

# The Impact of Distance Learning During the Pandemic: Exploring the Relationship Between Motivation, Commitment, and Performance Among Students at FSJES Marrakech

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| <b>Disclosure Statement :</b>   | Authors are not aware of any findings that might be perceived as affecting the objectivity of this study and they are responsible for any plagiarism in this paper.                                                                                                                                                                                                                                                  |
| <b>Conflict of Interest :</b>   | The authors report no conflicts of interest.                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Cite this article :</b>      | BEDDAOU, I., & EL FETHOUNI, Y. (2024). The Impact of Distance Learning During the Pandemic: Exploring the Relationship Between Motivation, Commitment, and Performance Among Students at FSJES Marrakech. <i>International Journal of Accounting, Finance, Auditing, Management and Economics</i> , 5(10), 521-537.<br><a href="https://doi.org/10.5281/zenodo.13999251">https://doi.org/10.5281/zenodo.13999251</a> |
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*Received: July 01, 2024*

*Accepted: October 10, 2024*

**International Journal of Accounting, Finance, Auditing, Management and Economics - IJAFAME**

**ISSN: 2658-8455**

**Volume 5, Issue 10 (2024)**

## **The Impact of Distance Learning During the Pandemic: Exploring the Relationship Between Motivation, Commitment, and Performance Among Students at FSJES Marrakech**

### **Abstract:**

The Covid-19 pandemic is the global crisis of our time and the greatest challenge we have faced since the Second World War. All areas of human life have been affected. Education is among the activities that have been most affected. To ensure pedagogical continuity, Moroccan universities have made efforts to set up a distance education system on a large scale. Students, research teachers and university officials participated in this challenge.

Theoretically, our research is based on the theory of self-determination (Deci and Ryan 1985) and the model of human engagement (Brault labbé and Dubé, 2008). Empirically, we chose the method of structural equations that allow us to analyze the different causal relationships of the conceptual model. The Partial Least Square (PLS) approach is implemented instead of the Covariance Based Structural Equation Modeling (CBSEM) approach. The results show that the level of motivation does not have a significant impact on the engagement, but engagement positively influences the performance of the students of the university of CADY AYAD MARRAKECH.

**Keywords:** Motivation, Commitment, Performance.

**Classification JEL:** J28, I25, P17

**Paper type:** Empirical Research

### **Résumé :**

La pandémie de Covid-19 est la crise mondiale de notre époque et le plus grand défi auquel nous sommes confrontés depuis la Seconde Guerre mondiale. Tous les domaines de la vie humaine ont été touchés. L'éducation fait partie des activités qui ont été les plus touchées. Pour assurer la continuité pédagogique, les universités marocaines ont fait des efforts pour mettre en place un système d'enseignement à distance à grande échelle. Les étudiants, les enseignants chercheurs et les responsables universitaires ont participé à ce défi.

Théoriquement, notre recherche s'appuie sur la théorie de l'autodétermination (Deci et Ryan 1985) et le modèle de l'engagement humain (Brault labbé et Dubé, 2008). Empiriquement, nous avons choisi la méthode des équations structurelles qui nous permettent d'analyser les différentes relations causales du modèle conceptuel. L'approche Partial Least Square (PLS) est mise en œuvre à la place de l'approche Covariance Based Structural Equation Modeling (CBSEM). Les résultats montrent que le niveau de motivation n'a pas d'impact significatif sur l'engagement, mais l'engagement influence positivement la performance des étudiants de l'université de CADY AYAD MARRAKECH.

**Mots clés :** Motivation, Engagement, Performance.

**JEL Classification :** J28, I25, P17

**Type du papier :** Recherche Empirique

## 1. Introduction :

Education promotes socio-economic mobility and is a means of escaping poverty. Over the past decade, major progress has been made in improving access to education and increasing enrolment rates at all levels. In 2020, as the COVID-19 pandemic spread around the world, a majority of countries imposed temporary school closures; over 91% of students worldwide were affected. By April 2020, school closures had affected almost 1.6 billion children and young people. Never in history have so many children been taken out of school at the same time, disrupting their learning and disrupting their lives, particularly for the most vulnerable and marginalized children. The global pandemic has serious consequences that could jeopardize hard-won progress in improving the quality of education worldwide. In Morocco, among the measures decided by the government to stave off the inexorable advance of the new coronavirus (COVID-19), described as a pandemic by the WHO, is the suspension until further notice of classes in all schools and universities from Monday March 16, 2020. In this context, and in order to ensure pedagogical continuity and diversify possible alternatives, the Ministry of National Education, Vocational Training, Higher Education and Scientific Research has launched the distance learning system, enabling teachers to communicate directly with their students and organize distance learning courses. For the start of the 2020-2021 school and university year, the spectre of a second wave of Covid-19 is looming in Morocco, so the Minister had announced that the start of the university year would be held in mid-October, and that students would be able to choose between distance learning in small groups and face-to-face teaching. The new pedagogical model could then be adapted at the level of each institution according to the evolution of the epidemiological situation. Research in the educational sciences has proposed a body of work focusing on the theme of distance teaching and education. However, research seems limited on the impact of EAD on the attitude and behavior of higher education students towards the use of distance learning platforms since the containment period. As part of this research, we conducted a quantitative survey of 601 students from an open-access institution at Cadi Ayad University, the Faculty of Legal, Economic and Social Sciences in Marrakech, with the aim of detecting a relationship between student motivation, engagement and performance in relation to the use of distance learning platforms since the period of confinement, and assessing the impact and effects of e-learning on their knowledge and skills. To this end, we posed the following central question: “Is there a relationship between students' motivation, engagement and performance when faced with the use of distance learning platforms during the health emergency?”

