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Developing Learners' Beliefs and Practices Regarding Language

Learning Autonomy

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<u>Dedication</u>

To my mother.

In loving memory of my late father…who would have been very proud.

To every truth seeker.

<u>Acknowledgements</u>

and a big brother. My gratitude is extended to **Dr. Lakhdar Dourari** for his continuous encouragement and motivation during the past four years.

Lastly, I would like to thank myself for staying strong during countless painful days and sleepless nights, and not giving up during what I believe to be the most difficult years of my life so far.

Abstract

The present study seeks to expand on the existing literature on learner autonomy by examining the impact of cooperative learning and social interdependence on the level of perceived autonomous learning within English as a Foreign Language (EFL) students and proposes two models joining the three variables. In a descriptive-inferential study using quantitative research methods, undergraduate students from the department of English at the University Centre of Si-Lahoues – Barika (N= 261) were selected through convenience sampling to respond to the Learner Autonomy Perceptions Questionnaire (LAPQ), the Cooperative Learning Questionnaire (CLQ), and the Social Interdependence in Collaborative learning Scale (SOCS). Descriptive and inferential statistics were run using the 26th version of the Statistical Package for Social Sciences (SPSS), and the Analysis of Moment Structures (AMOS) software. The data analysis includes the use of means, standard deviations, analyses of variance, Pearson's correlations, multiple linear regression, and structural equation modelling (SEM). The results of the Confirmatory Factor Analysis (CFA) showed that the three measures of the study had reasonable to acceptable model-fits, and are valid standardised units of measurement in the Algerian higher-education context. Furthermore, students of English had neutral perception tendencies towards learner autonomy, cooperative learning, and social interdependence. Analyses of variance, however, revealed the existence of gradual significant differences between the means of students in terms of their level (first-, second-, and third-year students) on all of the scales of the study. Pearson's correlations indicated that autonomous learning perceptions were significantly and positively correlated with cooperative learning and social interdependence perceptions. Cooperative learning was also found to be significantly and positively correlated with social interdependence. In addition, multiple linear regression analysis and SEM showed that cooperative learning and social interdependence are significant positive predictors of learner autonomy, and assisted the researcher to propose the SEM models joining the three variables of the study. SEM also highlighted that social interdependence partially mediated the predictive linkage of cooperative learning and learner autonomy. The goodness-of-fit indices of the two proposed models showed that social interdependence is better considered as a mediator between cooperative learning and learner autonomy.

List of Abbreviations

AMOS: Analysis of Moment Structures

ANOVA: Analysis of Variance

AVE: Average Variance Extracted

BID: Boundary Interdependence.

BTR: Beliefs about the Teacher's Role

CFA: Confirmatory Factor Analysis

CFI: Comparative-Fit Index.

CLQ: Cooperative Learning Questionnaire.

CR: Composite Reliability

CVC: Content Validity Ceofficient

df: Degrees of Freedom.

EFA: Exploratory Factor Analysis

EFL: English as a Foreign Language.

GFI: Good-Fit Index.

GP: Group Processing.

HTMT: Hetero Trait Mono Trait

IA: Individual Accountability

LMD: Licence- Master- Doctorate.

KMO: Kaiser-Mayer-Olkin

LAPQ: Learner Autonomy Perceptions Questionnaire.

MANOVA: Multivariate Analysis of Variance

MD: Motivation and Desire

MID: Means interdependence

MK: Metacognitive Knowledge

MS: Metacognitive Skills

NFI: Normed-Fit Index.

OID: Outcome Interdependence

PBL: Project Based Learning

PI: Promotive Interaction.

PID: Positive Interdependence.

RMSEA: Root Mean Square Error of Approximation.

SD: Standard Deviation.

SEM: Structural Equation Modelling.

SOCS: Social Interdependence in Collaborative learning Scale.

SPSS: Statistical Package for Social Sciences

SRMR: Standardised Root Mean-square Residual.

SS: Social Skills.

SS$_B$: Sum of Squares Between

SS$_W$: Sum of Squares Within

TBL: Task-Based Learning

VIF: Variance Inflation Factor

ZPD: Zone of Proximal Development

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<u>Statement of Original Authorship</u>

I, the author of this thesis, hereby declare that the content of this thesis has never been previously submitted to fulfil the requirements for any academic award whatsoever at this or another higher education institution. With the exception of the referenced statements provided, this thesis does not, to the best of my knowledge and belief, include any previously published or written work by another author.

<u>Signature:</u>

Rida Sellali
September 2022

General Introduction

Overview

In light of the reforms in higher education and scientific research in the Algerian context and the switch from the classical to the LMD (Licence-Master-Doctorat) system, the need for autonomous learning has become a considerably essential requirement for a successful academic experience at the Algerian university. The developments in the higher education sector have sought to minimize the role of the teacher as an authoritarian figure in the classroom. On paper, this enabled more room for learning initiatives carried out by students to take more control over their learning. However, it is relatively and naturally obvious that the shift from teacher- to learner-centeredness was not as smooth as planned. In language education, allowing students a measure of unprepared learner autonomy has backfired and resulted in lower academic achievements at the undergraduate level. The call to remedy this issue is hence of paramount importance to practitioners and researchers alike. Amongst the plethora of variables associated with learner autonomy and self-directed learning, this research attempts to investigate the effect of cooperative learning and social interdependence as means of predicting students' autonomous learning. This general introduction highlights the background of this research, and clearly states the problem the aim, the objectives, the research questions, and the hypotheses of the study. It also presents the research methodology, significance, limitations, and delimitations of this study. Finally, the layout of the dissertation will be explained to guide potential readers throughout the study's main theoretical and practical dimensions.

Background to the Study

This section of the general introduction includes the background of this study, which explores the different dimensions of learner autonomy, cooperative learning, and social interdependence to accentuate the history and focus of this research. These dimensions will be discussed in greater detail in the literature review chapter of this dissertation.

Learner autonomy in language education is a widely discussed topic in research (Holec, 1981; Dam & Legenhausen, 1999; Little, 1991; Benson, 2011). It is worth noting, however, that the concept of autonomous language learning in the literature was more focused in Asian contexts such as China and Japan compared to the rest of the world (Aoki & Smith, 1999; Xu-

sheng, 2010; Lu, Jiang, & Throssell, 2013; Ren & Ma, 2016; Chowdhury, 2021; Shi & Han, 2019). Several key terms have turned around the meaning of autonomous learning in the last four decades, including independent and self-directed learning. However, the most widely accepted definition of learner autonomy is the ability to take control over one's learning (Benson, 2011). It is agreed in the literature that the desirability of learner autonomy is justified on the ideological, pedagogical, psychological, and economical levels (Harmer, 2001; Gremmo & Riley, 1995; Crabbe, 1993). The strongest motives behind this research lie in the categorisation of learner autonomy. In other words, autonomous learning is not regarded as an all-or-nothing learning feature within students (Nunan, 2000). Rather, a typology of learner autonomy, as presented by Littlewood (1999), proposed the existence of two subcategories of autonomy: proactive and reactive autonomy. The latter discrimination opened new avenues toward the development of learner autonomy in educational contexts. No longer will the latter be limited to individual efforts which are fully carried out by the learner, and other parties could interfere in affecting the learner's perception of autonomy; in addition to voluntariness, flexibility, and freedom of choice, teacher- and peer-support were recognized as factors affecting learner autonomy (Lee, 1998). Teachers and peers have been viewed to have an equally decent impact on autonomy within students (Grasha, 1994; Lee, 1998; Kelly, 1996). These roles can be summarised in classroom discourse about learning, learner training, the promotion of the use of logbooks, and tandem learning (Crabbe, 1993). Of course, the culture in which autonomy is sought to be fostered should also be taken into account; the learners' cultural background can either be incremental or detrimental to their perception of self-directed learning. Individualistic societies are often seen as autonomy-supportive societies, as opposed to collectivist societies, where the goals of the collective are prioritized over the goal of the individual (Gelfand & Triandis, 1996). Furthermore, many researchers have tried to study the principal components of learner autonomy and their measurement in theoretical and empirical studies during the last three decades (Cotterall, 1995; Cotteral, 1999; Flavell, 1979; Chan et al., 2002; Hsu, 2005; Le, 2013; Swatevacharkul, 2009; Macaskill & Taylor, 2010; Nguyen & Habok, 2021). Hence, the concept of learner autonomy has been divided into factors, including metacognitive skills and knowledge, beliefs about the teacher's role as a facilitator, motivation and desire to learn, and freedom. Given the above-mentioned brief background on learner autonomy, the researcher has identified the potential to associate the development of learner

autonomy with other exogenous variables that would partly exclude individual efforts and include the effects of teachers and peers on autonomous learning.

Having said that, it is only natural to consider group work as a means of developing undergraduate students' level of autonomy. This hypothesised gradual development would start on the level of reactive autonomy to pave the way towards genuine proactive autonomy. In this sense, group work exerts the need for achieving shared learning and/or task goals through cooperation and collaboration. It is worth noting that cooperative and collaborative learning are often used interchangeably. The most distinguished differences between the two approaches set by Metthews et al. (1995) are the degree of involvement of the teacher, learner-centeredness, and the authority rapport between students and the teacher. In line with the concept of reactive autonomy, the choice for cooperative learning as a predictor variable for autonomous learning stems from the nature of cooperative learning basics and structure; Cooperative learning depends on five measurable basics: positive interdependence, promotive interaction, accountability, social skills, and group processing (Johnson, Johnson, & Holubec, 1994; Johnson & Johnson, 2009; Parker & Brown, 2009; Johnson & Johnson, 2013). In addition, the teacher's interference in cooperative learning is greater in cooperative learning, and their role is to facilitate learning for students. Authority rapports are relatively greater in collaborative learning as opposed to cooperative learning, making cooperative learning a slightly more learner-centred approach. Another strong viewpoint in favour of the choice of the topic of this research is the distinction between cooperative, competitive, and individualistic learning structures set by Johnson and Johnson (2013). That is, the learning and/or task goals inside the classroom may be shared amongst groups, or competed for by either groups or individuals. Although individual learning might be viewed as the peak of the practice of learner autonomy, cooperation between group members is indicative of a positive reward structure (Slavin, 1980), where the presence of small, joined efforts leads to the achievement of the learning and/or a task goals of the group, and, by extension, the success of the individual. Hence, the gradual development of reactive autonomy is demanded from each member of the group to complete tasks and learn the material at hand.

This distinction has also led the researcher to ponder the interaction patterns elaborated by Deutsch's (1949a) social interdependence theory. The scope of this theory looks at how individuals function within and between groups. Their interaction patterns would determine whether there are coordinated or uncoordinated interactions towards mutual or individual

learning and/or task goals as well as the quality of the group work through means- and outcome-interdependence (Johnson & Johnson, 1989). The negative reward structure between groups or boundary interdependence (Johnson & Johnson, 2009; Slavin, 1980) was also considered a factor in the measurement of social interdependence within individuals (Shimizu, et al., 2020). Therefore, the researcher has considered social interdependence as an independent variable affecting learner autonomy as well as a mediating factor in the relationship between cooperative learning and autonomous learning.

Statement of the Research Problem

Learner autonomy remains a desirable feature for higher education students at all times. It can somewhat be assumed that autonomous learners would naturally be high-achievers at the university since they enjoy a good measure of control over their learning. However, since the overwhelming majority of autonomous learning cannot be observed inside the classroom, it is of great difficulty to tell who is genuinely autonomous. In a rather recent study (Tajmirriahi & Rezvani, 2021), it was found that academic achievement in writing assignments of Iranian English as a Foreign Language (EFL) university students were not significantly correlated with learner autonomy. Additionally, the existing literature does not provide direct evidence that autonomy can be acquired through imitation and adaptation to the learning context. Autonomy-supportive teacher attitudes were found to be significant predictors of student satisfaction, achievement (Shen, McCaughtry, Martin, & Fahlman, 2009), learner autonomy, and burnout (Ljubin-Golub et al., 2020). Perceived peer support was found to partially mediate the relationship between teachers' perceived autonomy support and self-efficacy (Zhao & Qin, 2021). It is hence not yet safe to draw valid inferences on what category of autonomous learning is being promoted or whether or not reactive autonomy would lead to proactive autonomy. Nonetheless, it is worthwhile to resort to reactive autonomy if students fail to achieve a decent level of proactive autonomy.

Theoretical viewpoints were made regarding the potential effect of cooperative learning on autonomous learning (Xu-sheng, 2010; Lu, Jiang, & Throssell, 2013; Ren & Ma, 2016; Chowdhury, 2021). However, there has been hitherto only one empirical study in the existing literature that directly conjoins learner autonomy with cooperative learning (Shi & Han, 2019). The latter insinuates that group work is a contributing factor to the enhancement of learning attitudes, motivation, and interest in first-year college students. However, the inferences made

from the latter are, to the researchers' best knowledge and belief, not of adequate validity as far as the methodological framework is concerned. As mentioned earlier, the vast majority of studies on learner autonomy were conducted in Asian educational contexts. The closest empirical evidence to linking autonomy to cooperation was studied by looking at the effect of peer-assessment on autonomous learning within Chinese college English writing classes (Shen, Bai, & Xue, 2020). Their results showed that peer-assessment both enhanced learner autonomy and reduced dependence on the teacher. Cooperative learning was found to be an effective teaching practice in passive learning atmospheres for better academic achievements (Hwang, Lui, & Tong, 2005). As far as the Algerian higher education context is concerned, there is no empirical research discussing the association between variables of the current study. A gap in research that joins autonomous learning, cooperative learning, and social interdependence was thus identified by the researcher.

Aims and Objectives

This study explores the possibility of promoting learner autonomy through cooperative learning and social interdependence. The aims of this research are hence as follows:

1. To shed light on the importance of cooperation and interaction patterns in developing greater autonomy among undergraduate students.
2. To ease the process of reaching the required level of learner autonomy in higher education.

Additionally, this research has a number of objectives, which are summarised as follows:

1. To examine the tendencies and readiness of undergraduate English students at the University Centre of Si-Lahoues – Barika towards learner autonomy, cooperative learning, and social interdependence.
2. To study the differences between students' perceived learner autonomy, cooperation, and social interdependence skills in terms of their level at the university.
3. To assess the nature of the associations between learner autonomy, cooperative learning, and social interdependence.
4. To propose a model for the predictive relationships between learner autonomy, cooperative learning, and social interdependence.

Research Questions

      This research attempts to examine the probability of developing learner autonomy through the scope of cooperative learning and social interdependence at the University Centre of Si-Lhaoues – Barika. Hence, the researcher has formulated six research questions in line with the objectives of the study:

1. To what extent are undergraduate students of English at the University Centre of Si-Lhaoues autonomous learners?
2. How do undergraduate students of English perceive cooperative learning and social interdependence?
3. Is there a significant difference in English-language learning autonomy across undergraduate students of English?
4. Is there a significant difference across undergraduate students of English in terms of cooperative learning and social interdependence?
5. To what extent is autonomous learning associated with cooperative learning and social interdependence?
6. To what extent do cooperative learning and social interdependence predict autonomous learning perceptions?

Hypotheses

      In light of the topic of this study, the researcher formulated the following hypotheses:

H_1: Perceived cooperative learning engagement positively predicts learner autonomy within undergraduate students of English.

H_2: Perceived social interdependence positively predicts learner autonomy within undergraduate students of English.

H_3: Cooperative learning is significantly and positively correlated with social interdependence.

H_4: Social interdependence has a significant indirect effect on the relationship between cooperative learning and learner autonomy perceptions.

Research Design

The methodological framework for the current study includes the use of a descriptive-inferential research design to respond to the research questions and test the hypotheses. This research uses quantitative research methods to collect and analyse the data. Therefore, three adapted instruments were used to collect data: the Learner Autonomy Perceptions Questionnaire (LAPQ) (Nguyen & Habok, 2021), the Cooperative Learning Questionnaire (CLQ) (Fernandez-Rio et al., 2017), and the Social Interdependence in Collaborative learning Scale (SOCS) (Shimizu et al., 2020). In addition, the Actual Use of Cooperative Learning Questionnaire (Lopata, Miller, & Miller, 2003) was also deployed with nine teachers from the department of English for exploratory purposes. The measures of the study have been developed and validated by their original authors, and their validation process will be discussed in greater detail in the research methodology chapter. This research targets undergraduate students of English at the University Centre of Si-Lahoues – Barika. The instruments have been deployed by the researcher with 261 undergraduate students of English through convenience sampling since the researcher had been teaching part-time at the said higher-education institution. The sample consisted of first- second- and third-year students doing their Licence degree. In order to analyse the data of the study, the researcher used the 26th version of the Statistical Package for Social Sciences software (SPSS), and the Analysis of Moment Structures software (AMOS). Descriptive statistics, analyses of variance, correlations, multiple linear regression, and structural equation modelling tests were run to analyse the data.

Significance of the Study

This study is an attempt to contribute to the already existing literature on learner autonomy, cooperative learning, and social interdependence. During the researcher's teaching experience at the University Centre of Barika, a serious lack of autonomous learning was observed. This observation includes, but is not limited to, poor metacognitive skills such as planning, self-monitoring, and self-assessment (Sellali & Yahiaoui, 2021). The apparent lack of autonomous learning beliefs and practices in Algerian higher education institutions is truly detrimental to the academic experience of students during their years of enrolment at the university and the quality of education equally. Promoting learner autonomy within students in contexts where the teachers' authority is still prevalent is undoubtedly of great hardship. The significance of the findings of this research lies in the implication that the development of learner autonomy is not solely meant for full self-directed learning where the learner is expected

to take full control over their learning. Instead, gradual development might take place through partial or even full mediation effects of reactive autonomy all the way up to proactive autonomy. This study represents a first step towards the identification of the use of cooperation as a means of developing learner autonomy through refined, up-to-date instrumentation for the sake of providing accurate measurements and statistically and practically significant inferences.

Delimitations and Limitations

Each research is not free from limitations and delimitations set by boundaries, lack of accessibility, and/or overlooking of certain viewpoints. The delimitations of this study are as follows:

1. The inferences of this study cannot be extrapolated to the rest of higher education institutions, nor can it extrapolate the findings to students from other departments at the same institution. Although the sample size is relatively large, the results of the inferential analyses cannot be generalized to other samples in Algeria.

2. The absence of a standardised, valid measure in the literature to quantify students' reactive learner autonomy somewhat limits the strength of the inferences of this research.

3. The absence of suitable pedagogical facilities to incorporate cooperative learning in the context of the study such as classrooms with flexible seating patterns may have lowered students' overall experience and benefit of classroom cooperation structures, their perception of cooperative learning in general, and teachers' tendency to use cooperative learning structures.

