Experimental Educational Psychology*, 32(6), 727-747.
- Lindeman, B., Law, J., Lipsett, P., Arbella, T., Stem, M., & Lidor, A. (2015). A blended online curriculum in the basic surgery clerkship: a pilot study, *The American Journal of Surgery*, 209(1), 145-151.
- Lonsdale, C., Sabiston, C., Taylor, I., & Ntoumanis, N. (2011). Measuring student motivation for physical education: Examining the psychometric properties of the perceived locus of causality questionnaire and the situational motivation scale. *Psychology of Sport and Exercise*, 12(3), 284-292.
- Mahnken, A., Baumann, M., Meister, M., Schmitt, V., & Fischer, M. (2011) Blended in radiology: Is self determined learning really more effective?. *European Journal of Radiology*, 78 (3), 384-387.
- Mohammad, E. (2008). Framework for e-learning strategy in the Egyptian universities. *IADIS International Conference e-Learning*, 21-26.
- Ntoumanis, N., & Standage, M. (2009). Motivation in physical education classes: A self-determination theory perspective. *Journal of Sport and Exercise Psychology*, 31(2), 189-210.
- Onar, S., Aktas, E., Topcu, Y., & Doran, D. (2013). An analysis of supply chain related graduate programmes in Europe. *Supply Chain Management: An International Journal*, 18(4), 398-412.
- Osguthorpe, R., & Graham, C. (2003). Blended learning environments definitions and directions, *the Quarterly Review of Distance Education*, 43(3), 227–233.
- Pahinis K., Stokes, C., Walsh, T., & Cannavina, G. (2007). Evaluating a blended e-learning course taught to different groups of learners in a dental schools. *Journal of Dental School Education*, 71(1), 287-301.
- Pintrich, P., & Schunk, D.(2002). *Motivation in Education: Theory, Research, and Applications*, (2nd ed) upper saddle River, New Jersey: Merrill Prentice Hall.
- Prajogo, D., & Sohar, A. (2013). Supply chain professionals a study of competencies, use of technologies, and future challenges. *International Journal of operations and Production Management*, 33(11/12), 1532-1554.
- Reeve, J., Jang, H., Hardre, P., & Omura, M. (2002). Providing a rationale in an autonomy-supportive way as a strategy to motivate others during an uninteresting activity. *Motivation and Emotion*, 26(3), 183–207.
- Ryan, R., & Deci, E. (2000). Intrinsic and extrinsic motivations: classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54-67.
- Ryan, R., Williams, G., Patrick, H., & Deci, E. (2009). Self-determination theory and physical activity: the dynamics of motivation in development and wellness. *Hellenic Journal of Psychology*, 6, 107-124.
- Sue, H., & Brush, T. (2008). Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors. *Computers & Education*, 51(1), 318 336.
- Sokolova, A. (2011). Using principles of logistics in corporation education. *Global Business and Management Research: An International Journal*, 3(3&4), 342-344.
- Solomon, B. (1976). *Black Empowerment: Social Work in Oppressed Communities*. New York: Columbia University Press, p.1-438.

- Spittle, M., Jackson, K., & Casey, M. (2009). Applying self-determination theory to understand the motivation for becoming a physical education teacher. *Teaching and Teacher Education*, 25(1), 190-197. doi: 10.1016/j.tate.2008.07.005.
- Teo, T., & Khine, M. (2009) *Structural Equation Modeling in Educational Research: Concepts and Applications*. Sense Publishers: Rotterdam, Boston, Taipei.
- Tselios, N., Daskalakis, S., & Papadopoulou, M. (2011). Assessing the acceptance of a blended learning university course. *Educational Technology and Society*, 14(2), 224-235.
- Turban, D., Brown, K., Tan, H., & Sheldon, K. (2007). Antecedents and outcomes of perceived locus of causality: An application of self-determination theory, *Journal of Applied Social Psychology*, 37 (10) 2376–2404.
- Vallerand, R., & Ratelle, C. (2002). *Intrinsic and Extrinsic Motivation: A Hierarchical Model*. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 37-63). Rochester, New York: The University of Rochester Press.