In order to answer these questions, it would be interesting to carry out an analytical study using structural equation modeling (SEM) to confirm or reject our research hypotheses, which are as follows:

H1: Motivation has a positive impact on engagement;

H2: Engagement positively influences performance;

H3: Motivation exerts a direct influence on performance.

In fact, our attention will first be focused on the theoretical part, which encompasses two main parts. The first part concerns conceptualization, the second part contextualization. Next, we'll conduct a quantitative survey of students taking courses at the faculty in question.

## 2. Literature Review :

Our research is based on two theories: the first is self-determination theory, originally presented by Edward DECI and enriched by Richard M RYAN, and the second is human commitment theory, presented by BRAULT and Labbe and enriched by Dubé. Self-determination theory

seeks to identify and explain the types of motivation that motivate an individual to engage in a given activity.

### **2.1. Self-determination theory (Edward.Déci and Richard M. Ryan).**

This theory, first presented by Richard Deci in 1975, was enriched by Deci and Ryan (1985, 2002), who focused on personality development and self-motivated behavior change. Self-determination theory seeks to identify and explain the types of motivation that motivate an individual to engage in a given activity. According to Deci and Ryan, a motivation is said to be self-determined if it reflects the actor's ability to feel that he or she is responsible for his or her choices, rather than having them determined by internal or external constraints.

#### **2.1.1 Intrinsic motivation:**

Over the past twenty years, intrinsic motivation has aroused considerable interest in psychology and occupies an increasingly important place in the field of human motivation (Deci, 1972; Deci, Eghrari, Patrick, & Leone, 1994; Deci, Nezlek, & Sheinman, 1981; Vallerand, Gauvin, & Halliwell, 1986a, 1986b; Lambert et al., 1994). Generally speaking, intrinsic motivation (IM) is defined as “the tendency to engage in an activity for the pleasure and satisfaction that are inherent in doing it, and not for the external rewards and constraints that may be associated with it” (Deci, 1975). A person is intrinsically motivated when he or she engages in an activity voluntarily and out of interest. Subscribing to an organismic perspective on human motivation, White (1959), deCharms (1968), Maslow (1943) and Deci and Ryan (1980, 1985, 1987, 1991, 2002) postulate that intrinsic motivation stems from the human being's need to feel self-determined and competent in his interactions with the environment, as well as in relation to his social environment. According to DeCharms (1968), the need for self-determination refers to the possibility of choosing whether or not to perform a behavior, while the need for competence refers to the individual's propensity to feel effective in his or her interactions with the environment (White, 1959). While many theorists postulate the presence of a global IM construct, some authors (Deci, 1975; White, 1959) have already proposed that IM can be differentiated into more specific motives. However, these theorists did not specify the different types of IM that might derive from the more global intrinsic pattern. More recently, Vallerand and Biais (1987) postulated a tripartite taxonomy of this construct. The theory proposed by Deci and Ryan (1985, 1987, 1991, 2002) is based on the premise that human beings have a fundamental need for experiences of self-determination, competence and interpersonal attachment. The more frequent or generalized these experiences are in important areas of life, the more they should influence individuals' quality of life and health. In so doing, individuals tend, when circumstances allow, to spontaneously manifest intrinsically motivated behaviors.

- Intrinsic motivation for achievement (MIAC) refers to doing an activity for the satisfaction and pleasure of accomplishing this activity or to take up an optimal challenge. A client who experiences satisfaction and pleasure in trying to achieve personal goals in the process demonstrates intrinsic achievement motivation.
- Intrinsic motivation for knowledge (MICO) is that of the individual who carries out an activity for the satisfaction and pleasure of learning, discovering and exploring new avenues.
- Intrinsic motivation to stimulate (MIST) refers to doing an activity in order to feel special sensations of excitement, fun, sensory pleasure and aesthetics.

This type of MI closely corresponds to the work of Csikszentmihalyi (1975, 1978) who demonstrated that people who participate in interesting activities often experience what he calls a state of "flow." This state is characterized by a dynamic and holistic feeling of total involvement in the activity where the individual has the impression of “being one” with the activity. The theory proposed by Deci and Ryan (1985, 1987, 1991, 2002) is based on the

premise that human beings have a fundamental need to experience self-determination, competence and interpersonal attachment. The more frequent or generalized these experiences are in important life domains, the more they should influence the quality of life and health of individuals. In doing so, individuals tend, when circumstances permit, to spontaneously demonstrate intrinsically motivated behaviors.