4. The restrictions set by the ministry of education as a defence mechanism against the spread of Covid-19 significantly reduced students' attendance time, which may be a detrimental factor for the incorporation of cooperative learning. This deprived the researcher of using observation to collect descriptive data on cooperative learning and its relatedness to autonomous learning.

Furthermore, this research has a number of limitations that may have more or less affected the inferences of this research. Despite the use of reliable and valid measures to collect data, this study may have oversimplified the inferences of the study due to the total dependence on quantitative research methods; the influence of the delimitations of the current study could have been somewhat compensated with the use of qualitative research methods to collect subjective opinions on the reality of learner autonomy and its relationship to cooperative learning. These

opinions could have at least explained some of the unexplained variance potentially caused by the predictor variables on the outcome variables. However, the absence of a well-grounded instrument for a structured or semi-structured interview to accurately collect valid excerpts for a content analysis was a major hindering factor in the assessment of the research questions and hypotheses. In addition, it appears that the concept of social interdependence is somewhat vague for students, which may more or less justify the low model-fit indices scores. Nevertheless, the researcher has tried to proceed with caution concerning the inferences made from this study despite the aforementioned limitations and delimitations.

Structure of the Dissertation

This research is organised into four chapters in addition to the general introduction and conclusion. In the general introduction, the research background and problem, aims and objectives, research questions, hypotheses, significance, limitations, and delimitations of the study have been identified and discussed. Subsequently, the first chapter of this research reviewed and discussed the existing literature on learner autonomy, cooperative learning, and social interdependence, including the definitions of key concepts, and the multiple dimensions and measurement of each variable. The second chapter contained a detailed description of the research methodology adopted in the current study; the population, sample, sampling technique, research measures, data collection, and analysis procedures of the current study are explained. The third chapter revealed the results of the study, including the teachers' and students' responses to the measures of the study and the inferential analyses used to respond to the research questions and test the hypotheses of the study. The fourth and final chapter of this research discussed the implications of this research, such as the teachers' and students' tendencies, model-fit, sampling bias, and the relationship between the dependent and independent variables of the study. Finally, a general conclusion recapitulated and synthesised the main results of the current study, stated the pedagogical recommendations for higher education practitioners in the field, and suggested ideas for future research.

Conclusion

This brief introduction highlights the main aspects of the current study. The importance of the combination of the study variables in order to pave the way toward the development of greater learner autonomy was discussed, and a promising view was underscored by probing into the possible effect of cooperative learning and social interdependence. The aims and objectives, the hypotheses and research questions, the significance and the limitations of the

study were also discussed. Following the organisation of the dissertation pattern, the researcher has attempted to carry out this research to cover all the required theoretical and empirical details to meet the needs of scientific research in education, humanities, and social sciences.

Chapter One: Literature Review

Introduction

Success in higher education is dependent on a range of crucial factors such as a clear set of educational objectives, motivation towards the course, adequate cognitive and metacognitive capacities, realistic expectations, time management, and of course, autonomous- and self-directed learning. It is often believed that learning is a social construct; students might need to work together to achieve a common educational goal, which requires openness to socialize and work cooperatively and collaboratively. It is of great importance for university students to develop these skills before enrolling in a given course to achieve well and avoid unexpected failures. With the shift towards learner-centeredness, higher education settings usually demand a great deal of autonomous learning, where students are instructed to seek answers on a given topic, and submit their answers in the form of academic assignments or presentations. Hence, individuals lacking autonomous learning beliefs and practices are likely to suffer the consequences in terms of self-development and grades. A proposed manner to avoid, or at least reduce, the likelihood of this scenario is to incorporate cooperative learning. However, it is safe to say that research that joins autonomous learning and cooperative learning is scarce to a considerable extent. This chapter attempts to review the relevant literature that tackles both variables, justify the research gap, and clarify the conceptual framework of the various theories and views underlying the current study. This includes introducing autonomous learning and its desirability and feasibility, teachers' beliefs about learner autonomy, how to foster and measure autonomous learning, defining and clarifying the concept of cooperative learning and social interdependence, the basics of cooperative learning, the perspectives underlying achievement and cooperation, and the role of teachers in a cooperative learning.

Autonomous Learning

The very essence of learner autonomy stems from a dire and genuine interest in the course of choice. The scope of autonomous language learning and teaching have been subjects of intensive research for the past four decades and have been executed to organize and systemize this process. Teacher-centeredness has regrettably been the dominant pedagogical tenet that has led learners and, by extension, social beliefs to promote teacher dependency. Subsequent reforms reconstructed the very foundation of teaching practices, leading to the implementation of Learner-centred teaching, which allocated the area for learners to be in the spotlight of the teaching process. Because of its late arrival, however, reaching a satisfactory degree of

autonomous learning behaviour has proven to be elusive because of the restraints caused by the hard-to-adjust beliefs of teacher-centeredness. Language learners, despite being the focus of the learning process, still encounter not only the lack of option provision but also controlling methods in which they are taught, monitored, and assessed. In this respect, this chapter introduces the beliefs and practices revolving around language learning autonomy revealed by the literature, as well as the essential relevant inquiries in this domain.

Defining Autonomy

The concept of autonomy has been defined by a handful of scholars, namely Benson (2011), Lamb and Reinders (2008), Holec (1981), and Little (1991). Generally speaking, autonomy by definition, is the ability to take control over one's learning (Benson, 2011). Autonomous learners have the ability to self-direct and take control of their own learning, with a sense of detachment from the teacher. Little (1991) defines learner autonomy as a capacity that includes a set of merits such as independency, critical thinking, and decision-making. It allows the learner to promote a particular kind of psychological rapport to what they learn and how they learn it. Judging by this definition, autonomy is an inner learning characteristic manifested through taking responsibility for the learning experience, but with the precaution of taking into account the internal and external conditions with which it might be implemented. Benson (2011) stresses that autonomy is a quality of the learner's perception of the learning process rather than a learning method.

Autonomy was first introduced by the Council of Europe shortly after the establishment of the "*Centre de Recherches et d'Applications en Langues*" (CRAPEL) at the University of Nancy, France, in 1971. Yves Châlon, acknowledged as the founder of the concept of autonomy in language learning, died at an early age in 1972, handing the torch to Henri Holec, a distinguished individual in the field of autonomy (Benson, 2011). Holec (1981, cited in Karababa *et al*, 2010) argues that the autonomous learner has the will to use the teaching materials provided to them outside the classroom at any time they desire without the need for the guidance of the teacher, which basically comes from an inner characteristic of the self.

Although the concept of autonomy has been a central research subject in language teaching for almost five decades now, most of the studies were devoted to theoretical descriptions rather than applying the new facts. Olearski (2010) argues that a large portion of

books on autonomy focuses on the definition of keywords, adding that, while the practitioners are eager to implement new autonomous-learning practices in the classroom, theorists in the field seem to be stuck at the departure. It would only be logical to be in favour of the lack of autonomous behaviour in today's classrooms.

Proactive and Reactive Autonomy

It is argued by Nunan (2000) that autonomous learning can exist within learners in a gradual pattern. Research in the field of autonomous learning further dissects the concept of into two types. Littlewood (1999) claims that autonomous learning is an umbrella term, containing two categories of autonomous learning: proactive and reactive.

The term proactive autonomy is used to describe a students' endeavour to control both the activity's direction and the activity itself (Blidi, 2017). That is, proactive autonomous learners are not in need of any external factors to take control of their learning (namely teacher or peer intervention). Littlewood (1999) believes that each proactive autonomous learner creates a self-made learning atmosphere suitable for their goals and learning choices and direction.

Littlewood (1999) further explains that, for the majority of researchers, proactive autonomy is the main desirable goal that defines learner autonomy in full, while neglecting the fact that autonomy can be achieved gradually through reactive autonomy. Blidi (2017, p. 12) regards reactive autonomy as "the effort made by the student to regulate the activity once its direction is regulated by the teacher or any other guidance provider." It is inevitable to consider that the extent to which students' engagement in the classroom relies on some vital classroom conditions such as support provision, be it from peers or from the teacher (Reeve, 2006).

The distinction that Littlewood (1999) between proactive and reactive autonomy by comparing it to Flannery's (1994) description of the difference between cooperative and collaborative learning atmospheres is of great relevance to the current study and will be later incorporated into the practical part. In short, Flannery (1994) suggests that cooperative learning allows students a measure of control over their learning, but the relevance of knowledge, learning methods, and assessment remains the teacher's responsibility, while in collaborative learning, the final product of the learning experience is the shared responsibility of students and teachers

alike. Reactive autonomy is thus a requirement of cooperative learning, while proactive autonomy is a feature of collaborative learning (Littlewood, 1999).

Desirability of Autonomy

Needless to say, the shift from teacher- to learner-centeredness has been built upon strong agreements that learner autonomy is a desirable feature and that learners should take more responsibility for their own learning. Harmer (2001, p. 335) states that "however good the teacher may be, students will never learn a language – or anything else – unless they aim to learn outside as well as during class time." The authority of the teacher was generally perceived as nothing but a restraint to developing a sense of autonomy inside the classroom, and learning theories such as behaviourism have been devaluated for the sake of achieving self-directed learning. Gremmo and Riley (1995) claim that the improvements of alternative psychologies by scholars against the behaviouristic model were against the futile patriotism of mechanistic psychology that extended the applications of behaviouristic implications from unintellectual animals to intelligent human beings, which had also been dismissed by western societies since the renovation of the value of personal experience. Standing up for one's own learning requires not only showing an exquisite cognitive proficiency in storing, understanding, and applying knowledge but also delicate metacognitive skills that allow the learners to have access to ways they might perceive as efficient.

According to Crabbe (1993), the desirability of autonomy is justified ideologically, psychologically, and economically:

- The ideological argument is defined as having the freedom to exercise one's own options, be it in learning as in other domains, and not rendered a slave to the choices made by social constructs.
- The psychological argument is that when we are responsible for our own learning, we tend to learn better in a more earnest, and centred on the blueprint of the learning experience of the individual.
- The economic argument is manifested through the lack of social resources to supply the level of personal instruction required. It is rather concerned with funding the growing demand for pedagogical and professional training, especially in societies where access to education is troublesome because of social or ethnic boundaries.

To a considerable extent, the ideological and psychological arguments are closely related to what Hand (2006) refers to as circumstantial and dispositional autonomy. He considers the former as a desirable aspect that is linked to the circumstances under which the individual dwells, for it seeks to set individuals free from the limitations of social constructs, albeit a political aim rather than an educational one. On the other hand, dispositional autonomy is a desire to decide on one's own conduct. Hand (2006, p. 537) stresses the desirability of the latter claiming that "dispositional autonomy is, therefore, a property of the right logical kind to be erected as an aim of education."

Furthermore, Crabbe (1993) adds that, from the viewpoint of autonomy, success in language learning is not guaranteed using formal classroom activities and that if language learners wish to succeed, they should make use of occasions inside and outside the classroom. Having said that, it is worth noting that the tendency towards desirable autonomous learning behaviours can be observed in the classroom through learners' active engagement, self-monitoring, and self-assessment but cannot otherwise be internally monitored. In fact, a distinction has been made by Jang *et al.* (2010) between what they call behavioural (objective) and self-reported (subjective) engagement. The former is described as what is observed inside the classroom - generally by the teacher - from participation in tasks to the amount of attention paid to the effort made to learn. While the latter is concerned with the private experience of students such as feelings and intentions towards learning, and the processing of information, which makes it rather immeasurable and hard to develop from a teacher's perspective. Furthermore, Lamb and Reinders (2008), stress on this discrimination while providing a description autonmous-learning attitudes is provided as follows:

> The issue that concerns me here is that we seem to have come to a point where autonomy in learning is associated with desirable classroom behaviours, such as doing one's homework, actively using the target language in pair or group work, learning from one's mistakes, listening to each other, and using opportunities to learn outside the classroom. While I would accept that autonomous learners will probably possess a capacity to act responsibly and independently of the teacher's direction in the classroom, I am less convinced of the relationship between this capacity and the development of personal autonomy. (p. 25)

Consequently, if teachers are somewhat affected by autonomy-oppressive conditions imposed by the educational context, the development of autonomous behaviours will be seized

even if they dwell within the learner's attitude. Although autonomy is perceived as desirable by most scholars, it may be quite the contrary in some educational cultures that condition learners' beliefs against self-directed learning (Harmer, 2001).

Regardless of the hardship of implementing, monitoring, and evaluating learners' inner characteristics that lead learners towards independence, it is inarguable that the overall scope of learner autonomy is both desirable and promising. Benson (2011) summarizes the desirability of autonomous behaviours by claiming that he believes learner autonomy to be both a valid and a desirable aspect in language education, and that language learning is most effective when autonomy is developed within the individual.

Feasibility of Autonomy

It has been made clear in the previous section that learner autonomy is desirable to a reasonable extent. What is not very clear, however, is the nature of its execution in real-life scenarios, for one needs to differentiate between what it desirable and what is feasible. In a study conducted by Borg and Al-Busaidi (2012), for example, an attempt to investigate teachers' beliefs on both the desirability and feasibility of students' active engagement in the classroom. The latter was dissected in terms of decision-making regarding classroom management, teaching methods, assessment, topics, activities, materials, and objectives. Although teachers felt that the approach was considerably desirable, their responses to its feasibility showed less confidence in applying of all the aforementioned elements of the approach, especially concerning objectives and assessment.

Despite being a key element to enhancing autonomy, learners' internal conceptualization of autonomy remains abstract and impossible to be observed without external manifestation, for a learner might act in accordance with a specific setting or with a specific teacher, as they can show autonomous behaviours in some situations and being completely passive in others, making attempts to foster autonomy without respect to learners own internal conception an elusive lost cause (Surma, 2004). In this respect, Reeve (2006) proposes that, from a teacher's viewpoint, it is a set of beliefs and suppositions that resemble autonomy-supportive actions regarding learners' readiness to learn, rather than an instructed set of techniques and strategies. Perhaps it could be argued that these sets of beliefs explain why reaching an acceptable degree of autonomy both inside and outside the classroom is difficult. On the other hand, as they might

seem to hinder the feasibility of autonomy, learners' beliefs concerning autonomy can be sought and/or modified, albeit infirm. Clearly, attitudes, practices, and learning strategies can to be taught in any learning context, but transferring strategic thinking to learners is tricky (Derry & Murphy, 1986). Learners need to have a certain amount of motivation and readiness in order to be considered autonomous. Benson (2011) believes that the lack of autonomous learning beliefs in learners can be developed by providing them with chances to practice control over their own learning, taking the role of the manners of organization of the teaching and learning process into account, which, after all, is what makes autonomy feasible in the classroom.

The lack of a well-grounded practical consideration for autonomy draws attention to the challenges faced by teachers attempting to foster autonomy both inside and outside the classroom. Borg and Al-Busaidi (2012) categorize those challenges as student, teacher, and institutional factors, which can be observed through the lack of motivation, the excessive amount of material dealt with in the curriculum, and the lack of autonomous learning beliefs in the teacher him/herself. Arguably, the most severe constraints amongst these are the learners' factors since all learning is centred upon them. It remains undeniable that teachers are able to trigger learners' motivational emotions, and use them as a gateway towards autonomous behaviours. On a biological level, the work of Reeve & Tseng (2011) measured the level of cortisol, which is a hormone released in the body during stressful situations, built up in students when encountering controlling, neutral, and autonomy-supportive teachers. The results have shown that the cortisol rate elevated with exposed to a controlling teacher, and lowered when dealing with a motivational, autonomy-supportive teacher. In addition, a claim by Deci et al. (1989) stresses that when learners experience the nature of input as informational, self-determination is enhanced, while receiving it as controlling decreases it. However, the problem lies at the point where all the circumstances are autonomy supportive, while the student remains unmotivated. In other words, if a learner is highly self-motivated, they would perhaps be able to overcome the barriers against achieving independency from the teacher even when faced with non-autonomy-supportive teachers and/or institutional inconveniences, which, again, makes students' motivation and readiness to learn the most difficult arguments against achieving learner autonomy.

Individualism, Collectivism, and Autonomy

There seem to be other debatable factors that may affect learners' perception of autonomy. Quite recently, the theme of autonomy has grown around a considerable range of cross-cultural literature, leading to the belief that it might not be feasible in all contexts. In this regard, Palfreyman and Smith (2003) emphasized:

> Learners' background cultures have often been seen as a hindrance to the development of autonomy, a view which has been associated with claims for some contexts that promoting autonomy is a form of Western cultural imperialism. However, the overall message which emerges from this collection is a more positive one - that promoting autonomy can be both viewed as appropriate and made feasible in a wide variety of settings, so long as what students already know and want is seen not as a hindrance but as a major resource. (p. 256)

That is, the existence of autonomy in the learner's sub-consciousness is the cornerstone of learner independence. Some beliefs such as the unquestionable authority of the teacher in some regions, which might be culturally transmitted, may affect the realization of learner autonomy, if not seize its very existence. Palfreyman and Smith (2003) also mark that the reason behind the absence of an ideally applicable approach to fostering autonomy across different cultures is the existence of cultural variations. As far as western ideological imperialism is concerned, the call for an individualistic approach might have been in touch with educational contexts. However, it did not reach an extent to which one may consider it as globalized. This effect supports the idea that autonomy might not be feasible in all contexts.

The fact that it is the ability to be independent and to make use of one's capacities that resemble the qualities of the autonomous learner has led many scholars to consider decreasing the pertinence of autonomy-supportive contexts in which individualism is not well-established (Littlewood, 1999). In some cultures, the overall aspect of freedom, be it in education or other contexts, is not associated with the individual but rather with the collective, where self-representation comes in the form of social groups or ethnicities. Unlike individualists, collectivists visualize the self only by connecting it to family, religious, and/or geographic groups or any other sort of collectives (Gelfand & Triandis, 1996). This is exhibited in the very manifestation of the behaviour of the individual, which is likely to lead them to follow in the

footsteps of the group unconsciously. Topavola (1997) believes that the cultural features and social behaviour of a given society can be translated to either individualism or collectivism.

Individualism and collectivism are not merely restricted to behaviours. That is, not only do social conventions often dictate one's behaviours, but one's objectives and goals as well. What is more dangerous is that, in collectivism, the individual goals are constantly subject to modification to meet the collective's needs or expectations. Therefore, the goals of the individual are rendered unimportant in comparison to the collective's and should therefore be prioritized (Gelfand & Triandis, 1996). Thus, one might hypothesize that, if the collective is autonomy-refuting, the learner is likely to be led helplessly into submission to the teacher's intellectual authority, and, by extension, the overall scope of the individual learner autonomy is less likely to be promising. Similarly, if the voice of the individual is taken into account by the in-group, they might as well develop a sense of independence amongst the society. The extent to which freedom of decision-making is allowed to be practiced might correlate with the level of autonomous behaviours in a given group. A learner might possess a decent deal of self-access outside the classroom. They might, however, show poor independent performance in front of their classmates given the rate at which the majority are overwhelmed by the teacher's presence and authority, ultimately rendering autonomy not observable and feasible in all contexts.