### **2.1.2 Extrinsic motivation:**

Extrinsic motivation underlies behaviors that are performed for instrumental reasons. The activity is performed in order to produce pleasurable consequences, or to avoid something unpleasant once the activity has been completed (Deci, 1975; Kruglanski, 1978). EM originally referred only to behaviors performed in the absence of self-determination and therefore in the presence of external sources of control. More recently, Deci, Ryan and their colleagues (Deci & Ryan, 1985; Ryan et al., 1989; Ryan, Connell, & Grolnick, 1990) have proposed the existence of different types of EM that can be situated on a continuum of self-determination. These types of EM, from the lowest to the highest level of self-determination, are: external regulation, introjected regulation and identified regulation. However, it happens that an individual is confronted with different situations where external incentives, such as rewards or interpersonal pressures, guide and motivate behavior. In such situations, behavior is no longer intrinsically motivated. This type of behavior refers more to extrinsic motivation. Extrinsic motivation underlies behaviors that are performed for instrumental reasons. The activity is performed with the aim of generating pleasant consequences or avoiding something unpleasant once the activity is completed (Deci, 1975; Kruglanski, 1978). EM originally referred only to behaviors performed in the absence of self-determination and therefore in the presence of external sources of control. More recently, Deci, Ryan and their colleagues (Deci & Ryan, 1985; Ryan et al., 1989; Ryan, Connell, & Grolnick, 1990) have proposed the existence of different types of ME that can be located on a continuum of self-determination. These types of ME, from the lowest to the highest level of self-determination, are: external regulation, introjected regulation and identified regulation. External regulation corresponds to the initial definition of ME as found in the first writings. The individual's behavior is regulated by sources of control external to the person, such as material rewards or constraints imposed by another person. Introjected regulation refers to the individual who begins to internalize the sources of control of his behavior. However, although this form of internalization concerns sources of control internal to the person, we cannot qualify this type of motivation as self-determined since the control of behavior is carried out through internalized external constraints. The individual does not yet choose to perform the behavior because the latter is governed more by the internal pressure that the individual imposes on himself. Identified regulation, when a behavior becomes valued and important for the subject who engages in it, it then becomes regularized by identification. At this level, the internalization of external motives is then sufficient to provoke identification with the activity and the individual engages in it. Behavior is consistent with the values and needs of the individual. The activity, even if carried out for instrumental purposes, can be described as self-determined. In addition to intrinsic and extrinsic motivation, Deci and Ryan (1985) proposed a third type of motivational construct that seems important to consider in order to have a full understanding of the nature of human behaviors. This concept is called "amotivation". 55 Deci, E.L., Koestner, R., & Ryan, R.M. (1999). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. In addition to intrinsic and extrinsic motivation, Deci and Ryan (1985) proposed a third type of motivational construct that seems important to consider in order to gain a full understanding of the nature of human behavior. This concept is called "amotivation".

### **2.1.3 Amotivation:**

Amotivation For Deci and Ryan (1985), the individual experiencing amotivation is unable to foresee and explain the consequences of his or her behavior. He perceives no relationship between his actions and the results obtained. They perceive that their behavior is caused by factors beyond their control. Thus, amotivation differs from intrinsic motivation and extrinsic motivation in the absence of motivation. Amotivation is similar to the concept of learned helplessness (Abramson, Seligman, & Teasdale, 1978). An amotivated individual can perform an activity, but constantly questions his or her participation and eventually abandons the activity.

### **2.2. Human Commitment Model (Brault Labbé and Dubé, 2008):**

Several authors agree that the conceptualization and empirical study of academic engagement remain a major challenge for social science researchers, due to the continuing lack of definitional consensus for this construct. This situation is all the more problematic given that the notion of commitment lies at the heart of academic functioning and is recognized as being associated with performance and persistence in studies (Astin, 1999; Audas & Willms, 2001; Fredricks, Blumenfeld, & Paris, 2004; Johnson & Butts, 1983; Pirot & De Ketele, 2000; Willis, 1993). Human engagement in the academic, professional, relational and personal spheres induces different psychological mechanisms, and is a complex concept that has been the subject of numerous definitions. A number of studies have indeed provided elements of definition, such as “behavioral persistence” and “marked interest in an activity or social object”, enabling us to distinguish several types and areas of commitment: “personal commitment”, “moral commitment”, “structural commitment”, “identity commitment”, “relational commitment”, “professional commitment” and “academic commitment”. According to Brault-Labbé and Dubé (2009), engagement is a multidimensional process that is closely linked to the motivation and personal well-being of subjects, reflecting their personal choices and having an impact on their personal functioning. The notion of academic engagement is multidimensional, and since there is no consensual definition of it, we have chosen to adopt the Brault-Labbé and Dubé (2008) model, which has resulted in a questionnaire whose measurement scales have been validated in several scientific works.

- The motivational force, which corresponds to enthusiasm, is considered to be often responsible for triggering the engagement process and corresponds to the pleasure, personal interest or attraction felt by the individual towards the object of commitment.
- The behavioral strength which is characterized by perseverance, it is this which favors the pursuit of actions despite the obstacles encountered.
- Cognitive strength, which relates to the ability to combine the positive and negative elements that result from commitment, by accepting certain difficulties and renunciations, is what then allows you to benefit from the advantages provided by the object. This component refers more specifically to the ability to understand and accept that commitment always involves certain difficult aspects that it is necessary to face in order to benefit from the advantages it entails.

Empirical Review:

- X : Performance of the e-learning
- Y1 : Motivation (Intrinsic, Extrinsic, Amotivation).
- Y2 : Commitment (Enthusiasm, Preserverance, Reconciliation).

### **2.3. Research hypotheses:**

**H1:** Self-determination theory consists of three subscales measuring intrinsic motivation (to knowledge, to accomplishment, to stimulation), three subscales measuring extrinsic motivation (external, introjected, identified), and amotivation. These measuring instruments are designed

from self-determination theory, proposed by Deci and Ryan. These different types of motivation are located on a continuum according to their degree of self-determination.

**H2:** Studying academic engagement involves taking into account various indicators, each of which cannot be treated individually. From and based on the human engagement model, we have treated and discussed three branches of academic engagement: Enthusiasm, Perseverance and the ability to combine positive and negative elements.

**Table 1: Research hypotheses**

|           |                                                  |
|-----------|--------------------------------------------------|
| <b>H1</b> | Motivation has a positive impact on commitment   |
| <b>H2</b> | Commitment positively influences performance     |
| <b>H3</b> | Motivation has a direct influence on performance |

*Source: developed by author*

### **The research hypotheses:**

Here are some notable authors and researchers who have explored the impact of motivation and commitment on student performance during the COVID-19 pandemic:

#### *Motivation-Commitment*

**Hypothesis 1: Richard M. Ryan and Edward L. Deci**, known for their work on Self-Determination Theory, they discussed how intrinsic and extrinsic motivations affect learning, particularly in disrupted environments like during the pandemic, and **K. M. G. Smith and colleagues**: Their research highlighted how social presence and community in online learning affect student motivation and engagement during COVID-19.

#### *Commitment-Performance*

**Hypothesis 2: Angela Duckworth**: While her primary focus is on grit, her work has implications for understanding student commitment and its impact on performance, especially in challenging circumstances, also **D. R. Schunk and B. J. Zimmerman**: Their contributions to the field of educational psychology often touch on motivation and self-regulation, relevant to understanding student performance during the pandemic.

#### *Motivation-Performance*

**Hypothesis 3: M. M. F. de Lima et al.**: Their studies focused on how motivation influences student engagement and performance in online learning settings during the pandemic, and **M. A. Usher and K. E. Pajares**: They have written about self-efficacy in education, discussing how students' beliefs in their abilities influenced their motivation and performance during remote learning.

These authors have provided valuable insights into how motivation and commitment have influenced student outcomes during a challenging time in education. Their research can serve as a foundation for further exploration in this area.

## **3. Research Methodology:**

Our research is based on a positivist epistemological approach, which attempts to analyze and identify the factors that influence the performance of distance learning. The deduction is based on a hypothetic-deductive approach, based on hypotheses that we will confront with, we will confront with reality through an empirical study within Moroccan universities, in order to verify them through a quantitative study by administering a survey.

### **3.1. Study Area and Data:**

We chose to operationalize our research problem with a sample of 605 students from the Faculty of Economics, Law and Social Sciences in Marrakech.

Given the atypical conditions of a health emergency, which precluded the use of any other method, the students responded to the questionnaire via an online consultation using google

Forms. The questionnaire was shared with groups of the 5 semester students from the Economics and Management department, which is divided into 4 courses: - **Business Management**; - **Finance and Banking**; - **International Management**; - **Economics and Management**.

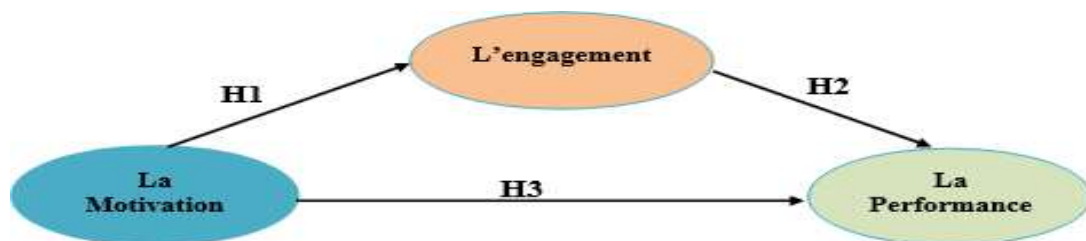
The online questionnaire consists of 55 questions: 6 closed questions, 6 dichotomous questions, 11 multiple-choice questions and 32 questions in the form of a rating scale. The questionnaire is structured along 9 axes:

- **I.** Personal information and training.
- **II.** Platforms available to students.
- **III.** Distance learning resources and tools.
- **IV.** Videoconferences from the confinement period.
- **V.** Distance learning course materials
- **VI.** Motivation.
- **VII.** Commitment.
- **VIII.** Performance.
- **IX.** Difficulties encountered.

The study carried out as part of this research targeted students at an open-access institution at Cady Ayyad University in Marrakech. This choice is explained by the need to verify the effects of distance learning in an institution that essentially delivers face-to-face teaching, with a view to enriching it with distance learning. We also wanted to provide clear and satisfactory answers to a number of questions raised about distance learning at our home university. Thus, we chose students in semester 5 to give an assessment of distance learning during the period of confinement, i.e., during their semester 4.

### 3.2. Research Model:

*Figure 1: Research Conceptual Model*



*Source: Auto-conception*

### 3.3. Data collection and processing

Having defined the objective of the study and the size of the sample, it became clear that the most effective method for gathering the necessary information was a face-to-face, directive questionnaire survey. The questionnaire is structured to ensure coherence between the different questions, and the choice of vocabulary used in formulating the questions has been made with diligence, so as to guarantee ease of comprehension for all categories of stakeholder. Care has been taken to select relevant and appropriate questions, so as to eliminate any risk of the document becoming too long-winded.