Teachers and Learner Autonomy

Teachers' Conception of the Characteristics of Autonomy.

A clear understanding of the scope of learner beliefs and practices autonomy is particularly important for the sake of fostering autonomous language learning. Normally, it would appear that low-achievers in the classroom are the ones in need of an autonomy-supportive environment the most, to the extent where the teacher might neglect the fact that being a high-achiever does not necessarily mirror autonomous learning. No matter how intensive the teacher training might be, "teachers' cognitions, though, emerge consistently as a powerful influence on their practices" (Borg, 2009, p. 91) Two consecutive major cornerstones seem to be crucial for the development of learner autonomy: teachers' awareness of the characteristics of autonomous language learning, and the role of the teacher in fostering autonomy.

What teachers know about the characteristics of autonomous language learning is the basis for its development. These characteristics can be listed according to Boud (1988) as follows:

- identifying learning needs;
- setting goals;
- planning learning activities;
- finding resources needed for learning;
- working collaboratively with others;
- selecting learning projects;
- creating problems to tackle;
- choosing where and when they will learn;
- using teachers as guides and counsellors rather than instructors;
- opting to take additional non-teacher-directed work, such as learning through independent (structured) learning material;
- determining the criteria to apply to their work;
- engaging in self-assessment;
- learning outside the confines of educational institutions, for example in a work setting;
- deciding when learning is complete;
- reflecting on their learning processes;
- making significant decisions about any of these matters, that is, decisions with which they will have to live (p. 23)

In a study conducted by Al-Shaqsi (2009), English teachers were asked to provide their opinion on what they thought language learning autonomy was. Respondents provided their insights, some of which floated around out-of-class use of English, using the internet to obtain extra learning resources, extensive reading, watching documentaries and movies in English, communicating with friends of foreigners online, ability to recognize their strengths and weaknesses, and showing leadership and social skills in group works. Presumably, teachers, especially those whose teacher-training was poor, would consider and recommend the self-directed learning practices they do as the most efficient for their students. If teachers feel the

need to measure their students' level of autonomy, they are likely to adhere to their perceptions, and this is what makes the process of measuring autonomy rather tricky.

Furthermore, Chan (2003), in an attempt to investigate teachers' beliefs on autonomous language learning in Hong Kong's Polytechnic University at the department of English, reported that they considered practicing English with friends, reading grammar books, consulting the teacher for clarifications, and doing learning activities that are not assigned by the teacher to be amongst the characteristics of the autonomous language learner. She considered those characteristics to be more common among teachers and rather unrealistic for students, at least in the aforementioned setting, to conclude that teachers should bear in mind their students' preferences in learning. Only then will they be able to realize their role in promoting autonomy.

Teachers' Role in Fostering Autonomy.

Arguably, after teachers recognize what autonomy means to their students and know their learning styles and preferences, it is crucial that they understand their role in fostering students' autonomy. Of course, autonomous language learning is not something to be taught or prescribed. Teachers should, nevertheless, impress upon their students the long-term benefits of being an autonomous learner. Out of the variety of teachers' roles have in the classroom, only three are believed to be the most efficient in promoting independent language learning.

The teacher as a facilitator is perhaps what an autonomous-supportive classroom environment needs the most. Among the factors of developing students' self-directed learning that Lee (1998) listed, she involved forming a good rapport between the teacher and students and offering them the guidance and support needed for their learning. Additionally, the advantages of the facilitating role include being flexible and being ready to use alternative teaching materials to fit students' needs (Grasha, 1994). Over the years, scholars have divided the features of this role as follows: psycho-social supportive features that include care, patience, tolerance, empathy, ability to motivate students, and raising awareness of independent learning, and supportive technical features such as assistance in planning self-directed learning, self-monitoring, and self- and peer-assessment (Holec, 1985; Dickinson, 1991; Little, 1989; Sturtridge, 1992, cited in Benson & Voller, 1997). This can be achieved through classroom discourse, which will be discussed in greater detail later in this chapter.

The counselling role of the teacher is also thought of as a means of promoting autonomy. Yet, although the roles of facilitators and counsellors would seem relatively similar, Benson and Voller (1997) claim that, unlike facilitating, counselling works better with one-to-one interaction and is somewhat more spread among teachers in self-access centres and generally limited to individualized study programs. To further illustrate this role, Kelly (1996, p. 95) offers a thorough description of what she calls macro-skills of language counselling which resemble the different strategies of the counsellor, and their respective purposes as follows:

Table 01.

Macro-skills of language counselling (Kelly, 1996, p. 95)

Skills	Description	Purpose
Initiating	Introducing new directions and options	To promote learner focus and reduce uncertainty
Goal-setting	Helping the learner formulate specific goals and objectives	To enable the learner to focus on a manageable goal
Guiding	Offering advice and information, direction and ideas; suggesting;	To help the learner develop alternative strategies
Modelling	Demonstrating target behaviour	To provide Examples of knowledge and skills that the learner desires
Supporting	Providing encouragement and Reinforcement	To help the learner persist; create trust; acknowledge and encourage effort
Giving feedback	Expressing a constructive reaction to the learner's effort	assist the learner's self-awareness and capacity for self-appraisal
Evaluating	Appraising the learner's process and achievement	To acknowledge the significance of the learner's effort and achievement

Linking	Connecting the learner's goals and tasks to broader issues	To help establish the relevance and value of the learner's project
Concluding	Bringing a sequence of work to a conclusion	To help the learner establish boundaries and define achievement

If possible, teachers should always satisfy their learners' need for approval and cover their insecurities through counselling. Though, of course, a teacher in a regular EFL classroom is less likely to singlehandedly encompass and implement all of these strategies at once, for it would be time-consuming, especially with overcrowded classes, since it should be done with each student individually.

Finally, in a learner-centred classroom, the less recognized yet important teaching role in fostering autonomy is being a knowledge resource. Despite having the ability to construct knowledge through collaboration and cooperation, autonomous learners, after all, are not often more knowledgeable than teachers. Therefore, it is rewarding for a self-directed learner to use valuable and reliable information, be it from the teacher or any other source (Benson & Voller, 1997). The role decreases with the development of learners' language competence and performance, except in some cases. For example, Breen and Candlin (1980) believe that, in communicative language teaching, the teacher is an interdependent member of the communication group without which the coherence and organization of topic under discussion and the flow of the communication cannot be achieved, making the teacher play a role of a resource. Hence, there will always exist a need for an adequate language resource in communication that promotes the features of both accuracy and fluency. It may, however, seem threatening for some teachers to feel completely dispensable while seeing their students fully independent, which is why language teachers should not stress this role to avoid the undesirable passive transmission of knowledge (Benson & Voller, 1997).

Fostering Autonomy

An attempt to foster autonomous learning behaviours should take place at least inside the ELF classroom despite all the possible cultural, psychological, economic, and political constraints. However, this attempt should proceed with cautious awareness to the capacities of

students. In fact, very few published research has studied the requisites of fostering autonomy either inside or outside the classroom, which may determine the extent of the feasibility of autonomy. Lee (1998), sets the demands of implementing a self-directed learning program for tertiary students in Hong Kong of the practice as follows:

- Voluntariness: voluntariness is perhaps the first and most important element that students must have to be actively engaged in the learning process. All efforts to foster autonomy within learners forcibly taking the course will be in vain. Teachers must first make sure that their students are willing to engage effectively in the programme and recognize those who are only willing to be passive learners for subsequent precautions during the implementation of the programme.

- Choice: Learning is more effective when learners are provided with a variety of educational aspects concerning activities, contents, assessment, as well as allowing learners to work at their own pace, all of which is executed to a rational extent. Autonomy and intrinsic motivation are unquestionably increased by choice-provision, which prompts learners to reach their full potential based on their personal choice (Patall *et al.*, 2008). Learner choice implies that students can work at their own pace, and select their own learning objectives, which may consequently increase their intrinsic motivation. However, this must be determined by the teacher according to the learners' ability to select their own learning goals and materials, as well as their readiness and capacity to engage in self-assessment, which is fundamentally dependent on the institutional context, the learners' age, their educational background, and the competences they have regarding language and language learning. (Little, 1995)

- Flexibility: at some point, learners will become more aware of the learning process, which is likely to positively affect their understanding of their own needs. Hence, what can be adjacent to the provision of choice is the flexibility of the options chosen by the learners such as their objectives and selection of contents that can be changed to meet their goals and needs. A study conducted by Patall *et al.* (2013) provides proof that students perceived perspective-taking by their teachers as a crucial requisite in fostering learners' need for autonomy.

- Teacher-support; if unsure, learners might as well rely on the teacher to clarify and set the various objectives and refine their choices at a later point of the program to ensure maximum

effectiveness of learner autonomy. For this sake, Lee (1998) believes that, in order to encourage and reinforce their goals, establishing a good rapport with learners is essential and that it would eventually lead to effective monitoring in their learning.

- Peer-support: the view of autonomy as a social construct implies that peer support might be a need to support greater independence from the teacher. As mentioned in the previous section, other learners might show autonomous behaviours in some situations and be extremely passive in others. Should students in this situation refute to show such independent behaviours with some teachers, learners are likely to resort to interacting and collaborating with each other to acquire peer-evaluation insights, especially from a more knowledgeable one.

A similar experimental model by Nunan (1995) provides evidential support to these prerequisits by explaning the five levels of implementation of learner autonomy in the classroom. The model illustrates that the first level is the learner's awareness of the various pedagogical objectives of the curriculum. The second level is cocerned with learners' involvement in choosing their own objectives based on a variety of alternatives. The third level is the intervention made by learners in order to change or modify their preselected goals. Due to their experience of choosing and modifying their own learning goals, learners would be ready to get to the fourth level in which their create they own goals. Going through these four levels paves the way for the last level, where learners transcend teacher-dependence and ultimately take learning outside the classroom context.

In-Field Autonomy-Fostering Practices

Having meditated on the previously-mentioned points about the different prerequisites and factors for fostering autonomous language learning, the teacher can then decide on what is more or less appropriate depending on the context in which language learning is occurring. Although one needs to differentiate between fostering autonomy inside and outside the classroom, Benson (2007) states that the scope of autonomous learning within and beyond the classroom is extensive, and that a distinction between them is hard to be made. an autonomous learner would experience greater learning opportunities outside than inside the classroom. Being independent of the teacher, having the ability to make choices about learning, as well as the lack of time boundaries and affective factors outside the classroom, where most learning happens for the autonomous learner, serve as contributing factors to practice the material dealt

with in the classroom, and perhaps eventually lead learners to consider going the extra mile, if not reaching autonomy as life-long objective.

Crabbe (1993) sets the difference between what he labels as the public and the private domains of the language curriculum; the former being what takes place inside the classroom and the latter being what happens outside the classroom:

- In the public domain, the design of tasks is mainly the teacher's job in order to meet common educational needs, while in the private domain, learners are free to engage in tasks of their own choice.
- In the public domain, practicing the language is quite feasible with peers or the teacher, while in the private domain, it may be more or less feasible, depending on the means and opportunities students seek.
- In the public domain, fluency tasks do not often deal with possible real-life language difficulties. In the private domain, however, accuracy is often more focused on as a probable result of encountering those difficulties to compensate for neglected classroom practices and meet the learner's accuracy needs.
- The procedures of performing a task in the public domain are often organized by a more knowledgeable peer or the teacher, while in the private domain, the learner needs to decide independently on the tasks of learning.
- In the public domain, evaluation and feedback are provided by the teacher of peers provides. If learners require feedback in the private domain, they need to seek it out from other intellectual authorities.

These distinctions stress that a great deal of autonomous learning happens outside the classroom, where learners resort to self-access, decision-making, planning, self-monitoring, and self-assessment. Thus, it is worth noting that although the next order of business will be concerning fostering autonomy inside the classroom, where most learning interaction happens, greater effort should be made by teachers and learners to transfer these attitudes beyond the classroom environment. As far as literature goes, there are several means by which autonomous language learning can be fostered.

Classroom Discourse about Learning.

The importance of classroom discourse about the learning process in fostering autonomy has been pointed out by a handful of scholars (Crabbe, 1993; Little, 1995; Lamb & Reinders, 2008; Pemberton et al., 2009; Preiss, Grau, Irribarra, & Calcagni, 2018). Harmer (2001) believes that students should promote their own learning strategies if they need to overcome being passive learners as well as the time limits of the classroom, which would eventually pave the way to being autonomous. However, awareness of one's own learning preferences and strategies is not necessarily common merit amongst all students. Therefore, classroom discourse is needed to provide students with the blueprint of the learning styles and cognitive strategies they could have unconsciously been using before, thus directing them towards metacognition. By extension, since the likelihood of succeeding in promoting learner autonomy is related to the extent to which teachers themselves are autonomous (Little, 1995), the teacher him/herself should be aware of considerations regarding metacognitive strategies in order to successfully transfer them to students. Flavell (1979) provides a model for metacognitive strategies, describing it as any acquired conscious cognitive or affective knowledge within the human mind, which was later argued by O'Malley and Chamot (1990) the process of pondering, planning, monitoring, and evaluating learning is what metacognitive strategies are composed out of. Metacognitive knowledge, according to Flavell (1979), consists of three main variables that either act on their own or interact for the sake of reaching the desired outcome (Person, task, and strategy). A generalization of the person variable would be a set of beliefs about the nature of the self, whereby recognition of intra-individual and inter-individual differences and cognition universals are prerequisites to select, monitor, and assess learning styles, critically compare abilities with others, and prompt awareness of the different reasons of failure of understanding. The task variable is dependent on factors such as the nature of the information available during a task in terms of familiarity, trustworthiness, organization, availability, as well as the demands of the given task. And finally, the effective learning strategy variable in terms of strategy choice and use.

Arguably, it would appear that the person and strategy variables are critical points that should be addressed in the teacher-student dialogue about learning. The teacher may urge students to be self-aware of their learning preferences and differences as well as the suitable kind of strategy to accomplish the given task. In the private domain, Crabbe (1993) claims that

the classroom discourse needs to bring up forms of learning that prompt metacognition to the level that a shared understanding of learning is set between the teacher and the learner, which is likely to bridge the gap between public and private domains of learning. Students would, hence, initiate developing a sense of responsibility towards their own learning, given that they break the barriers of learning outside the classroom using the conscious understanding of their cognitive skills. However, the classroom discourse should be so explicit about linking the two domains together for a desired outcome; autonomy would not be otherwise achieved, if not demolished unless teachers impress upon their students the need to use metacognitive skills outside the classroom (Crabbe, 1993). This is supported by Preiss et al. (2018) that dialogue strategies and mentalistic talks are the means by which metacognitive skills are instructed for the sake of triumphing behaviour of self-regulation that is manifested in academic success.

Furthermore, expecting learners to be self-directed whilst engaging them in a task that ought to foster learner autonomy without addressing autonomy as one of the goals of the task and assuming that it should provide positive feedback regarding autonomous learning would only be a lost cause. Assuming that the learning context lacks individualistic abilities, introducing learners to the notion of autonomous learning can be a starting point to break the ice for the students to take responsibility for their learning (Pemberton et al., 2009). The management of the complex process of second language learning is administered by the manner with which we label it, which is done by means of the different kinds of dialogues in the classroom, namely teacher-class, teacher-learner, and/or learner-learner dialogues, all of which would prevent generalizing one teaching method and target the number of individual learning processes in the classroom (Lamb & Reinders, 2008). A teacher, for instance, might point out that taking notes and writing down information that is of relevance to some learners during the classroom in, say, a vocabulary lesson, might be efficient for those who prefer visual or kinaesthetic input. This should preferably be done at the beginning of the course to provide the learner with independent learning skills and ensure maximum impact on autonomous learning behaviours.

As mentioned previously, choice is a prerequisite to fostering autonomous behaviours. That includes the freedom to select one's own learning materials and objectives. While this feature may not be adequate to students' level or cultural background, a probable alternative would adopt the institutional aims prescibed upon them voluntarily through classroom discourse. In fact, Little (1995) issues:

It is important to emphasize that even aims and learning targets prescribed by a government department can, by process of negotiation, become the personal aims and learning targets of a group of learners; and that by the same token, highly structured learning materials can be exploited in ways calculated to develop learner autonomy (p. 179)

Classroom dialogues should therefore present students with the goals of the course undertaken, the steps through which it would be executed, students' individual and collective roles, and the expected practical, real-life use of taking it. Prompting learners to fully practice cognitive autonomy depends greatly on a classroom setting where adequate expectations, responsibilities, and positive feedback are frequently offered (Kiemer et al., 2016). Hence, it would come down to the axiomatic inference that classroom discourse is a crucial means to bridge the gap between learners and self-directed learning, inside and outside the classroom.

Learner Training.

Learner training is also one of the facets that ought to be considered to foster learner autonomy. Although it is more likely to tackle the public domain of learning, practices indoctrinated to learners might as well be successfully transferred to the private domain. One might consider that the classroom discourse illustrated in the previous sub-section paves the way towards observable, practical implementations of learner training on learning styles and strategies. Options available for the teacher to provide a paradigm for learner training may be either adopting the implicit encouragement of students by modelling a learning strategy with total neglect of its leverage or going for the explicit motivational instruction to follow a certain strategy to accomplish a task (Kistner, et al., 2010). While the former may not look seemingly as straightforward, the theoretical background on learner training supports the act of following a clear, explicit pattern to induce those behaviours for the sake of fostering autonomy; Brown, Campione, and Day (1981) refer to implicit learner training as blind training, in which learners are not considered as active members of training, and, despite implementing it, they are not aware of the significance of a given learning strategy.

Indeed, it is of the many desirable outcomes of autonomous learning that learners possess the ability to provide rigorous feedback on ways in which they direct their own learning, which involves evaluating their strategy use and progress. Harmer (2001) believes that teachers might

assist students in the process of reflection in connection with their use of learning strategies that suit a variety of problem-solving tasks by, for instance, providing them with alternative solutions regarding strategy use. This, of course, may fall under the critique that it may otherwise increase dependency on the teacher rather than a potential for fostering autonomous learning, making teachers under the obligation of keeping their guidance at an acceptable rate. In this respect, Brown et al. (1981) suggest:

> As psychologists interested in methods for training effective learners, we believe that . . . what we are advocating is an avoidance of blind training techniques and a serious attempt at informed, self-control training, that is, to provide novice learners with the information necessary for them to design effective plans of their own. (p. 20)

The ultimate aim here is to have learners not only benefit and make the most of their learning skills but also reach a degree of automaticity and reassurance where they can use combine learning styles and strategies to solve independent learning problems outside the classroom (Derry & Murphy, 1986). However, this view does not seem to take into account the hardship of establishing a practical background for this scope; several variables certainly interfere with the success of the induction of such behaviours such as the over-crowdedness of the classroom, the number and the diversity of learning styles and strategy preferences within each individual, and the limited time offered in the language learning classroom. Considering the amount of language material that ought to be dealt with, teachers would consequently have little time to address the encouragement of various learning strategies explicitly and at suitable frequency throughout the term to reinforce their use outside the classroom. Benson (2011) believes that, regardless of its challenges, it is nevertheless necessary, if not crucial, to tackle the issue of learner training for the sake of enhancing learning performance and modifying students' psychological orientation, from studying for the sake of grades and certificates to achieving learning independence and critically seeking, analysing, and evaluating knowledge, which, after all, is the ultimate goal of learner autonomy.

Logbooks.

The concept of logbooks in language learning has been extensively tackled by a number of scholars (Savage & Whisenand, 1993; Cotterall, 1995; Harmer, 2001; Klimas, 2017; Wawrzyniak-Śliwska, 2017). In addition to classroom discourse and learner training, logbooks

can be utilized as a means of fostering learner autonomy by providing a problem-solving framework for feedback provision (Lamb & Reinders, Learner and Teacher Autonomy: Concepts, realities, and responses, 2008). In other words, the main idea of the log is to maintain a constant self-evaluation of the progress made in language learning, as well as the difficulties met during learning.

A common feature of logbooks, also known as learner journals or booklets, is that they are purely voluntary (Harmer, 2001; Wawrzyniak-Śliwska, 2017). The teacher has absolutely no interference or authority in connection to what should or should not go inside the learner's logbook, where they could, for example, write about new vocabulary that is of interest to them, do coursework, be it assigned or of choice (Wawrzyniak-Śliwska, 2017), or perhaps use possible preferred learning style or strategy. Harmer (2001) argues that learner journals help them reflect on classroom lessons and discover their language and learning weaknesses, which might volitionally be managed by subsequent discussion with the teacher.

Cotterall (1995) also provides a rather guided model for the use of learners' logbooks, to which she refers as record booklet, for a twelve-week course. She states that each individual should be given a personal record booklet split into two sections: self-monitoring and self-assessment. The former assists them in monitoring their language performance in terms of content, form, accuracy, and fluency, and helps them keep track of their language learning development. The scales of the self-assessment sections are filled in three periods throughout the course.

There exists, of course, several merits to using logs for the sake of fostering autonomous learning, which is mainly related to self-monitoring and self-evaluation. Logbooks prompt an opportunity to take responsibility and engage in reflective practice (Dennick, 2000), and provide a comfortable space for the learner to track their language learning records (Wawrzyniak-Śliwska, 2017) since they are voluntarily carried out. Klimas (2017) believes that, with the use of logbooks, learners can put considerable effort into determining their objectives, improve their metacognitive strategy use, and develop a sense of responsibility kindly shared between them and the teacher. In fact, a study carried out by Savage and Whisenand (1993) elucidates that learner journals are beneficial not only for learner development but also for short- and long-term teacher performance in terms of strategy use and

communication through discussion on the feedback of language learners to meet their learning needs.

On the other hand, logbooks are not per se easy to maintain. Their feasibility is dependent on the context in which they are executed. For instance, introducing this concept to learners for the first time might not result in positive feedback. In a qualitative study on the perception of logbooks in Iran, undergraduate nursing students claimed that logbooks are time-consuming, and although they had been designed to potentially improve communication between teachers and learners, students claimed that logbooks made them feel stressed (Khorashadizadeh & Alavinia, 2012). A discussion will thereby be necessary to explain the function of the logbook and the communicative and cooperative expectations and requirements to teachers and students likewise to ease reliable formative and summative assessments (Dennick, 2000; Pemberton et al., 2009). Dishonesty is another inconvenience that might affect the quality of the log. In other words, students might feel shy in case their record does not reflect observable progress, leading them to manipulate records of self-assessment to avoid discussions with the teacher, and eventually affecting the reliability of the logbooks. All things considered, and despite the prospects against its implementation, it would only be plausible to consider that the use of logbooks prompts learners to engage in self-monitor and self-assess their progress, work on their communicative skills and engage in self-directed learning practices outside the classroom (Wallace, 1998).

Task Design.

The design of the learning tasks has always been a debatable scope in foreign language teaching and learning, and inevitably, it has implications for autonomous language learning. Arguably, there are a lot of manners in which task designs interfere with learner autonomy. Since autonomous learning is all about independence from the teacher and taking control of one's learning, the semblance of the learning task may more or less interfere with the perception of the extent to which learners conceive dependence and interdependence. Crabbe (1993) believes that, in order to foster autonomy, task designs should be suitable for independent learning, and should easily be done by individuals who are willing to work independently resulting in observable improvement in accomplishing the task. Homework, for example, are a means of easing learners into an independent context in which they can work on their own, or

seek peer evaluation. Harmer (2001) believes that homework promotes learner autonomy since it urges them to work away from the teacher's help. However, the limitation of this explanation is when homework is regarded as an obligation rather than a chance to work on one's own, or when peer evaluation turns into peer pressure, making it "a necessary evil rather than as an important contribution to learner autonomy" (Harmer, 2001, p. 338)

It is also worth noting that equipping learners with tasks that they might deem as difficult or time-consuming might otherwise increase their need for the more knowledgeable other's assistance and eventually diminish their autonomous behaviours. It is argued that teacher support through classroom dialogues and particular learning tasks that are designed to promote self-regulation promotes learning abilities. The tasks in the language classroom should thereby provide language support that aims at addressing possible real-life scenarios in order for the learners to understand and apply what they have learned (Wallace, 1998). Little et al. (2002) also reassure that the development of foreign language proficiency is pertinent to the extent to which tasks used reflect genuine communicative goals.

Teachers should always reflect on the difficulty of the task, the reason it is perceived as difficult, how to make it suitable for most, if not all, learners, the purpose of the task, and ways in which learners can benefit from the task for their future endeavours (Cotterall, 1995). That is, as stated earlier in this chapter, expectations from completing a task affect the subsequent behaviours (Eccles (Parsons), et al., 1983; Eccles & Harold, 1991; Lee, 1998). Autonomous language learning, being the desired subsequent behaviour required from learners to perform as a life-long attitude, would be fostered both inside and outside the classroom, given that the learning tasks in which the learners are engaged are reliable and valid to mirror potential problem-solving situations. Regrettably, the existence of empirical proof of the effect of expectancy-value in reation with autonomous language learning hitherto is meager.

Self-access Centres.

Self-access centres are probably the closest that research has come to providing language learners with an institutionalized autonomous environment. As far as language learning is concerned self-access is "an approach to learning language, not an approach to teaching language. It is sometimes seen as a collection of materials and sometimes as a system for organising resources." (Gardner & Miller, 1999, p. 8).

According to Benson (2001), a self-access centre is, by definition, a facility that encompasses a variety of resources that can be easily accessed by learners at any time. Gardner and Miller (1999) provide an expansion on this idea by dichotomizing self-access environments into two divisions: controlled and uncontrolled environments. While the former might include classrooms and libraries, both of which may supply learners with monitoring, the latter provides more freedom and independence and is of more relevance to private domain settings such as student clubs and internet resources. That is, if used correctly, and in accordance with institutional directions, libraries and classrooms per se can be used to establish the prerequisites of self-access centres. Language department classrooms in particular should however reflect a quasi-independent climate that goes hand in hand with the principles and routines of the institution (Benson, 2011).

In order to establish the foundation of any language self-access centre, crucial cornerstones should be taken into account. The centre should axiomatically contain learning resources and materials such as audio and video learning resources such as DVDs, audiobooks, reading materials, electronic libraries, high-quality interactive listening comprehension, and communication materials, worksheets of language proficiency study materials, printers, TVs, and more importantly, access to the internet (Barnett & Jordan, 1991; Benson, 2011). In a time where learning is mostly digitally supported, all of these materials can be exploited through the use of technological advancement, which, together with the scope of E-learning taught courses, have broken the physical boundaries of the self-access centre, making it accessible almost everywhere (Gardner, 2011).

Having said that, it is argued by Barnett and Jordan (1991) that the blueprint for establishing the self-access centres within the language department should include not only the provision of hardware and resources, but also considerations about the extent to which the materials are accessible and of good use, training learners to use coginitive and metacognitive strategies, and potential space for creativity in using the centre. This is particularly needed in promoting learners' experience of the learning process outside the classroom, which results in allotting more time for the study course and, thereby, better classroom time management. Of course, a self-access centre would only be as useful, reliable, and valid as the quality of management it contains. A manager, and/or a group of counsellors, are required to create an environment for autonomous learning, which involves a delicate process of planning, ordering,

and managing resources in terms of quality and abundance to provide adequate guidance for the users (Gardner, 2011). A counsellor in a self-access centre has, of course, more to offer than a language teacher in the classroom. Gardner and Miller (1999) stress this by outlining the differences between the role of teachers in the traditional language classroom and counsellors in self-access centres as follows:

- Teachers lead students in the classroom, while counsellors collaborate with learners
- Teachers follow a pre-determined curriculum in the classroom, while it is determined through the process of negotiation with a counsellor in a self-access centre.
- While teachers give instructions and organize their students' learning, counsellors lend their ears to provide reflective practices.
- Monitoring is done while the whole class discuss and provide their feedback, while counsellors discuss the learning process individually and promote reflection.

Creating opportunities alone for learners to be independent may not always be sufficient to achieve the ultimate goal of the self-access centre; an internal change from passive to autonomous learning behaviours. Hence, interference from counsellors is desirable should the learners sense a failure in their learning experience (Kell & Newton, 1997).

On one hand, there is no questioning that self-access centres are a promising, well-recognized, widely-applied structures to promote learner autonomy (Gardner & Miller, 1999; Gardner, 2011). However, cautious considerations should be reflected on to avoid the occurrence of institutional complications. Tutors, for instance, should proceed with caution regarding the manner with which they approach learners' guidance because "some [learners] may feel they are being treated condescendingly if the degree of guidance is too high; others may feel isolated because nobody has ever asked them to work on their own before" (Kell & Newton, 1997, p. 48). For this sake, managers or tutors should at least organise informal diagnostic tests for learners to check what they know and what they do not know, as well as the degree of monitoring needed. Frequent formative dialogues may also be desirable to determine the development of the learners, and the extent to which they need further tutoring. In addition, as far as language learning is concerned, the success of assessing the learning gains cannot only be achieved by common methods of language evaluations, but also through the extent students master cognitive and metacognitive strategies, social skills, and intrinsic self-motivation

(Gardner, 2011), which ultimately represents the skills that need to be developed in a self-access centre, at least as far as language learning is concerned.

      Tandem Learning.

      Technology has always presented itself as, in every sense of the word, a dominant contribution, if not a gateway, to almost every scope of scientific research, and it has yet to offer judging by the state of constant development it is currently witnessing. The domain of foreign language education in particular was not excluded from raising the stakes of the quality of the learning experience. Simply put, tandem language learning is a procedure that includes the organization of two language learners whose mother tongues are different, and at least one of them desires to develop their proficiency in the other's party's native language (Appel & Mullen, 2000). Most recently, tandem language learning proved itself to be one of the greatest ways to prompt language learning independence.

      It is worth noting that the involvement of technology had not necessarily been an obligation to accomplish this task in the time when the internet did not exist. Benson (2011) claims that, with the coordination of teachers around the world in exchange programs, tandem learning was designed at first to function only through granting their students face-to-face interaction with other learners who are interested in learning each other's languages. However, before the invention of the internet, the planning and execution of such programs had proved to be both costly and time-consuming (Little, et al., 1999). This paved the way for the establishment of the E-Tandem Network in 1992, which was renamed later to the International E-mail Tandem Network. The ultimate aim of this network was to ease the communication of students overseas using E-mails, and save them the time and effort of travelling (Little, et al., 1999). However, this service did not fully cover language performance; the focus on oral performance was diminished.

      Roughly a decade ago did research start indulging the investigation of the benefit of synchronic, face-to-face communication via the internet. Skype, as well as other similar means that allowed learners to video-call users from all around the world, proved to be an efficient way to implement well-established tandem exchanges and unlocked providing excellent exposure to spoken language through native speakers (Thomas, 2008). The emergence of social media platforms that offer the same services and the development of language exchange

applications on mobile phones have since been in a constant state of development. Yet, although little research has been hitherto done on the impacts of these tools on the development of tandem language learning, it is probably wise to say, by simple extrapolation, that the adoption of those platforms and digital applications can be used as a means of promoting tandem learning.

Autonomy as a Requirement for Tandem Learning.

As far as independent learning is concerned, learning in tandem can be viewed as a process by which autonomy is fostered, but it can also be seen the other way around. That is, both tandem parties will rely on each other to maximise their learning since "they are both 'expert users' of their own language and have a wealth of cultural and linguistic knowledge that they can share" (Calvert, 1999, p. 56). Being an autonomous learner is hence considered a requirement for the success of tandem learning. Taking control over their own learning, choosing their own objectives and materials, having a sense of shared responsibility towards their partner's needs, as well as planning, monitoring, and assessing their progress are requisites that learners need to possess in order to carry out a successful exchange of language skills (Ushioda, 2000). Calvert (1999) supports this by naming three requirements for the tandem approach: reciprocity, responsibility, and autonomy, which depend on the learner's exchange ability, social skills, awareness of language and language learning, monitoring and assessing their tandem partners, as well as self-monitoring and self-assessment. This might lead to the inference that tandem language learning may more or less be beneficial for learner autonomy since it depends on the latter from both partners to be carried out. Little and Brammerts (1996) Provide a more explicit description of this case:

> It is axiomatic that tandem partners must support one another in their language learning without resorting to the techniques of traditional teaching. In order to achieve this, they need to be able to plan, monitor and evaluate their own learning, they must know how best to exploit the native speaker competence of their partner, and they must have an insight into the language learning process that enables them to respond appropriately to their partner's learning initiatives. Unless they are given a great deal of guidance and support, learners who have not already achieved a significant degree of autonomy are likely to find tandem learning difficult to cope with and almost impossible to sustain. (p. 31)

This kind of deep-end method as an attempt to foster autonomous learning behaviours can result in strengthening or diminishing learner autonomy depending on how ready they are to accept the responsibility handed to them. The overall scope seems promising though. According to Ushioda (2000), intrinsically motivated language learners learn by using the language in a context that offers personal control and choice, which would eventually shape their need for autonomy. Learning in tandem prompts learners' responsibility to teach their mother tongue as well as the freedom of choice of the learning material that they expect from their partners (Little & Brammerts, 1996), which they perceive as genuine language use. Therefore, learners' readiness to learn, their intrinsic motivation, and their trust in the language input that they receive are likely to increase when they are exposed to the competence of the native speaker.

In addition, should learners who are enrolled in tandem not possess autonomy, it is highly probable for them to do so gradually by developing metacognitive skills throughout their tandem learning experience. The expertise of both tandem partners in their mother tongue may support their metacognitive knowledge in general and metalinguistic knowledge in particular (Schwienhorst, 2002). As stated earlier in this chapter, learners would normally start to develop an awareness of the intraindividual and interindividual differences between themselves and their tandem partners, which includes comparing the pace at which they are learning, their learning styles, and strategy use. If the tandem partners' languages are socio-culturally related, this experience may as well provide the learner with vantage points to promote awareness and run contrastive and error analyses on "lexical similarities or syntactic contrasts between his mother tongue and the target language" (Little & Ushioda, 1998, p. 96). Doing this will highlight the parts of the language that are either easy or difficult to tackle, and indicate whether the difficult parts need more explanation or practice. Error analyses, however, can be difficult to reveal since they demand an adequate grasp of language differences; at least one of the partners should be aware of the phonological, morphological, lexical, and syntactic structures of their native language in order to identify their own errors. Regardless of the learning pace, tandem partners will, at some point, meet halfway and achieve decent language proficiency where they can point out each other's errors based on a contrastive analysis of each other's languages.

On the other hand, one major drawback of tandem learning is that both partners will naturally tend to overlook mistakes and errors if mutual intelligibility is attained (Calvert,

1999). That is why the tandem conversation should be, at least guided at the beginning, in such a way that allows the partners to feel that they are in control of their options and to keep them on the right track. Ushioda (2000) states that:

> A tightly controlled pedagogical framework has the desired effect of concentrating tandem partners' learning efforts in a clear and purposeful direction. At the same time, however, the framework needs to be couched in such a way that it does not dictate what tandem partners must do but fosters the conditions for realising the principles of shared responsibility and mutual support underpinning this mode of learning. (p. 123)

In fact, a study conducted by Chung, Graves, Wesche, and Barfurth (2005) concluded that communicative autonomy and social solidarity were demonstrated through guided online chatting amongst learners who are engaged in electronic discourse groups. Through the use of video-conferencing, the guide would offer topics to discuss, illustrate cultural differences should a misunderstanding occur, and supply help, if convenient, whenever fluency or accuracy barriers hinder the flow of the learning process. For the sake of fostering autonomy, the amount of interference should be minimized to allow partners to take control over their learning.

Collaborative and Cooperative Learning.

Collaborative and cooperative learning are among the modern trends that are believed to have students actively engaged in the classroom. Since they depend mostly on actions and interactions, these methods of learning tend to prompt students' problem-solving, decision-making, and social skills, and, more importantly, it transfers learning control from the teacher to students either wholly or partially. Fostering autonomous learning can be achieved through a number of collaborative tasks due to the increasing possibility of students' engagement and readiness to contribute their thoughts to their peers (Benson, 2011). That is, given some circumstances such as the level of students, learning styles and the cohesiveness of the group, the teacher or the moderator or the group may decide on the organization of the group work. Depending on the method of the group work, the teacher's external control is fairly minimized (Ushioda, 2000). In other words, based on the teacher's assessment of learners' abilities and skills, he/she can determine whether the group work is going to be based on either cooperative or collaborative standards. If the learners are prepared to handle the learning control, then a

collaborative framework is more suitable since it "provides a social context in which students can experience and practice the kinds of conversation valued by college teachers" (Bruffee, Collaborative Learning and the "Conversation of Mankind", 1984, p. 642). The teacher can interfere in moderating and guiding group members on a given discussion only to guarantee the success of the task. If the teacher, on the other hand, senses that his/her students do not have a sense of responsibility towards learning and a decent amount of knowledge and skill with the subject at hand, then he/she might as well opt for cooperative learning strategies such as the Jigsaw method (Aronson, 2000) or the Think-Pair-Share (Lyman, 1992). The amount of teacher interference in collaborative learning is less than in cooperative groups because the latter requires students to construct knowledge, but the method and the content of the discussion are still controlled by the teacher.