The questionnaire proposes questions measured by a set of scales. The purpose of each scale is to measure the variables proposed in our study. The choice of scales was based on a number of considerations, such as the diversity of response options and ease of analysis. Thus, this study adopted:

**Closed scales:** measuring a phenomenon with several modalities. The choice of this type of scale is justified by the desire to increase the reliability of the measurement instrument.

**Likert scales:** we opted for a Likert scale for a number of reasons. Firstly, because it's one of the best-known forms in market research. On the other, our main concern is to obtain as much information as possible without exceeding the respondents' capacity for discernment.

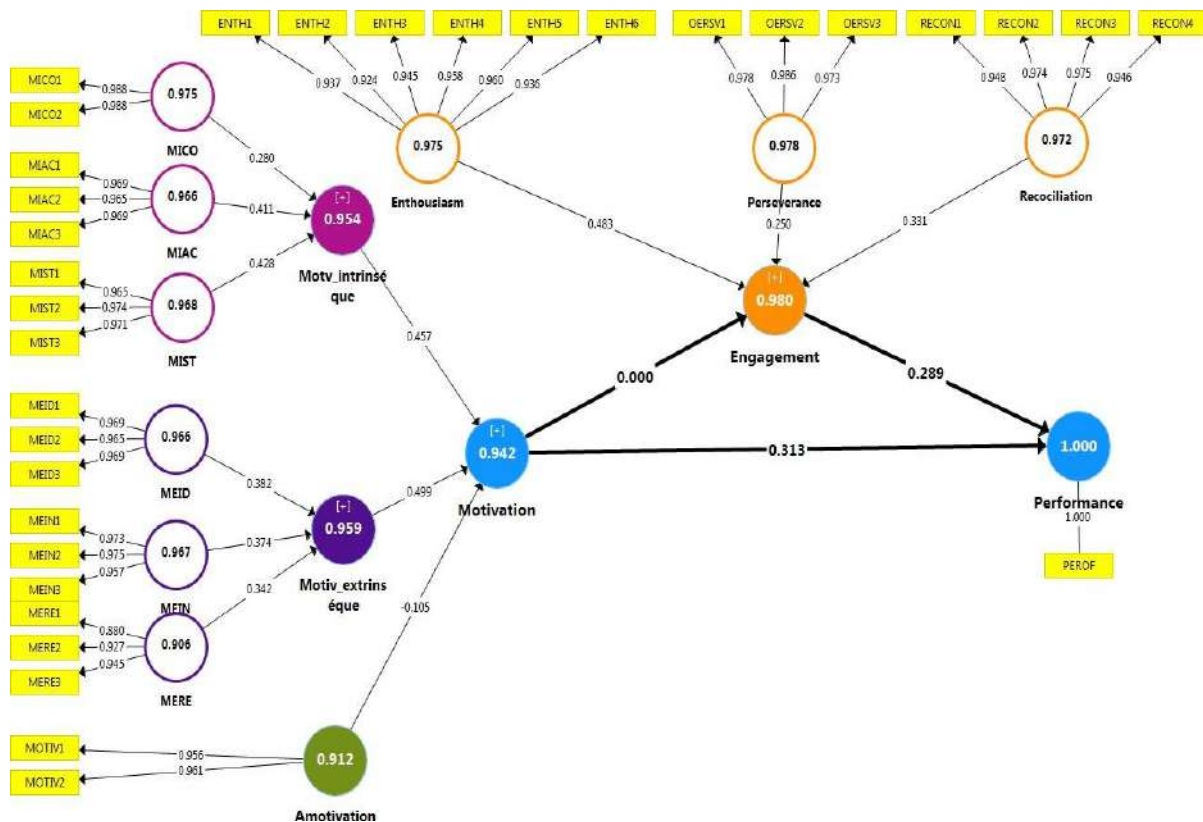
**Interval scales:** interval scales enable a quantitative variable to be grouped into classes for the purposes of statistical data processing and to facilitate interpretation of the results. For data analysis, we used SPSS and Smart PLS statistical analysis software. The variable coding and data entry phase is based on a methodical approach that respects the nature of the variables and the types of analysis we wish to apply to each variable.

## 4. Results:

The results of our study reveal significant insights into the factors that influence the performance of the distance learning during the pandemic of corona-virus.

### 4.1. Conceptual model:

Figure 2 : Conceptual model



Source: developed by author (smart pls)

### 4.2. Theoretical principle of the measurement indicators of the structural model:

#### Chemin coefficients of the structural model (standard Beta ( $\beta$ )):

The "standardized" beta  $\beta$  coefficient is used to estimate the strength of the relationship between the explanatory variable (or predictor) and the variable to be explained, and provides estimates for the structural model relationships (the path coefficients), which represent the research hypotheses.

Standard Beta is a normalized value that varies between -1 and +1. A Standard Beta value close to 1 means that there is a strong positive relationship, and vice versa for negative values which are generally close to -1, the closer the coefficient is to 0, the weaker the relationship becomes.

### Coefficient of determination ( $R^2$ ):

Indicates the percentage of variance of the endogenous variable explained by all the explanatory variables in the model; the higher the coefficient of determination, the greater the "explanatory" power of the explanatory variables (Malhotra et al., 2011, p.466; Jolibert and Jourdan, 2006). According to (Hair et al, 2011; Henseler et al., 2009) an  $R^2$  of 0.75, 0.50, or 0.25 for endogenous latent variables can, as a general rule, be described as significant, moderate or low respectively.