The effect of cooperative and collaborative learning on learner autonomy is still a debatable matter. For starters, minimizing the amount of interference does not necessarily mean that learner autonomy is being fostered, for a collaborative and supportive atmosphere is believed to promote it through the provision of decision-making opportunities (Benson, 2011). Dealing with a classroom of, say, 40 students may be equivalent to dealing with 40 or fewer different learning processes and styles, some of which are, for example, visual learners who are not likely to benefit from a group discussion, regardless of all the internal affective filter students might encounter. Yet, although individualistic cultures tend to be more autonomous, cooperative and collaborative learning seems like a better way of engaging individuals in decision-making in a given collective, and, perhaps, gradually paving the way toward reactive autonomy, at least. Little and Brammerts (1996), in supporting this claim, state:

"If learning is essentially an interactive process, then the development of learner autonomy is a collaborative matter; and the support that learners can give to one another plays a crucial role in the transition from dependence on the teacher to wholly independent task performance." (p. 31)

Another factor that teachers should bear in mind is the role of the cohesiveness of groups in the success of group work in fostering autonomy. By definition, the cohesiveness of groups is the benefit that motivate the members to stay in the same group, and that is related to the extent of the attractiveness of the group judging by its members, goals, the type of tasks

performed within the group, the degree commitment to those tasks, and the pride of being a member of a prestigious group (Festinger, 1950; Mullen & Copper, 2004). If the group to which the students are related proves to be cohesive, then the members are likely to make one another feel welcome, provide support, and, most importantly, are ready to respect the viewpoints of each other albeit out of the classroom (Dörnyei & Murphey, 2004). In a comfortable atmosphere, students would feel less anxious and more confident about contributing with their opinions to the group. This might reduce the intuitive, affective, and anti-suggestive barriers, which naturally tends to reject anything that hampers one's security and self-confidence (Lozanov, 1978). That is why the group moderator should manipulate the groups in terms of ability distribution, acquaintances, and the type of task should they want their students to develop a sense of responsibility towards learning.

As far as learner autonomy is concerned, an argument against cooperative and collaborative learning inevitably manifests itself. Since self-directed learning is regarded not only as an educational objective but also as a long-term learning strategy to realize future endeavours in contexts where a tutor or a collective of peers are unavailable (Macaro, 1997), depending on cooperative and collaborative learning would only increase the need to rely on others, and will therefore hamper or discourage attempts of self-directed learning. Regardless, Benson (2011) reports that control-transfer attempts result in enhanced motivation and autonomy-related factors such as responsibility-taking and the use of learning and problem-solving strategies, despite the hardship of measuring these elements.

Measuring Language Learners' Autonomy

Since taking responsibility to direct one's own language learning encompasses motivation, expectations, metacognitive knowledge and strategies, and social skills, measuring students' level of learning autonomy remains hard to achieve. Before proceeding, however, it is of great importance to point out the reasons behind measuring autonomy. Autonomous learning scholars have not yet agreed on a certain reason to measure autonomy (Sudhershan, 2012). Lamb (2010) reports on what he considers a misconception of the assessment of autonomy:

The purpose of assessment for autonomy, therefore, would not be to measure autonomy for its own sake, with a view to defining levels of ability or ranking pupils, but to increase

learners' self-awareness of their own autonomy and teachers' awareness of what constitutes such autonomy and how they may adapt their teaching in order to enhance it. (p. 101)

The ultimate purpose of measuring autonomy, thus, would be to have a clear view of students' perceptions of autonomous learning, recognise students with poor autonomous learning skills, raise awareness of learners with poor or adequate self-directed learning skills, and reduce teacher control. Benson (2010) states that one way of observing learner autonomy is through the extent to which learners take control of some aspect of their learning that can be under the control of others, namely teachers, such as the place, time, pace, and content of the subject matter. Taking control certainly increases the chance of having access to more resources that cannot be otherwise provided in the classroom. The degree of exposure to learning materials that are not designed for teaching is relatively higher for autonomous learners, which increases their readiness for unusual situations where the use of the target language is needed, as opposed to learners with poor autonomous learning ability who are accustomed to textbooks that are less likely to reflect real-life target language use (Dam & Legenhausen, 1999).

Furthermore, the measurement of learner autonomy in the language classroom should be done systematically. It is argued by Dam and Legenhausen (2010) that the evaluation of the autonomy of learners can only be carried out through their voices using quantitative and qualitative data collection methods. The results, however, would differ depending on the context in which the study is taking place. Such a study in compulsory education settings of language learning, for example, would not provide the same results for autonomy measurement as it would in a language for specific purposes setting.

In order to evaluate autonomy perception, there must be a quantification for the different characteristics of autonomous language learning; the strategies autonomous language learners use to achieve independence from any external source of authority over learning. For this sake, and in regards to what has been hitherto discussed in this chapter, it would be of relevance to categorise these quantifications of learner autonomy into two elements: willingness, which is comprised of beliefs about the teacher's role and motivation, and capacity, which encompasses desire, freedom, and ability (Nguyen & Habok, 2021).
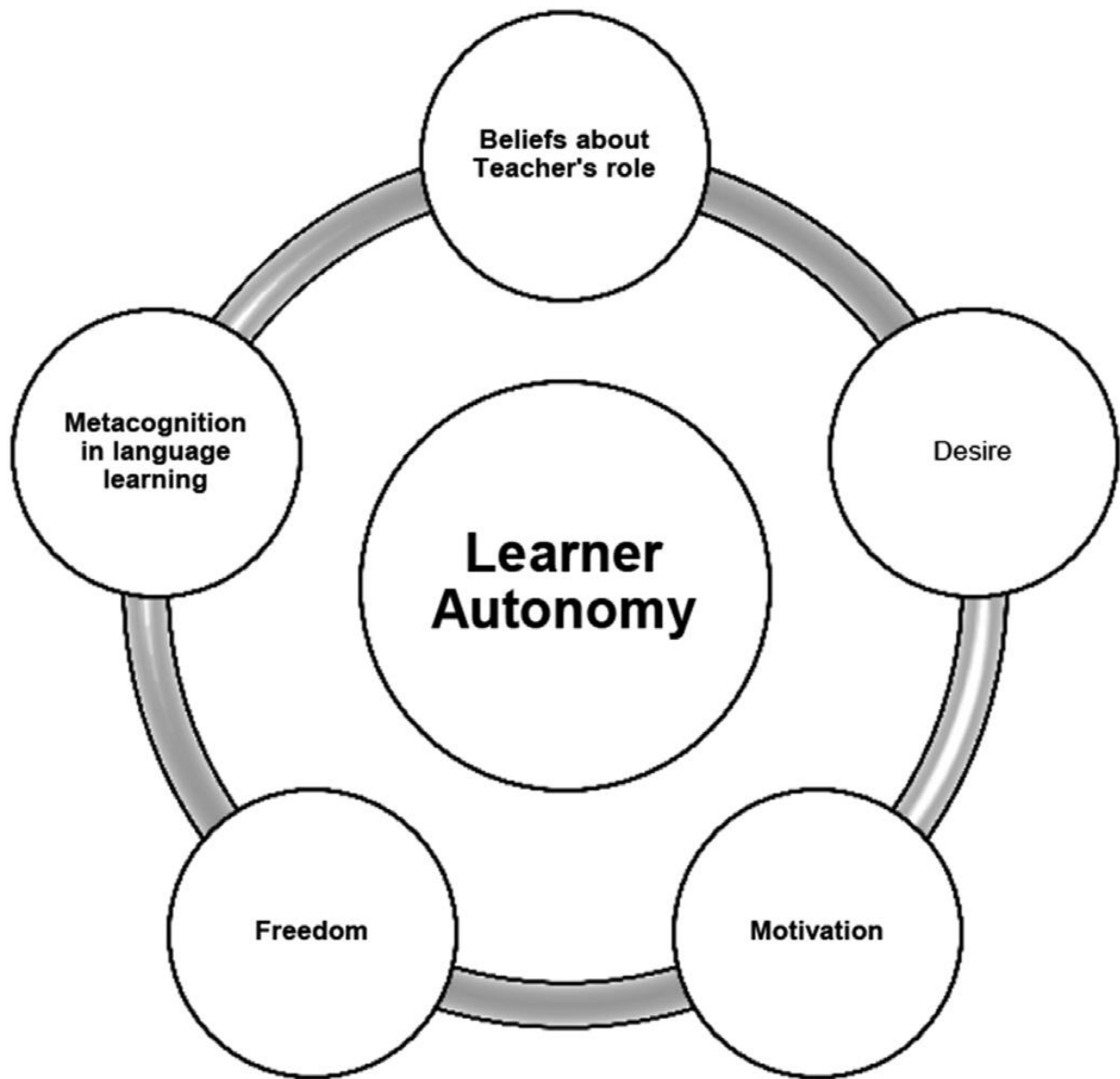
Figure 01. Conceptualization of Learner Autonomy (Nguyen & Habok, 2020)

Willingness.

It was discussed earlier in this chapter that voluntariness is one of the key elements of self-directed learning (Lee, 1998). Responsibility and decision-making were the most focused on throughout the 1980s, with the beginning of the shift towards student-centred approaches. After that, affective factors such as attitudes willingness, and confidence, for example, were added to the list of individual traits to be both measured and enhanced (Nguyen & Habok, 2021), If students are unwilling to take ownership of their learning, they will not improve their autonomy. Beliefs about the role of the teacher and motivation are two characteristics that may develop from the concept of willingness.

Beliefs about the Teacher's Role.

Teachers' actions are capable of shaping students' perceptions of learning. Learners who believe that teachers should tell them what to do, provide assistance, and explain everything are not yet ready for autonomy. On the other hand, learners who believe that teachers should tell them what to do, offer help, and explain everything are not yet ready for autonomy (Nguyen & Habok, 2021). The idea that learners' perceptions of their own and their teachers' responsibilities will assert a significant impact on their readiness to accept learner autonomy is a promising prospect for a significant and reliable measurement of students' perception of learning independence. The effect of teachers' intervention may as well be extended to other dimensions of reactive autonomy as Lee (1998) points out that effective self-monitoring will result from teachers' support.

Motivation.

A considerable number of variables may affect learner autonomy, and motivation, which comprises a willingness to take on responsibility as well as the ability to isolate, critically analyse, make decisions, and act independently from the teacher (Little, 1991), has one of the most powerful effects on it. In educational settings, autonomy is dependent on motivation because motivation is required in order for students to be able to incorporate and use metacognitive skills and abilities (Nguyen & Habok, 2021). Having said that, motivation can affect the learning outcome either directly or indirectly. This might include an impact of motivation factors such as why individuals choose a certain activity, the extent to which they intend to stick with it, and how much work they put into it (Dörnyei, 2001). There are also agency beliefs, which express one's judgment on their capability of completing a certain learning activity. Effective time management and ability to overcome boredom, as well as proactivity in finding learning opportunities were identified as crucial to increase independent use of learning materials (Kormos & Csizér, 2014). It was highlighted that expectancy-value, which is strongly linked to motivation theory, was a significant positive predictor of autonomous learning among university students. (Sellali & Yahiaoui, 2021). That is to say, the stronger the motivation, the easier it becomes to be independent, stick to learning goals, and overcome difficulties.

Capacity.

As far as autonomous learning is concerned, capacity is an umbrella term that includes three core aspects: desire, freedom, and ability.

Desire.

The passion with which students aspire to learn a language and accomplish a given learning task is measured by their desire (Huang & Benson, 2013) The measurement of such a variable, however, should at least be suitable to the context. For example, students might enrol in a given language course for different reasons, which might affect in a difference in the calibre of their desire. The specific learning objective might be a desire to learn English, university enrolment prerequisites, or future employment chances (Nguyen & Habok, 2021). To ensure accurate quantification of learners' desire to learn, a generalized scale should be deployed in the (preferably homogenous) sample.

Freedom.

Freedom in language learning settings can be defined as **"**the degree to which learners are 'permitted' to control their learning, either by specific agents in the learning process or more generally by the learning situations in which they find themselves" (Huang & Benson, 2013, p. 9). It was discussed earlier that choice provision boosts autonomy and intrinsic motivation by encouraging students to realize their greatest potential based on their own learning preferences. (Patall, et al., 2013). The concept of freedom depends, however on the setting of learning. For example, although the course choice is entirely their own choice, Algerian English language and literature undergraduates have little to no control over the content that they learn. The argument here is not whether or not this is advantageous; for the sake of accuracy, the measurement of this variable should take into account the extent to which learners offered control over their learning.

Ability.

The last aspect of autonomy measurement in learners is their learning ability, which can be summed in metacognitive knowledge and skills, that is, knowledge of self, task, and learning strategy, as well as planning, self-monitoring, and self-assessment (Flavell, 1979: Wenden, 1998), all of which are mandatory for undergraduates at the university (Corte, Verschaffel, & Masui, 2004). Although these three metacognitive strategies are agreed upon by most self-directed learning scholars, studies have hardly committed to offering a clearly-put distinction

between self-monitoring and self-assessment due to their interrelation since planning is affected by self-assessment (Benson, 2011).

Engaging in any course of action, be it a university course or a certain occupation, requires planning. As far as language learning is concerned, planning is a crucial stage to begin the learning process. It is related, to a considerable extent, to goal-setting and recognizing one's own abilities. To further illustrate, planning, according to Wenden (1998), must include a core element which is the task analysis, which, if achieved with its three components (task knowledge, person knowledge, and strategic knowledge), would pave the way for learners to engage in a language learning task. She describes those three components, which are similar, but more focused, to Flavell's (1979) aforementioned view of the components of metacognitive knowledge, as follows:

> Task knowledge is what prompts learners to inmate a task analysis to realize that it needs to be done. It also dictates what must be done to complete the task, i. e. consider the task's purpose, its demands and how to classify it. Person knowledge enables learners to recognize what they know and what they don't know . . . what they like and what they don't like . . . and strategic knowledge guides them in selecting strategies to deal with anticipated difficulties. (p. 524)

In accordance with the expectancy-value model (Eccles (Parsons) et al., 1983), students' expectation of at least the attainment, utility, and cost values can be either qualitatively or quantitatively measured in order to assess their task knowledge. Moreover, similar to a placement test, measuring learners' strategic and, particularly, person knowledge can provide inferences about their readiness to engage in a language learning task, and, by extension, their readiness for autonomy. It is preferable that these masurements take place at the beginning of the course or a semester. Again, it must be considered that the results of the measurement will differ according to the context. A recent study (Sobkowiak, 2017) revealed that high school students in Poland do not ponder about setting goals for their learning, nor do they participate in planning their learning materials. One reason to justify this, Sobkowiak (2017) claims, is the compulsive need to follow the objectives set by stakeholders, which blurred the consideration to promote learner autonomy from from teachers' part. This stresses that autonomy is not feasible in all contexts, and justifies the need for its measurement.

Perhaps another variable that interferes in measuring students' planning in such classes with fixed syllabi is the overcrowdedness of classes; one does not simply expect an overcrowded class to be able to target language learning autonomy alongside all the roles a teacher must perform. Even with this case, a certain degree of choice provision should take place to promote a desire to engage in planning learning tasks at least among experienced language learners (Benson, 2011). In case the overall students' level of autonomy proved to be poor, an experimental paradigm should be conducted to reassure what students lack to achieve independent learning, and what can be done to foster it. For example, having language learners, especially undergraduates, take responsibility in teaching what they have already been taught, not throught presentation but through actual teaching scenarios, will prompt their abilities to plan both their language learning and teaching, and eventually get a firm grip of what autonomous learning really is.

Shortly after the stage of planning, students should be able to monitor their language learning for more learning efficiency. Generally speaking, monitoring is being attentive to the development of learning and recognizing the difficulties faced in order to take cautions to facilitate them (Flavell J. H., 1981, cited in Wenden, 1998). This stresses the importance of (a) self-monitoring for learner autonomy and (b) the consecutive order of the metacognitive skills needed to foster autonomy. That is, after goal-setting and task analysis, realistic viewpoints and expectations are made by the learner to cope with the difficulties that arise in the process.

> In *Monitoring*, the learner observes and notes problems such as his/her own attention, lack of misunderstanding or expression (taken as a whole or in part), emotional discomfort, or misfit of one or more cognitive or socio-affective strategies. For example, learners may identify a specific word, grammar point, or idiom which is confusing or defective. They may note that they lack information about a topic. (Rubin, 2001, pp. 28-29)

Based on the observation of personal notes students take when keeping track of their learning process, qualitative data can be used to measure the extent to which learners self-monitor their language learning. Learners' productive skills seem to be the means through which this measurement is observed i.e. classroom dialogue with students, students' pieces of writing or students record setting devices.

Self-monitoring presents advantages to language learners. Considering the three teacher roles discussed earlier in this chapter, teachers can easily facilitate the difficulties selected by students, counsel, and provide accurate pieces of advice to learners based on their self-monitoring, though it must be noted that a complete focus on language aspects (form) and neglecting global issues such as the accuracy of the content. (Cresswell, 2000). It must be stated that another advantage of self-monitoring is to "decrease reliance on external agents (e.g., teachers, parents, peers) for behaviour change, thus facilitating generalization to untrained settings and maintenance of acquired skills" (McLaughlin, Krappman, & Welsh, 1985, as cited in Amato-Zech, Hoff, & Doepke, 2006, p. 211), and thus teachers should limit their interference with students' self-monitoring to avoid undesirable passive learning outcomes. Lastly, the qualitative measurement of this stage is best done over organized periods in the course (e.g. in the middle of each sequence, unit, trimester, or semester) to maximize the validity of the data collection method.

The third phase of evaluating language learning autonomy is to evaluate their own self-assessment. It is, in fact, a crucial component of not only metacognitive strategies but learner autonomy itself (Harris, 1997). Research has widely discussed this issue in regard to philosophy in general and language learning in particular (Brown, 2005; Kühn, 2012; Dam & Legenhausen, 1999; Oscarson, 1989; Anderson & Lux, 2004). By definition, self-assessment in language learning is the procedure learners go through to assess their own linguistics skills and knowledge (Bailey, 1998, as cited in Matsuno, 2009). It provides valuable feedback about the progress of first, second, and/or foreign language learning through the process of reflection (Sahragard & Mallahi, 2014).

The ability to engage in self-assessment, however, is still debatable especially in formal settings. Dam and Legenhausen (2010) argue that self-assessing the progress of students according to the official grading agenda requires the learner to possess a clear realization of their linguistic competencies. Thus, a formal setting allowing learners a measure of self-assessment may more or less reflect what they think of their level of achievement. Bollock (2011), on the one hand, believes that evaluations which are learner-directed are not always adequate due to the beliefs and practices of the teachers. In other words, teachers would not consider their students' self-assessment as accurate and valid, which can be the effect of either the students' lack of possession of their own actions (Anderson & Lux, 2004) due to dishonesty

or lack of mastery of the assessed bits, or teachers' lack of autonomous language learning beliefs. On the other hand, Dam and Legenhausen (1999) conducted a study from which they inferred that learners who showed a decent level of autonomy presented self-assessments of their reading and writing skills that correlated with the assessment of their teacher. It can thereby be claimed that "unless one can evaluate and appreciate the extent to which one has the capacities required for an intended course of action, one's pursuit of that course of action lacks the self-guiding character distinctive of fully autonomous action" (Anderson & Lux, 2004, p. 291). As far as measurement is concerned, Oscarson (1989) describes tools for self-assessment, which can be used by researchers to measure students' self-assessment. These tools include questionnaires, audio and video recordings, informal peer assessment, and record-keeping tools such as logbooks. It is worth noting that differ in terms of desirability; audio and video recordings may cause increased affective filter levels, while peer assessment may result in a lowered affective filter and higher levels of self-confidence. The use of questionnaires, however, seems too straightforward and may be less reliable compared to observing log books, language portfolios, or audio and video recordings, since they would be affected by linguistic socio-affective factors and/or teachers' beliefs. In the defence of the viewpoint in Benson (2011), measuring self-assessment should not be confused with measuring students' self-monitoring skills. That is, students' ability to assess their progress, abilities, and the purpose of tasks accurately will be based on their experience in learning (Harris, 1997; Orsmond, Merry, & Reiling, 1997), which will evidently be visible in planning subsequent learning tasks. This is also supported by a study of a group of 11 experienced Georgian and Kazakh learners of languages in the Former Soviet Union presented decent self-assessment abilities with measuring progress, learning styles and strategies, and, more importantly, a high inclination towards autonomy and learning control including negotiations about the structure and content of the course (Rivers, 2001).

Cooperative Learning

The Cooperative approach, which had emerged from the constructivist point of view, dates back prior to World War II when the establishment of cooperation theory emerged from the observation that group work was more efficient than individual work in terms of productivity. The shift in focus to the classroom settings occurred in the 1940s when psychologists such as John Dewey, Kurt Lewin, and Morton Deutsch set forth cooperation practices, most of which are

still being used today. Decades later, the brothers David and Roger Johnson put immense focus on cooperative learning practices and social interdependence theory. They established the Cooperative Learning Institute in 1987, which is a non-profit institute that aims at the development of understanding of cooperation and conflict resolution. This section will, hence, attempt to provide a description of cooperative learning and social interdependence, distinguish between cooperative and collaborative learning, review the relevant literature on the different perspectives underlying cooperative learning, differentiate between cooperative, competitive, and individualistic learning, the dynamics of cooperative learning groups, and the actual application of cooperative learning in the classroom.

Definitions

Cooperative learning can be defined as the method of organisation of students in learning settings such as the classroom into small groups according to the teacher's instruction so that they can work together and aid each other to acquire a given academic content (Slavin, 2011). It is a student-centred classroom teaching-and-learning method that is focused on group formation Sharan (1994). The term "group work" is often used in defining cooperative learning. Generally speaking, group work is defined by Cohen and Lotan (2014, p. 1) as follows:

> *"groupwork* is students working together in a group small enough so that everyone can participate on a clearly assigned. students are expected to carry out their task without direct and immediate supervision of the teacher. should also be distinguished from small groups that teachers compose for intensive instruction learning task."

Group work is an umbrella term that encompasses a cooperative and a collaborative approach. Johnson and Johnson (1990c, p. 69) define cooperative learning as "the instructional use of small groups so that students work together to maximize their own and one another's learning", which entails that, unlike the collaborative approach, learning here is mostly the responsibility of the learners. A thorough distinction between the two approaches will be offered later in this chapter. Cooperative learning is cantered on a foundation of anthropology, sociology, psychology, political science, and economy principles. It is indeed unusual for one educational instruction to be fundamental to a considerable number of different social science theories (Johnson, Johnson, & Stanne, 2000).

Modern cooperative learning has become a widely employed instructional process in all areas of study from preschool all the way through graduate school, in all aspects of instruction and learning, in non-traditional as well as conventional learning circumstances, from the 1970s to the year 2000 (Johnson, Johnson, & Stanne, 2000). Cooperative learning techniques proved more efficient with young learners in schools. The basic structure for using cooperative learning in college classes dates back to the 1950s in the United Kingdom, but student learning groups did not begin to be used in college classrooms until the 1970s in the United States. For American college professors, cooperative learning has its roots due to the nearly urgent response of colleges to an imperative educational need in the early 1970s (Flannery, 1994; Bruffee, 1984).

The Distinction between Cooperative, Collaborative, Competitive, and Individualistic Learning

As a teacher in the EFL classroom, it is important to be equipped with adequate knowledge of the different methods of classroom management. That is, before engaging in a given classroom structure, one should be aware of its characteristics, advantages and disadvantages, and what is most suitable for students according to their needs. The objective of this section is to highlight the similarities and differences between cooperative and collaborative learning and describe the features of cooperative learning as opposed to competitive and individualistic learning.

Cooperative VS Collaborative Learning.

Although the terms cooperative and collaborative learning are often used interchangeably in research, it is of great importance for this particular research to highlight the differences between the two approaches to identify the associations between the study variables. Overall, Matthews et al. (1995) suggested two separate descriptions of the two approaches and presented their similarities and differences:

In cooperative learning, students engage in structured group work and cooperate to work on a set of tasks. Each member of the group is assigned a defined role. The teacher goes from team to team, observing interactions, listening to conversations, and intervening when necessary. Students must present either a brief summary session or an oral report of their results. In collaborative learning, however, as the group analyses a given task, they collaborate and discuss who will fulfil group duties. The teacher does not actively supervise the groups and returns all substantial questions back to them to settle. Students keep the composition they

assessed and utilize it while they work on their own drafts, which will be returned in final form in later sessions. Of course, both approaches are not limited to these examples as teachers are able to manipulate their session time based on their judgment. A more accurate distinction is offered in Table. 02, which demonstrates the similarities and differences between the two approaches.

Table 02.

The Similarities and Differences between Cooperative and Collaborative Learning.

Adapted from (Matthews et al., 1995)

Similarities	Differences
Learning in an active process; The teacher is a facilitator rather than a knowledge provider; Teaching and learning are shared experiences between the teacher and students; The development of higher-order thinking skills and enhancement of individual abilities through small-group activities; Accepting responsibility for learning both as an individual and as a group member; They enhance social skills and students' ability to reflect on their own assumptions and thought processes.	The teacher is less involved in collaborative learning; Authority rapport between teacher and student is greater in cooperative learning; The extent to which students need to be trained to work together in groups; The assimilation and construction of new knowledge to the learners; The purpose of groups is to emphasize various objectives such as the mastery of target skills.

The difference between the two approaches in terms of application is clearly highlighted in Oxford's (1997) comparison. She claims that cooperative learning improves cognitive and social skills through a set of defined techniques in a highly structured setting, where all members are accountable for the group's success. The teacher facilitates learning, but the group and group dynamics are his/her primary focus. She further illustrates that positive interdependence, group accountability, and teamwork are vital for the success of the cooperative group. In contrast, collaborative learning culturally assimilates learners into knowledge communities, where they are expected to learn and interact with more

knowledgeable others (teachers, high achievers, etc.) to seek guidance, assistance, and advice. Collaborative learning relies more on cognitive apprenticeship, scaffolding, contextual cognition, reflective inquiry, and zone of proximal development (ZPD). Considering the comparison offered by Oxford (1997) and Matthews et al (1995), it is logical to infer that cooperative learning evokes higher levels of proactive autonomous learning than collaborative learning. However, as long as there is a measure of inference of the teacher, there would inevitably be room for the development of reactive autonomy.

Cooperative Learning VS Competitive and Individualistic Learning.

The question of "who is a better student in the classroom?" is often raised in classrooms amongst students and teachers alike. As long as there is a kind of assessment of learners' progress, there will always be different calibres of academic achievement. In this view, the difference between the learning structures should be taken into account to regulate and maximise learning objectives; Johnson and Johnson (2013) emphasise the difference between cooperation, competition, and individualistic learning as follows:

Cooperative learning refers to the utilization of small groups in the classroom to help students optimize their own and each other's learning. This means that learning is a shared responsibility of all members of the group and that individuals want results that benefit themselves as well as all other members of the group. This would also include that students may be motivated by the common goals of the group to assume responsibility for one another without the guidance of the teacher, so resolving significant classroom organization issues and increasing chances for cognitively appropriate learning activities (Slavin, 2011). The degree of competition here is reduced but not eliminated since there might be a sort of competition with other groups. In competitive contexts, however, Johnson and Johnson (2013) assert that students pursue results that are profitable to them but detrimental to the rest of the class: students compete with one another to accomplish an academic objective, such as an excellent grade, observation, or a limited reward that only one or a few students would achieve. Lastly, learners in individualistic contexts pursue outcomes that benefit them alone and are dismissive of the needs of others since they work independently to achieve learning goals that are different from those of their classmates. In this case, there are no detrimental intents or hostility for other students since there is no competition.

Slavin (1980) identified this spectrum as the interpersonal reward structure, which is comprised of positive, negative, and individual reward structures. He suggested that in competition, or negative reward interdependence, one student's success demands the relative failure of another, while in cooperation, or positive reward interdependence, one student's success aids the success of other students. The third structure is called reward independence, where, as the name suggests, the achievements of learners are not related to that of others, and the success of others does not affect the individual in any sort of way.

Social Interdependence Theory

The social interdependence theory, which is based on constructivist learning, is the cornerstone of modern collaborative and cooperative practice in business, research, and education. One of the founders of the Gestalt School of Psychology, Kurt Koffka (1935), maintained that interdependence was mandatory for the group to function as a dynamic whole, while also acknowledging that interdependence varies from one individual to another within the group. Kurt Lewin (1948), a student of his, argued that the nature of the group depends on interdependence among members and is generated by having a shared objective as part of his early work in social psychology. During his work on conflict resolution, his pupil Morton Deutsch elaborated on the social interdependence idea. He studied how various people's tension systems may be associated, and he conceptualized three categories of interdependence (positive, negative, and none) (Deutsch, 1949a). The aim structure of participants influences how they interact with one another, which is a core assumption of social interdependence theory (Deutsch, 1949a; Johnson & Johnson, 1989; Johnson & Johnson, 2005). Personal disposition or cognitive bias, as well as training in social cooperation and collaborative strategies, are significant variables that affect success.

The cooperative, competitive, and individualistic learning paradigms, which are referred to as positive, negative, and no interdependence, result in different interaction patterns between individuals and their psychological processes, which ultimately leads to various degrees of achievement effort, relationship quality, and psychological health. However, it can be concluded that the cooperative group process supports the discovery and development of greater cognitive learning strategies and individual reasoning than competitive and individualistic learning (Johnson & Johnson, 1985).

Interaction Patterns.

Individuals' simultaneous or consecutive acts that impact the immediate and/or future outcomes of other individuals participating in a given situation are referred to as interaction (Johnson & Johnson, 2005). Depending on the structure of learning, interaction patterns in social interdependence can be categorised as promotive, oppositional, and no interaction. Johnson and Johnson (2005, pp. 292-293) explain those patterns as follows:

> *"Promotive interaction* is defined as individuals engaging in actions that increase the likelihood of each other's success in achieving the joint goal. It consists of a number of variables, including mutual help and assistance, exchange of needed resources, effective communication, mutual influence, trust, and constructive management of conflict. *Oppositional interaction* is defined as individuals engaging in actions that reduce the likelihood of others' successful achievement of the joint goal; individuals focus both on increasing their own productivity and on preventing any other person from producing more than they do. It consists of such variables as obstruction of each other's goal achievement efforts, tactics of threat and coercion, ineffective and misleading communication, distrust, and striving to win in conflicts. *No interaction* is defined as individuals engaging in actions that promote the achievement of one's own goals without affecting the goal achievement of others; individuals focus only on increasing their own productivity and achievement and ignore, as irrelevant, the efforts of others."

Since promotive interaction is one of the prerequisites of cooperation (Johnson & Johnson, 2013), group members should provide support to carry out the desired learning goals. This implies the provision of support and the existence of maintenance of the group by promoting socially valued goals and social cohesion, as well as facilitating the development of individual outcomes such as social skills and psychological well-being (Wentzel & Watkins, 2011).

Psychological Processes.

The three aforementioned scenarios, yet again, result in different psychological processes such as positive and negative cathexis, substitutability and non-substitutability, and inducibility and/or resistance. (Deutsch, 1949a; Johnson & Johnson, 2005). On the one hand, positive

interdependence consists of positive cathexis, which is the fixation of mental effort on a particular person, concept, or object (the positive psychological energy invested in things other than oneself), substitutability, which refers to the extent to which one person's actions can be substituted for those of another, and inducibility, which is the susceptibility to influence and be inspired by others (Deutsch, 1949a). On the other hand, negative interdependence, or competition, revolves around negative cathexis (negative psychological energy invested in things other than oneself), non-substitutability (One person's actions are not a substitute for the actions of another), and resistance (not allowing oneself to be influenced by others). A state of no interdependence results in neutral individualisation because of the absence of cooperation and competition.

Effective actions such as mutually seeking the ultimate learning outcome cooperatively are linked to positive cathexis, unlike negative cathexis, which only causes ineffectiveness of learning, or, in Deutsch's words "bungling", in the cooperative group. However, contrary to cooperation, positive cathexis can be somewhat detrimental in competitive situations since it would serve as a contributing factor in favour of the success of competitors (Butera & Buchs, 2019). Moreover, substitutability increases the quality of relationships between groups. The initiatives taken by group members to substitute for other members' action helps release the tension between members, builds social skills, and eases conflict resolution. Finally, in a cooperative classroom structure, group members can easily encourage one another to (a) do acts that support goal achievement or (b) refrain from taking actions that would obstruct goal success. Competitors oppose attempts to provide help, try to avoid or impede a participant's successful activities, and will willingly support a participant's misguided acts in a competitive environment (Johnson & Johnson, 2005). Without social interdependence, students are mostly detached from each other, which would create non-substitutability, cathexis associated only to oneself, and resistance to work cooperatively (Tran, 2013). It is worth noting that, while cooperation may have positive effects on the psychological processes of individuals, competition can be pernicious to one's psychological growth; competition implies the existence of winning or losing (and occasionally a tie), and the ease of accepting victory and denial of loss may result in either positive or negative psychological health effects. In this sense, no interdependence is considered a risk-free learning method that does not affect one's psychological health. Figure 02. illustrates an overview of social interdependence theory and its outcomes.

This is, of course, not to claim that individualistic and/or competitive learning are any less effective than cooperative learning. The benefits of each method are different and dependent primarily on the needs of learners. If the focus is the development of autonomous learning, the different outcomes that may result from cooperation, for instance, may vary according to how students perceive both cooperation and autonomous learning. From a social-constructivism viewpoint, learning remains a valid social process in which social interdependence is mandatory for the achievement of learning goals.
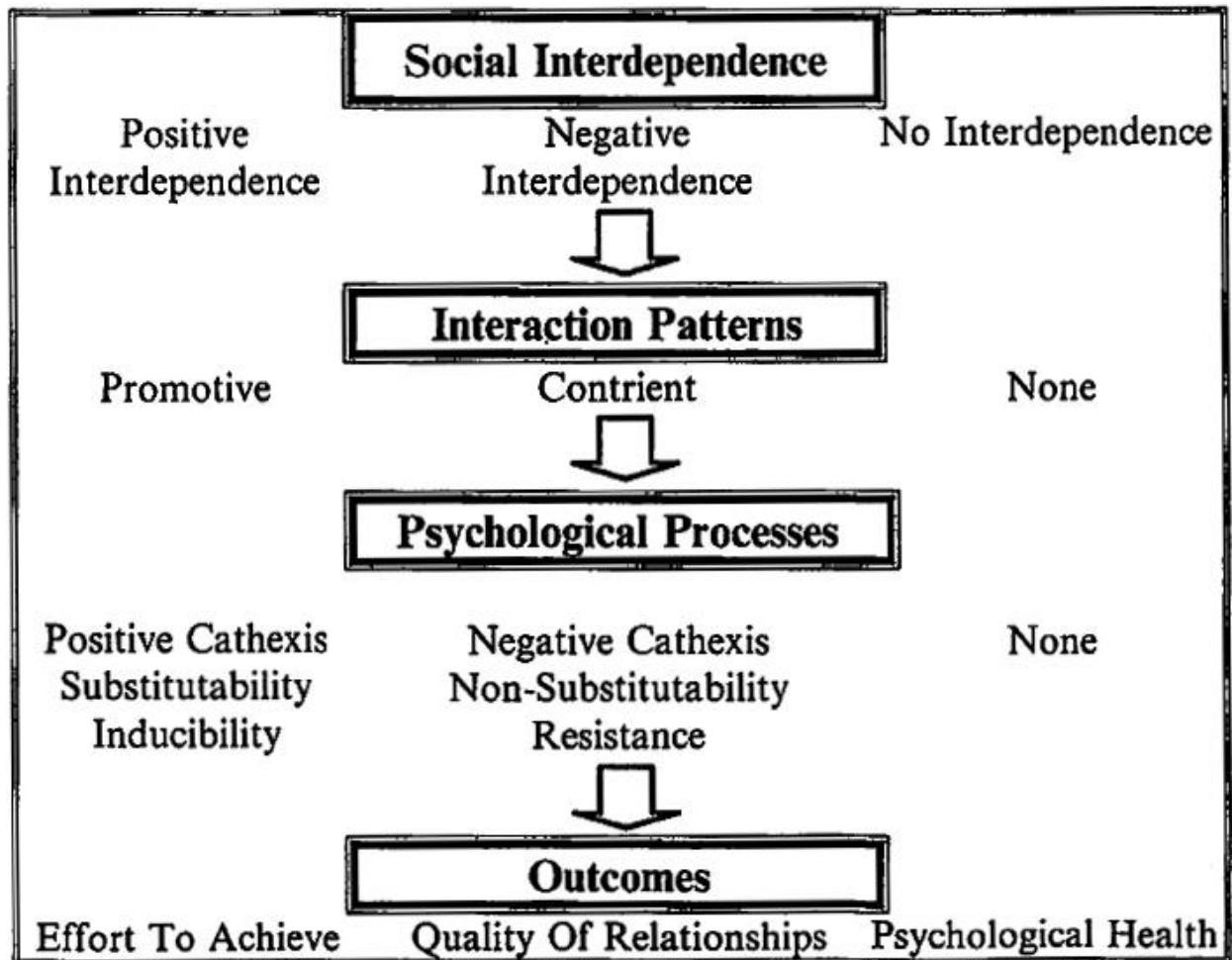
Figure 02. Overview of social Interdependence Theory (Johnson & Johnson, 2008)

Measuring Social Interdependence

In order to clearly understand the measurement aspect of social interdependence within an educational context, one has to consider the typology of cooperation within groups. It is the claim of Johnson and Johnson (1989, p. 23) that "how individuals behave is largely determined

by their perceptions of the outcomes desired and the means by which the desired goals may be reached." They further dissect the concept of social interdependence into positive and negative interdependence, which, in turn, are divided into separate dimensions. As far as positive interdependence (cooperation) is concerned, there are two main categories of interdependence: outcome and means. On the one hand, outcome interdependence occurs amongst individuals in the same group when they perceive that attaining their individual goals, and/or receiving the same respective rewards happens only if the other members of the group cooperatively reach their goals. Means interdependence can be explained as the combination of resource interdependence (the initiation of each member of the group with the information and materials needed to complete the task), task interdependence (the completion of a given task through portions or subunits in a successive and complementary manner) and role interdependence (the establishment of interconnections of assigned roles between members of the group in order to complete a task). The overlapping of the existence of outcome and means interdependence may result in different scenarios depending on the type of combinations of cooperative conditions. These different scenarios are explained in Table 03.