### Predictive relevance ( $Q^2$ ):

This measure is an indicator of the model's predictive accuracy (Geisser, 1974; Stone, 1974). When a PLS model has predictive relevance, it accurately predicts data not used in model estimation. The  $Q^2$  value is obtained using the **blindfolding** technique, which is a reuse technique that systematically removes data points and provides a prognosis of their original values. To this end, the procedure requires an omission distance D. (Chin, 1998; Henseler et al, 2009; Tenenhaus et al, 2005). The decision rule states that if  $Q^2$  gives a value greater than 0, this means that the model has predictive relevance. On the other hand, if the value is less than or equal to 0, this indicates a lack of predictive relevance. (Chin, 1998).

### Quality of fit (GoF) :

The GoF index is a goodness-of-fit index that measures how well a theoretical structural model matches the empirical data. Proposed by Tenenhaus et al. (2005).

The following table shows the measurement indicators for the structural model:

**Table 2: Thresholds used in the Structural Model analysis**

| Areas of analysis                      | Thresholds and choices                                                                                                                                                                                 |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Beta ( $\beta$ ) / Original single     | $P\text{-value} \leq 0.01$ or $P\text{-value} \leq 0.05$ or $P\text{-value} \leq 0.1$<br>According to the error threshold accepted in the study                                                        |
| Coefficient of determination ( $R^2$ ) | $R^2 > 0.1$ acceptable (Falk and Miler, 1992)<br>$R^2 > 0.67$ : Strong<br>$0.33 \leq R^2 \leq 0.67$ : Medium / moderate<br>$0.19 \leq R^2 \leq 0.33$ : Low<br>$R^2 < 0.19$ : Unacceptable (Chin, 1999) |
| Predictive relevance Model ( $Q^2$ )   | $Q^2 > 0$ (Chin, 1999)                                                                                                                                                                                 |
| Goodness of Fit (GoF)                  | $GoF < 0,1$ : Unacceptable/ No fit<br>$0,1 \leq GoF \leq 0,25$ : Small<br>$0.25 \leq GoF \leq 0.36$ : medium<br>$GoF > 0.36$ : Large (Tenenhaus, 2005)                                                 |

Source: (Hair et al., 2017)

### 4.3. Results of empirical analysis of the structural model of our research model

- ✓ Testing research hypotheses (Path coefficient): Analysis of direct relationships between variables.

**Table 3: Hypothesis testing results (direct link)**

| Hypo | Relationship                     | Std. Beta ( $\beta$ ) | Std. Dev | T-Value | P-value | Decision  |
|------|----------------------------------|-----------------------|----------|---------|---------|-----------|
| H1   | Motivation $\square$ Commitment  | 0,001                 | 0,000    | 0,728   | 0,467   | Rejected  |
| H2   | Commitment $\square$ Performance | 0,289                 | 0,059    | 4,913   | 0,000   | Accepted* |
| H3   | Motivation $\square$ Performance | 0,313                 | 0,058    | 5,447   | 0,000   | Accepted* |

\*The value is significant at the 0.01 threshold.

Source: developed by author

### ***Analysis of hypothesis H1: Motivation has a positive impact on commitment***

The results of the first hypothesis H1 show that there is no significant relationship between motivation and commitment, as we have a **P** value well above the accepted threshold of 0.05 with a very low standard **Beta coefficient**.

This result allows us to reject our first hypothesis (H1) and say that the level of motivation has no significant impact on commitment.

### ***Analysis of hypothesis H2: commitment positively influences performance***

The analysis of the effect of commitment on performance gives a significant result with an **error threshold** of 0.000, showing that there is a significant relationship of influence between these two variables. The strength of this relationship is estimated by the standard **beta coefficient**, which gives a value of 0.289, showing that there is a relatively weak impact of commitment on performance, and that any variation in commitment implies a weak positive variation in performance.

### ***Analysis of the effect of mediating the commitment variable on the relationship between motivation and performance***

For any science, an objective show how to explain the process of its operations. Among these processes, we note the influential relationships between the variables that make up the phenomenon under study, while emphasizing that mediating variables play a very important role in providing an analytical dimension based on these indirect influences (Ma and Zeng, 2014).

Mediation variables have been used by many researchers, initially in psychology and later in other sciences. It was psychologists who dealt with indirect influence by demonstrating that the effect passes from the independent variable to the dependent variable via a third variable (goufran and djasem, 2017).

Mediation in its simplest form consists of adding a third variable, if we have two variables, one independent and the other dependent where:  $X \rightarrow Y$  This is a relation, where X affects mediator M, and M affects Y, so we can take the following writing:

$X \rightarrow M \rightarrow Y$ . (Mackinnon and Fairchild ,2007). Mediation analysis uses one of four methods:

- Baron and Kenny's analysis (1986).
- The soble test (1982).
- The bootstrapping method (Preacher and Hayes 2004-2008).
- The Andrew F. Hayes method (2013).

In our empirical analysis, we will only present the **bootstrapping** method (**Preacher and Hayes 2008**) as the most recent and most commonly used for dealing with mediation models.

### ***Bootstrapped Confidence Interval (Lower and Upper Level)***

Through a statistical tool on the Excel program, we put values in the appropriate columns, then the program makes calculations to find out if there is a mediation relationship or not in our model.