The first scenario, which joins the presence of both outcome and means interdependence, results in interaction coordination because of the existence of shared goals, resources, and roles. The presence of outcome interdependence and the absence of means interdependence results in uncoordinated and unstructured interaction, which might slow down the progress of achievement especially for additive and/or divisible tasks. On the other hand, if there is means interdependence with an absence of outcome interdependence, only individual outcomes are prioritised despite the existence of coordination between group members. Finally, when there is neither outcome nor means interdependence, there would be no cooperation, and the final result would be individualistic learning (Johnson & Johnson, 1989).

Table 03. Typology of Interaction (Johnson & Johnson, 1989, p. 25)

	Outcome Interdependence	
	Presence	Absence

		Coordinated interaction toward mutual outcomes	Coordinated action toward individual outcomes
Means	Presence		
Interdependence	Absence	Nonspecific interaction or coaction toward mutual outcomes	Individualistic efforts

A final additional dimension should be taken into consideration for accurate measurement of social interdependence. Although Johnson and Johnson (1989) refer to competition as negative interdependence, there is no description of the competition that may arise between groups in their book. In a later study, however, Johnson and Johnson (2009) refer to this dimension as boundary interdependence. The four probabilities discussed in table 03 do not take into account the possibility of conflicts arising between groups due to abrupt discontinuities that may more or less justify the segregation of individuals into different groups according to homogeneity and/or previous history together.

Cooperative Learning Basics

Before discussing the common cooperative learning techniques in the classroom, it is significant to address the effective basics of cooperative learning. Huddy (2012) claims that if there is one factor that determines whether a cooperative learning group succeeds or fails in producing greater outcomes, it is a learner's capacity to indeed cooperate. These abilities are widely discussed in the literature (Johnson, Johnson, & Holubec, 1994; Johnson & Johnson, 2009; Parker & Brown, 2009; Siltala, 2010; Johnson & Johnson, 2013). The five basic elements of cooperative learning are positive interdependence, individual and group accountability, promotive interaction, social skills, and group processing.

Positive Interdependence.

During cooperative learning, members of a group believe that they are intertwined in such a way that their success is linked to everyone's success (Johnson & Johnson, 2013). The reason why positive interdependence is such a strong asset in cooperative learning is that students must

make sure that the other members of their group perform their designated roles and meet the shared academic goals, and if one group member fails to finish his or her learning task, the rest of the group will be affected by that individual's poor performance (Tran, 2013). Slavin (2011, p. 347) described positive interdependence in cooperation as follows:

"cooperative incentive structures create a situation in which the only way group members can attain their own personal goals is if the group is successful. Therefore, to meet their personal goals, group members must both help their groupmates to do whatever enables the group to succeed, and, perhaps even more importantly, to encourage their groupmates to exert maximum efforts"

One way of ensuring that positive interdependence functions effectively is that teachers should attempt to assign different and complementary roles to group members; depending on the group size, students can read, summarise, examine, take notes, and encourage each other to reach the learning goal (Knight & Bohlmeyer, 1990). The more cooperative roles students have, the more likely they are to get support, acceptance, and affection, and the higher the level of interpersonal attraction among pupils (Johnson & Johnson, 1985).

On a positive note; positive interdependence is suggested to have the strongest positive effect on academic achievement. It is worth noting that higher education academic success and productivity are associated with the presence of good interdependence among group members both in online and in-person learning (Mesch, Johnson, & Johnson, 1988; Johnson & Johnson, 2008), which holds promising implications for the current situation with the restrictions of the Covid pandemic. Moreover, in a study that investigated and compared the effects of positive interdependence and group processing on student achievement the "positive interdependence" groups outperformed the "group processing" or the "no structure" groups in terms of academic achievement (Nam & Zellner, 2011).

Accountability.

Accountability implies that no one takes advantage of other members of the group and no one "hitch-hikes" on the work of others (Slavin, 2011). Individual accountability is defined as the extent to which the group's success is contingent on the individual learning of its members, which means that if there is no individual accountability, one or two members of the group may perform all of the tasks while the rest of the group does nothing (Tran, 2013), and it is usually observed when individuals of the group provide a public performance, that is, when they

demonstrate or share what they have learned or accomplished in front of their peers (Kagan & Kagan, 2009). The difference between individual and group accountability is that individual accountability occurs when each individual's performance is evaluated, the findings are returned to the individual and the group to compare against a performance standard, and the member is held accountable by group members for contributing his/her portion to the group's success, while group accountability is established when a group's overall performance is evaluated and the findings are distributed to all members for assessment against a performance standard (Johnson, Johnson, & Smith, 2014). All things considered, the success of the group remains the responsibility of group members

Astuti and Lammers (2017) argue that accountability may not be present in traditional group work in language learning settings, and this can be disadvantageous and demotivating for language learners since it provides a chance for them to practice using the target language with their peers. In fact, individual and group accountability pave the way for positive interdependence through the creation of responsibility forces; the stronger the individual and group accountability are, the more responsibility forces are promoted (Johnson, Johnson, & Smith, 2014). It would not be wise, however, to expect accountability to function efficiently and at the same calibre within groups. A critique of accountability implies that the existence of heterogeneity in group formations, for example, can be somewhat stressful for low achievers because everyone else expects them to do their share of work against a standard of performance of which they are not fully aware. Slavin (2011) asserted that there is no incentive for more capable students to spend time explaining what is going on to their less capable classmates or soliciting their feedback, especially if the goal is the performance of a task rather than learning; instead, it may be preferable and more convenient for students to offer each other answers rather than explain ideas or abilities in this situation.

Promotive Interaction.

Promotive interaction is defined as the help, support, encouragement, and praise that group members offer for each other to learn, or the action of encouraging and facilitating the efforts of each other to reach the group's goal (Johnson & Johnson, 2014). As mentioned before, positive interdependence leads to promotive interaction, while negative interdependence leads to oppositional interaction (Deutsch, 1962), which is a type of group interaction that is promoted in competitive situations, and which, in turn, implies that if shared goals within a

group are not clearly defined, it will lower the possibility of others successfully achieving the joint goal (Huddy, 2012). The existence of communal and, preferably, exchange relationships amongst group members are desirable in this situation; exchange relationships, in which a benefit is given in reaction to the receipt of a benefit, are contrasted with communal relationships, in which a benefit is given in response to a need for the benefit (Clark & Mills, 1979). The building of promotive interaction within groups requires the existence of small group skills such as effective communication, leadership, trust building, and conflict resolution skills (Johnson & Johnson, 2013).

In a meta-analysis of 34 studies conducted from 1995 to 2017, it was indicated that core aspects of effective cooperative learning in small groups include students' interpersonal conduct, their experiences and active engagement in the cooperation process, communication and support for one another, and teachers' impact on boosting students' interaction, academic achievement, and improved cooperative abilities (Dzemidzic et al., 2019). However, Organizing face-to-face promotive interaction (FtFPI), planning and balancing between working on a group assignment and assisting peers, interpersonal behaviours, and supportive communication were all claimed as some of the challenges for teachers in adopting face-to-face promotive interaction (Dzemidzic, 2020).

Social skills.

Social skills are the abilities that allow individuals to communicate, learn, seek help, have their needs addressed in a timely manner, get along with others, make friends, create healthy relationships, defend themselves, and, in general, engage with society (Dowd & Tierney, 2005). In cooperation, having these skills is almost mandatory for the success of the group. Therefore, individuals must be trained and motivated to employ the interpersonal and small-group skills required for high-quality cooperation (Johnson & Johnson, 2014). According to Johnson, Johnson, and Holubec (1994), four types of cooperative learning skills are needed to establish sustainable group dynamics: formation, functioning, formulating, and fermenting skills. Formation skills include the abilities required to manage a group and create basic conduct rules such as staying with the group, speaking quietly, encouraging others, gazing at the speaker, and displaying self-control. Functioning skills are the skills required to manage the group's activities and preserve long-lasting productive teamwork such as offering assistance to the group, displaying support and acceptance for ideas, asking for help or clarifications, paraphrasing,

using humour to motivate the group, and offering explanations. Formulation skills are the skills needed to get better knowledge of the information to be studied, encourage higher-level thinking, and achieve stress mastery, understand and retain the learning goals, give constructive feedback, expand on a comment or an answer, check for comprehension, and asking members to plan out loud. Finally, fermenting skills are the abilities required to develop greater levels of understanding, to promote higher-level thinking such as contrasting criticism with evident and valid responses, questioning, creating more responses, evaluating ideas from a shared point of view through discussion, and testing reality by putting the groups' efforts through tests through instructions (Johnson, Johnson, & Holubec, 1994).

Although the success of cooperative learning depends on the existence of these social skills, it is also possible for the scenario to go the other way around. A significant proportion of studies have shown that cooperative learning can also be used as a means of enhancing social skills; the development of the latter was associated with varying levels of cognitive complexity of the lessons and higher levels of accountability (Ferrer, 2004; Booysen & Grosser, 2008; Lavasani, Afzali, & Afzali, 2011; Buchs & Butera, 2015). Most of these studies, however, were conducted with students in their early education years, which means that more studies should focus on enhancing the social skills of adults especially in heterogeneous groups. This is because adults are, generally speaking, expected to be equipped with the social skills needed for cooperative situations. An assessment of some sort should take place to guarantee a smooth shift of responsibility of learning for groups that are assumed to have adequate social skills. Flannery (1994, p. 22) asserts:

> "While groups can operate to foster active learners, help to shift the responsibility for learning away from the instructor and toward the student, and perhaps even generate new knowledge, they can also create powerful pressures on their members that thwart these possibilities. Tyranny can prevail within a group just as it can under an instructor"

Hence, it remains the teacher's responsibility to decide on the social skills that should be taught. This could be determined by the skills that learners have and have not acquired yet. Teachers may identify what social skills learners lack through the observation, monitoring, and evaluation of the situation (Goodwin, 1999).

Group Processing.

Group processing is the study of the efficacy of the method members employ to maximize their own as well as each other's learning in order to identify ways to enhance the learning process (Johnson & Johnson, 1989). In order to optimize their performance and efficiency, cooperative learning groups must analyse how effectively they are performing, determine what actions and members are helpful or detrimental, and finally make decisions on whether or not to continue or modify certain behaviours (Johnson, Johnson, Holubec & Roy, 1984; Johnson & Johnson, 2013). In order to achieve that, members of the group must identify what behaviours are beneficial and useless in ensuring that all members of the group (a) attain productive working relationships, (b) select which behaviours should be promoted or altered, and (c) applaud and appreciate the hard work and success of the group (Johnson, Johnson, & Smith, 2014).

The overall viewpoint of group processing is promising for the concept of cooperative learning, and only a few researchers in the literature have discussed the disagreements regarding whether or not groups should evaluate how well they are operating (Yager et al.,1986). The latter study provided empirical evidence that students in the cooperative learning-with-processing scored higher in the achievement post-test than students in the cooperative-learning-with-no-processing and individualistic learning. Group processing was also found to be associated with increased group productivity, self-efficacy a decrease in self-doubt (Johnson et al., 1990), and enhanced satisfaction for validation and acceptance (Strahm, 2007).

All in all, the five prerequisites underlying cooperative learning are of extreme importance to reach the desired learning outcomes. Without adherence to positive interdependence, accountability, promotive interaction, social skills, and group processing, dysfunction and a breakdown in the group system that is designed to foster better educational goals and learning skills may occur (Huddy, 2012). To achieve the optimal flow of functioning and maximize understanding of the taught content, the teacher must arrange the groups based on these tenets when conducting courses using cooperative learning.

Perspectives Underlying Higher Achievement in Cooperative Learning

One of the main purposes of shifting to a cooperative-based classroom structure is to prompt higher achievement. Regardless of the teacher's attempts to ensure the occurrence of

the latter in terms of the well structuring of groups and learning materials, there could be other in-group factors that might further improve achievement in cooperative learning. Slavin (1995; 2011) identified four major perspectives that imply better achievement effects of cooperative learning: the motivational perspective, social cohesion perspective, cognitive-developmental, and cognitive-elaboration perspectives.

The motivational viewpoint holds that task motivation is the most important aspect of the learning process. Organising and aiding are driven by individuals' motivation. The members of a group must be motivated to both assist and encourage their peers to do their best efforts in order for the group to prosper. True is it that some students, especially low achievers, are more inclined to view that high accomplishment is for "nerds" since, in competition or individualistic learning, one student's success reduces the odds of others succeeding. This kind of bullying may be reduced if students are encouraged to work together cooperatively on a common learning goal to display attitudes favouring academic accomplishment and supporting one another for better academic achievements.

The social cohesion viewpoint asserts that students will engage in the task and help one another learn because the group and group members are of importance to them and they want one another to succeed, to reinforce one another for academic efforts, according to this perspective, and find a sort of identity that result from belonging to a certain group. The reputation of the group and its member might affect the attractiveness of the group and, by extension, the adherence to its membership. Group cohesiveness is believed to play a major role in the quality of the group's interactions; a cohesive group will communicate and resolve conflicts faster than an otherwise detached group. Not only is interaction a vital issue for better academic achievement, but also the focus of the cognitive perspectives proposed by Slavin (1995): the cognitive elaboration, and the developmental perspective.

On the one hand, the cognitive elaboration viewpoint posits that, in order for students to acquire and process new information, some form of cognitive restructuring or elaboration should take place. The processing of these new information is made easier with interaction, as opposed to motivation, which happens in the cooperative group, and it results ultimately in better achievement. The developmental viewpoint, on the other hand, asserts that cognitive growth within learners of similar ages is promoted since they are interacting in the same zone of proximal development. The demanding nature of cooperative tasks in the classroom almost necessitates students to consider the perspectives of one another, attempt to present and validate

their arguments, discuss with their peers, and engage in peer correction and peer assessment, all of which are responsible for better learning and greater achievement. Figure. 03 demonstrates Slavin's (2011) model of integrating the four theoretical perspectives of cooperation in learning.

```
┌─────────────┐      ┌─────────────┐   ┌──────────────────┐
│ Group goals │─────▶│ Motivation  │   │ Elaborated       │
│ based on    │      │ to learn    │   │ explanations     │
│ learning of │      │             │   │ (peer tutoring)  │
│ all group   │      │             │   │                  │       ┌──────────┐
│ members     │      │ Motivation  │   │ Peer modeling    │       │ Enhanced │
│             │      │ to encourage│   │                  │──────▶│ learning │
└─────┬───────┘      │ groupmates  │◀─▶│ Cognitive        │       │          │
      │              │ to learn    │   │ elaboration      │       └──────────┘
      ▼              │             │   │                  │
┌──────────┐         │             │   │ Peer practice    │
│ Social   │         │ Motivation  │   │                  │
│ cohesion │◀───────▶│ to help     │   │ Peer assessment  │
│          │         │ groupmates  │   │ and correction   │
└──────────┘         │ learn       │   │                  │
                     └─────────────┘   └──────────────────┘
```
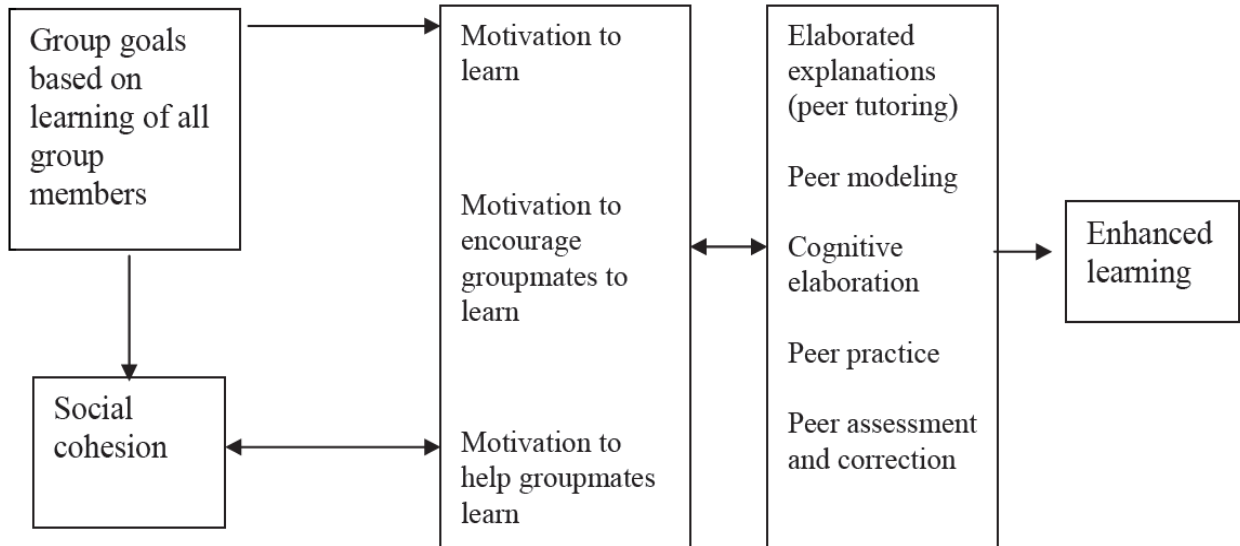
Figure 03. Integration of theoretical perspectives of cooperative learning effects on learning (Slavin, 2011)

Homogeneity Versus Heterogeneity

Following a cooperative learning classroom structure requires knowledge of the setting and the students. In a class where students cooperate often, and a great amount of their time in class is devoted to cooperative or collaborative learning experiences, the manner in which students are organized for teaching may have a considerable impact on how effectively students learn (Baer, 2003). There are two ways in which teachers can divide students. On the one hand, students are placed in homogenous groups based on their abilities, genders, or races, such that everyone in the group has the same skill level, gender, ethnicity, and so on. On the other hand, heterogeneous grouping brings together students with a wide range of levels, abilities, skills, and interests to perform a given activity (Zamani, 2016).