### ***Mediation calculation***

**Table 4: Confidence interval**

| Path a | Path b | Indirect effect | SE    | T-value | 95%LL*  | 95%UL** |
|--------|--------|-----------------|-------|---------|---------|---------|
| 0,001  | 0,289  | 0,000           | 0,058 | 0,005   | -0,1137 | -0,114  |

\* : effet indirect – (1.96\*stderror); \*\* : effet indirect + (1.96\*stderror)

**Source: Excel Program**

### ***The confidence interval rule:***

"If there is a zero between and in the intersection of LL with UL: the non-existence of a

mediating relation, and vice versa."

In our case, the program gives us 95% LL (Lower Level) and 95% (Upper Level) results as follows: -0.113 and 0.114.

Thus, this confidence interval analysis suggests that the engagement variable has no mediating effect on the relationship **between motivation and student performance**.

✓ *Search model quality analysis results*

**Table 5: Coefficient of determination ( $R^2$ )**

|                    | $R^2$ | R Adjusted square |
|--------------------|-------|-------------------|
| <b>Motivation</b>  |       |                   |
| <b>Commitment</b>  | 0,647 | 0,647             |
| <b>Performance</b> | 0,315 | 0,318             |

*Source: developed by author*

**Table 6: Predictive relevance ( $Q^2$ )**

|                        | SSO       | SSE       | $Q^2 (= 1-SSE/SSO)$ |
|------------------------|-----------|-----------|---------------------|
| <b>Amotivation</b>     | 1,202.000 | 1,202.000 |                     |
| <b>Commitment</b>      | 7,813.000 | 1,943.557 | 0.751               |
| <b>Enthusiasm</b>      | 3,606.000 | 3,606.000 |                     |
| <b>MEID</b>            | 1,803.000 | 1,803.000 |                     |
| <b>MEIN</b>            | 1,803.000 | 1,803.000 |                     |
| <b>MOTHER</b>          | 1,803.000 | 1,803.000 |                     |
| <b>MIAC</b>            | 1,803.000 | 1,803.000 |                     |
| <b>MICO</b>            | 1,202.000 | 1,202.000 |                     |
| <b>MIST</b>            | 1,803.000 | 1,803.000 |                     |
| <b>Motiv_extrinsic</b> | 1,619.693 | 1,619.693 |                     |
| <b>Motivation</b>      | 4,186.365 | 4,186.365 |                     |
| <b>Motv_intrins</b>    | 1,415.539 | 1,415.539 |                     |
| <b>Performance</b>     | 601.000   | 417.902   | 0.305               |
| <b>Perseverance</b>    | 1,803.000 | 1,803.000 |                     |
| <b>Reconciliation</b>  | 2,404.000 | 2,404.000 |                     |

*Source: developed by author*

Calculation of Godness of Fit (GoF):

**Table 7: GoF**

|                |       | GoF   |
|----------------|-------|-------|
| Average (AVE)  | 0,933 | 0,726 |
| Mean ( $R^2$ ) | 0,570 |       |

*Source: developed by author*

To better visualize the results of the structural model analysis, we have created a new table:

**Table 8: Quality of the research model**

| Variables          | Determination coefficient <sup>a</sup> ( $R^2$ ) | Predictive Relevance <sup>b</sup> ( $Q^2$ ) | Quality of fit <sup>c</sup> (GoF) |
|--------------------|--------------------------------------------------|---------------------------------------------|-----------------------------------|
| <b>Motivation</b>  |                                                  |                                             | 0,726                             |
| <b>Commitment</b>  | 0,647                                            | 0.633                                       |                                   |
| <b>Performance</b> | 0,315                                            | 0.305                                       |                                   |

A: Value must be  $\geq 0.19$ ; B: Value must be  $> 0$ ; C: Value must be  $\geq 0.1$

*Source: developed by author*

The first piece of information we can extract from this table is the **coefficient of determination ( $R^2$ )**, which enables us to estimate the proportion of variation in each dependent variable explained by the explanatory variable(s), the average  $R^2$  value for the **commitment** model is 0.647, showing that **the motivation variable** contributes to the formulation of **the student commitment** variable. The model for the **performance** variable yields a coefficient of

determination that reflects an average explanatory power of (0.315) for the **motivation and commitment variables** in the **performance** variable.

The **predictive relevance** results for the two structural models give satisfactory results that exceed the minimum accepted threshold, showing that we have good predictive relevance for the set of structural models that make up our overall model.

Our model gives a very satisfactory **overall goodness of fit** of 0.57, which is considered a very good fit, according to the decision rule of (Van opper 2009). This means that our empirical model manages to reflect the theoretical model with a high degree of accuracy.

## 5. Discussion and analysis:

Our sample is made up of both sexes, **55%** women and **45%** men, mainly between the **ages of 20 and 25**, with only **1%** over 30. The majority are **full-time students** living in **urban areas**. **43%** of the students surveyed had already taken online courses before the lock-in period, mainly because of geographical distance, and **67%** because of a job for full-time students, mainly on the **UCA digital campus** platform. **89.2%** of students say they use **smartphones** as their main means of following distance learning courses, as well as **laptops 72%** with a **3g/4g connection (76.3%)**. More than half are unaware that they can access EAD platforms without an internet connection, which shows that there is **a lack of information in terms of platform access**. The **Zoom** application is the most effective platform for videoconferencing and interaction with teachers and other students (**52.9%**). Students prefer to study via **social networks**, where they can chat with colleagues, exchange ideas and **download Word. PDF FILES 39%**. Among the main obstacles hindering the e-learning process are: **internet access problems 67%** this shows the low quality of internet speed which presents itself as an obstacle to following distance courses and live videoconferences, as well as downloading digital course materials, another problem is the lack of **interaction with teachers 75%**, so we can see that the main cause of student dissatisfaction is the lack of dialogue and communication between teachers and students, hence the latter feel lost without support or help. From the results obtained from the **factor analysis**, the **KMO** index exceeds **0.5** for all variable dimensions, which is acceptable for the pre-test data. **Bartlett's Sphericity test** shows values below the **0.05** risk threshold for the motivation and commitment variables. The **Communality** index for all dimensions shows values above the accepted threshold of **0.4**. So, the items chosen in this questionnaire manage to measure their variables effectively. **Cronbach's Alpha** coefficient gives results above the **0.7** threshold, showing that each item represents a link with the other items on the scale. After we've analyzed and validated the reliability of our questionnaire's measurement scales. The first step in **structural equation modeling** is to analyze the **measurement model** that describes the relationships between the dimensions and their items. For the variable Motivation, the results obtained from the Smart PLS software exceed the acceptance threshold of **0.7**, and this is also the case for the variables Engagement and Performance. **Composite reliability** values exceeded **0.9** for motivation, commitment and performance. For convergent validity, the **Factor Loading** values of the items as well as the **AVE** have satisfactory results  $\geq 0.7$ ;  $\geq 0.5$ . **These results suggest that we have good reliability and convergent validity for our variables**. As for **discriminant validity**, each item explains better the variable where it is placed and no other variable according to the **Fornell-Larcker** correlation matrix. As for the **cross-loading** table, where items give their highest values with the dimension they are supposed to measure. For the **structural model** analysis, we calculated the **standard Beta ( $\beta$ )**, **coefficient of determination ( $R^2$ )**, **predictive relevance ( $Q^2$ )**, and **Goodness of Fit (GoF)**. From the results of the hypothesis tests, we can conclude that the first hypothesis is rejected ( $p \geq 0.05$ ;  $\beta=0.001$ ). **So, motivation does not determine student engagement**. The second hypothesis is confirmed ( $p\text{-value}=0.000$ ;  $\beta=0.289$ ), which means that

**engagement positively influences the student's academic performance.** The last hypothesis is confirmed ( $p\text{-value}=0.01$ ;  $\beta=0.313$ ), so we can say that **motivation has a direct impact on student performance.** For the analysis of **the effect of the mediation** of the variable Engagement on the relationship between Motivation and Performance, we were able to demonstrate, using the **confidence interval** method, **the non-existence of a link or mediation effect of the relationship between motivation and student performance.** Based on these results, we can say that a motivated student is not necessarily committed to distance learning, but the student who is committed, in terms of enthusiasm for distance learning and perseverance in academic tasks, performs well in terms of semester grade point average.

## **6. Conclusion:**

What started out as a moment of crisis for education has turned out to be an important opportunity to innovate current teaching practices, and bring the Moroccan education system into line with technological developments in the field of training. The literature shows that distance learning is a fairly old practice, with a number of features that set it apart from other forms of education and training. Distance learning can take many forms and types, as well as modalities for conveying information to students. Research in the sciences of education and learning draws its theoretical foundations from the various approaches that define knowledge and teaching methods. Higher education in Morocco produces the intellectuals and researchers essential to the development of knowledge, but adopts an LMD system characterized by centralized organization, a high degree of selectivity and inflexible curriculum content. The Moroccan government is strongly committed to the integration of information and communication technologies. This can be explained by the various programs, initiatives and projects that the Moroccan government has created and launched with the aim of developing the national education sector in terms of digital technology. The present study on the evaluation of distance learning and its effects and impacts in Marrakech's Faculty of Legal, Economic and Social Sciences was made possible by conducting a quantitative survey of 601 students. It enabled us to develop a broader understanding and reflection on the possibilities offered by distance learning for the future. Our study of distance learning and the ways in which different types of learning are assessed in the era of, and since, confinement in the university context. Among the important lessons revealed by our investigation, we first note the characteristics and peculiarities of learners who take online courses, as well as the various problems and obstacles that hinder their distance education. Secondly, we rejected the hypothesis that motivation exerts a positive link on students' academic engagement, accepted the second hypothesis that engagement is a factor of performance, and the third that motivation positively influences performance. Indeed, integrating e-learning into teaching and adopting an interactive teaching strategy in which the teacher plays the role of tutor and coach can only motivate students and encourage them to take responsibility for their own learning. That's why it's so important to assess the impact of distance learning on students, and to think about how to make it more widespread and effective. We believe that this is a mode that offers learners flexibility in their learning and facilitates access to the various media through digital platforms and university sites from their homes. It's a new pedagogy that serves as a means of fostering autonomy in the acquisition of different knowledge for learners, but also an excellent modality for teachers who can ensure both the continuity of their pedagogical practices and easily assess their learners online. Finally, higher education institutions are called upon to show students how to make the best use of information and communication technologies in the world of teaching, and to provide a favorable context for its exploitation. "There is no such thing as good or bad technology, but rather more or less good pedagogies using technology" (Lameul, 2008). At the end of this memoir, we see our work as a step forward. It is not perfect, but it can be improved. Future research could provide more precise solutions.

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