In the classroom, there is no standard of measure against which students are put while forming heterogeneous groups except for the fairness of distribution. Students with mixed ethnicities, races, or abilities are put together in small groups to work on a particular task. This structure is more likely to allow members to examine more possibilities, match responsibilities with learners who are inclined to their roles, and produce better task results, which is better in

the classroom because task productivity is the primary priority. Conflict, on the other hand, may be intensified by communication, cognitive, and cultural differences, which reduce beneficial processes including shared leadership, cohesion, information sharing, and satisfaction. Homogeneous groups, on the other hand, are happier and have less disagreement than heterogeneous groups. Intimidation and control by a dominating or more knowledgeable member are less likely to occur, which is more acceptable in educational settings, where learners' growth is the primary goal (Schullery & Schullery, 2006). In some cases, students, especially high-achievers, might want to be in the same group to achieve better, or simply because they are afraid that low achievers might slow them down or demonstrate low levels of group accountability. From a social constructivist viewpoint, however, Lev Vygotsky proposed that the zone of proximal development proposes that less knowledgeable students might benefit from interactions with more knowledgeable classmates to gain abilities (Cole et al.,1978). In heterogeneous grouping, group dynamics dictate that working cooperatively with peers benefits low- and medium-ability students in particular, while high-ability students improve academically when they cooperate with medium- and low-ability peers rather than working alone (Johnson & Johnson, 1985). Nevertheless, regardless of whether the structure is homogeneous or heterogeneous, group goals may increase group cohesiveness by creating compassion and concern among members of the group, making them feel responsible for one another's success, and prompting students to participate in cognitive processes that improve learning (Slavin, 2011). That is, cooperative learning improves communication skills, student motivation, self-esteem, self-efficacy, discipline issues, and cognitive growth (Kagan & Kagan, 2009). Despite the outcomes of the two structures, it is noteworthy that students rarely play the position of information receiver more than knowledge creator in all cooperative strategies. Student group methods can be at the very least used to pose a more fundamental challenge to the typical traditional college classroom (Flannery, 1994).

Application of Cooperative Learning

Although the concept of cooperative learning has been around for an approximation of seven decades now, the application of cooperative learning approaches and techniques did not take place until the late 1970s. Slavin (1980) highlighted four major cooperative learning techniques, namely teams-games-tournament, student teams-achievement divisions, jigsaw, and small group teaching.

In teams-games-tournament, students are joined in 4- to 5- heterogeneous groups for an instructional tournament. They exhibit their learning in the competition, which is normally held once a week after they have practiced together. Students or teams are assigned to three-person tables based on their performance in the previous presentation, resulting in ability-homogeneous individuals competing as team representatives, covering instructional content. The teacher then selects the winning teams and top scorers.

In the student teams-achievement division, students are joined in 4- to 5- heterogenous groups. Students take a 15-minute quiz after discussing the learning material in their teams. The highest six students' quiz results in the previous assignments are compared, and the leading scorer in this group (the achievement division) gets eight points for their team, the second scorer earns six points, and so on. Instead of comparing student results across the whole class, they are compared just to those of an ability-homogeneous reference group. The accomplishment division function ensures that everyone has an equal chance at contributing to the team score.

The Jigsaw technique gathers students in 4- to 5-students. Academic content is divided into portions equal to the number of team members. Students study their parts with members of other teams who have the same category, then return to their teams to teach their sections to the other members of their teams (expert groups). They return to their groups and inform the other team members about their areas of expertise. Scoring students here is done individually to avoid conflict within the expert groups.

Lastly, the small group teaching technique requires small groups of students who are assigned to choose subtopics within a teacher-selected general scope, then break down their topic into individual tasks to be completed by group members in preparation for a group presentation to the entire class and to be evaluated by their peers and the teacher alike through discussion. Due to the assignment of students to specific tasks within the group, this technique demands equally high levels of learner autonomy and task interdependence. According to Johnson and Johnson (1985), in the cooperative condition, active participation in supplying task-related information was shown to be substantially associated with higher academic achievement, and the oral rehearsal of group findings has been proven to be essential for cognitive processes such as rote learning and information analysis and synthesis, boosting long-term retention of information, and increasing academic achievement.

One approach to applying these techniques can be carried out through Oxford's (1997) multistep lesson planning, which includes defining goals, decision-making (e.g., group size and assignments, room arrangement, material planning, and group responsibilities), conveying the task, goal structure, and learning activity, monitoring and assisting; and assessing and processing. This framework can accommodate almost any second language learning activity. Interdependence, social skills, accountability, and group structure are all incorporated into the sequence and conveyed to the students in numerous ways, which distinguishes this paradigm as cooperative learning rather than simply group work.

The Teacher's Role in Cooperative Learning

Cooperative learning implies a decrease in teacher authority but does not necessarily mean that students have to be fully autonomous. Newly-established groups are likely to deteriorate without the teachers' intervention, especially in early education years. Here, the level of interference that the teacher offers is dependent on the type of cooperative learning being used.

In formal cooperative learning, which is defined as students working together for one or several class sessions to attain mutual learning goals and complete activities and assignments (Johnson, Johnson, & Holubec, 2013), it is the teacher's role to make pre-instructional decisions such as identifying students' academic and social skills, determining group size, selecting a method for allocating students to groups, determining which duties to provide to group members, setting up the space, gathering the equipment that the students will need to accomplish the job, monitoring students' learning and intervening to assess and teach the social skills needed, offer academic assistance, and evaluate the learning outcomes of the group (Johnson & Johnson, 2008; Johnson & Johnson, 2019).

Informal cooperative learning is defined as a situation where students work together for a few minutes to one class period to attain a mutual learning goal in temporary groups (Johnson, Johnson, & Holubec, 2013). Informal cooperative learning may help students focus on the content they are learning, set expectations for the content that will be handled in a class session, and ensure adequate information processing (Johnson & Johnson, 2019). Here, the role of the teacher is to arrange for informal cooperative learning groups to be formed. Before and after the teacher's direct instruction, students may have three- to five-minute focused discussions.

The teacher should make sure that students undertake the cognitive effort to describe what they are learning, analyse synthesize, and summarise the information, during direct instruction. The teacher may move from group to group to check for understanding. Direct teaching can take place after discussions, and the teacher would allot a three- to five-minutes intermittent discussions during the session (Johnson & Johnson, 2008). Unlike permanent cooperative base groups, teachers must construct the necessary group structure and processes in most educational circumstances and times, when students gather for short periods of time across weeks or months (Olmstead, 1974).

Lastly, cooperative base groups are long-term, diverse groups with determined membership in which students offer each other support and encouragement in order to attain higher academic achievements through attending classes together and completing assignments (Johnson, Johnson, & Holubec, 2013). Here the teacher is responsible for forming groups of three to four, structuring groups heterogeneously to ensure maximum development for high- and low-achievers in the long run, organising a regular meeting time (for example, at the end of each session), preparing agendas to maintain a well-established learning pattern, assuring the presence of the five key principles of cooperative learning, and encouraging students to evaluate their base group's effectiveness (Johnson & Johnson, 2008). The teacher can also allow students to form their own groups in case they were inclined to be in relatively homogeneous groups. The creation of group structures here is vital due to the permanent membership feature. Either way, when conflicts develop among group members, they can be handled productively or destructively, depending on the teacher's classroom management and the students' mastery of social skills, and only then can positive cognitive curiosity of correctness and precision be fostered (Johnson & Johnson, 1985).

The description above explains the extent to which the teacher's role is important. However, authority regulations have to be taken into consideration to establish learner-centeredness. Cohen and Lotan (2014) assert that delegating authority in an educational assignment means that students are responsible for certain elements of their work, and are allowed to complete their task in whichever way they see fit, but they must still submit the finished output to the teacher, and if the teacher is an authoritarian figure during group work, he/she will automatically do the majority of the talking with the students, regardless of their age or maturity. The teacher's assessment of each group member's progress will carry

significantly more weight than any other group member's assessment, which can be detrimental to students' self- and peer assessment and their interpersonal reward structure. This, of course, depends on the context of learning and the age and level of learners. In higher education contexts, for example, the teacher's role is relatively reduced in cooperative learning as opposed to middle or high school contexts. Flannery (1994) argues that a group of reasonably capable adults can learn on their own, it is not necessary for an instructor to regulate every input into the discussion to be an efficient learning experience, and that maximum learning is most likely attained when a group separates their dependence on its teacher and takes responsibility for their learning. It is important to note that the three types of cooperative learning can be integrated into one session. The classroom begins with a base group, followed by a brief lecture that incorporates informal cooperative learning. Structured cooperative group practice will follow the discussion. After that, the classroom might conclude with a base group meeting (Johnson, Johnson, & Holubec, 2008).

Conclusion

This chapter joins together and analyses the relevant literature on the different dimensions of learner autonomy, cooperative learning, and social interdependence as the variables of this study. The chapter, hence, consists of two sections. The first section sheds light on the desirability and feasibility of autonomy in academic contexts, the factors affecting the feasibility of autonomy, teachers' conceptions and roles to promote autonomous learning, and the different ways of fostering autonomous learning. The second section differentiates between cooperative, collaborative, competitive, and individualistic learning, and discusses the different dimensions of cooperative learning including the theoretical perspectives underlying cooperative learning, the five effective cooperative learning basics, social interdependence theory, the actual application of cooperative learning, and the teacher's role in cooperative learning. Additionally, both sections discuss the measurement of learner autonomy, cooperative learning, and social interdependence. The next chapter offers a comprehensive description of the methodology of the current study.

Chapter Two: Research Methodology

Introduction

The previous chapter outlined the relevant literature on autonomous leaning, social interdependence, and cooperative learning, including the theoretical and practical framework of the study variables. The subsequent chapter, hence, describes the research design and methodology. This includes a description of the population, the sampling method of the study, the setting of the study, the measures, the reliability and validity of the instruments, data collection and analysis procedures, and finally, the ethical considerations of the research.

Choice of the Research Method

The research method is determined by the nature of the topic and the data, the research aims, and the sample to be researched. This study investigates the relationship between learner autonomy, cooperative learning, and social interdependence in quantitative-based research design. Quantitative research emphasizes the quantification of data gathering and analysis (Bryman, 2012). This is can be done using a variety of methods and techniques of quantifying data, and it is known for its widespread use as a research strategy in the social sciences as well as a variety of other disciplines (Given, 2008). The current research is a descriptive and correlational study in which the data is gathered using three research instruments which will be discussed in greater details later in this chapter. In order to investigate students' perceptions of learner autonomy, cooperative learning, and social interdependence, descriptive statistics are used to draw inferences about the actual state of students regarding of the variables of the study. Moreover, the assessment of the different relationships between the study variables necessitates the use of correlational analyses using inferential statistics to make significant inferences about the sample of the study, as well as to assess the associations and predictive relationships between the variables.

Population of the Study

Population refers to the sum the units from which the collection of data could be executed (Parahoo, 1997). That is, generalisations of the inferences made from the study would more or less extend and represent the whole population. In order to appropriately and efficiently measure the variables of the study, the population included teachers and undergraduate students in the Department of English at the University Centre of Si-Lhaoues – Barika. An accurate measurement of the study variables should be in line with the nature of the topic and the research questions. The selection of the population of the study is justified first and foremost with the

need for presumably adequate autonomous learning behaviours, and, second, with higher social interdependence and cooperative learning skills. In other words, the demand for learner autonomy in higher education settings is far greater than that of lower levels of education; the Algerian LMD system requires university students not only to attend seminars and lectures, but also to be autonomous in searching for information. This includes completing assignments in the form of secondary research for the most part, project-based learning, which usually incorporates group work, and primary research for the Master's and Doctorate-level Studies. It is important to note that the undergraduate level in Algerian higher education is an umbrella term that joins both License and Master's students. Therefore, the population of the study is composed out of all levels at the aforementioned department. The overall number of students at the time of the study is 352 students divided into five levels: first-year students (L1), second-year students (L2), third-year students (L3), first-year master's students (M1), and second-year Master's students (M2).

The Sample of the Study

In social sciences, sampling refers to a smaller subset of the population or a group of people whom are either assigned to (or willingly) take part in research. Generally speaking, the inferences made from the sample are representative of the whole population. According to Cohen et al. (2007), when designing a research plan, sampling decisions should take place in an early stage. There is a considerable number of sampling techniques that could be used depending on the nature of the research topic. Sampling methods can be divided into probability, and non-probability sampling. The former allows access for the whole population to participate and allows them an equal chance to take part in the study (Kothari, 2004), while the latter is focused on a specific group of the wider population, which means that the study is not accessible by anyone (Griffee, 2012). Both probability and non-probability sampling methods can further be classified into sampling techniques. Probability sampling techniques involve Simple random, stratified, cluster, and systematic sampling (Barreiro & Albandoz, 2001), while non-probability sampling techniques encompass convenience, purposive, snowball, and quota sampling (Sharma, 2007). Undergraduate students at the department of English at the University Centre of Si-Lhaoues Barika were selected through convenience sampling. Convenience sampling selects participants of the target population who satisfy certain practical requirements, such as accessibility ease, geographical proximity, voluntariness

to participate, and availability at a specific time (Dörnyei, 2007). Being a part-time teacher at the aforementioned department, it was to the best knowledge and belief of the researcher to conduct this study at the department at which he works because of the close proximity and ease of access to the sample. At the time of the study, the researcher had already been teaching two out of three License levels (second and third year students), hence, it resulted in greater voluntariness to respond to the research instrument due to the good rapport he had with them. The sample of the study consisted of 261 students from all three levels (127 first-year students, 73 second-year students, and 61 third-year students), and it was determined by the number of responses to the study instruments.

Study Settings

This study took place at the University centre of Si Lhaoues – Barika within the department of English. During the academic year 2021/2022, the department was not an independent entity, but it was rather an affiliate of the department of Foreign Languages at the University Centre, which included two majors: French and English. The two departments have now been separated. Due to the spread of COVID-19 during the above-mentioned academic year, the Ministry of Higher Education and Scientific Research impressed upon every Algerian university to set a study schedule for all faculties and departments in accordance with social distancing procedures. During the second semester (February 2021 – June 2022) the schedule was divided into three cohorts. First year students were scheduled to study simultaneously along with third-year students for one week, second year students were scheduled to study for one week together with second year Master's students', and then third year students would study during the third week. In the second semester, the schedule was divided into two cohorts studying on a bi-weekly basis because second-year Master's students do not study at the university for the sake of dissertation preparation. Hence, first and third year students would study on the first week, while second year and first year Master's students would study simultaneously on the subsequent week.

Measures

The current study attempts to tackle the potential significant relationship between learner autonomy, cooperative learning and social interdependence, and ultimately results in a general model that joins these three variables and highlights the different types of relationships between

them. First, the researcher deployed an adapted version of the survey of the actual use of cooperative learning among teachers (Lopata, Miller, & Miller, 2003). For measurement purposes, three instruments have been used: the learner autonomy perception questionnaire (LAPQ) (Nguyen & Habok, 2021), The Cooperative Learning Questionnaire (Fernandez-Rio et al., 2017), and the Social Interdependence in Collaborative Learning Scale (SOCS) (Shimizu et al., 2020). All of these instruments are up-to-date, and have been developed and validated in different contexts by their respective researchers.

The Actual Use of Cooperative Learning Survey for Teachers

Before engaging in students' questionnaires, the researcher had deployed the survey of Actual Use of Cooperative Learning with nine teachers from the department of English at the University Centre of Barika. The survey was developed by Lopata et al. (2003) based on four out of five of the cooperative learning basics set by Johnson et al. (1984). Lopata et al. (2003) field tested the survey with elementary and middle school principles and teachers, and hence made the necessary adjustements on the content validity. It was originally designed to compare between teachers actual and preferred use of cooperative learning in the classroom. The survey has ten items, each measured on a five-point Likert scale (see Appendix A). Item number one "I expect students to work in groups with low-I2 inch voices?" was removed from the survey due to ambiguity and irrelevance. Item nine "I think there is less time to use cooperative learning than a few ye& ago?" was reverse coded in SPSS to increase the accuracy of measurement. The survey has not undertaken any other sort of validation that could otherwise determine the factors of cooperative learning as latent variables for the items. It is very important to clarify that the sole reason for the deployment of this survey is to provide evidence that cooperative learning is indeed a familiar educational practice at the department of English, which would strengthen the results of the study; only descriptive statistics will be used on this survey to highlight the extent to which cooperative learning is used in the study settings, and to ultimately answer the third research question of this study. Hence, it is safe to say that the absence of evidence of other types of validity in this survey does not affect the validity of the results of this study.

The Learner Autonomy Perception Questionnaire (LAPQ)

Several attempts have been made to establish a survey that accurately measures learner autonomy in the last 30 years. The development of questionnaire items to measure the dimensions of autonomous learning resulted in scales and subscales tackling variables such as independence of learning, study habits, metacognitive knowledge and skills, role of teachers and their feedback (Macaskill & Taylor, 2010; Karababa, Eker, & Arik, 2010; Cotterall, 1995). Most recently, however, Nguyen and Habok (2021) designed and validated the Learner Autonomy Perception Questionnaire (LAPQ) with 1565 students at seven separate university institution in Vietnam. The researchers used Cronbach's Alpha Coefficient, and average inter-item correlations to determine the reliability of the questionnaire. In order to validate the questionnaire, they used centent, structural, substantive, external, and consequential validity tests. Bartlett's test of sphericity showcased highly significant correlations between the items (N = 780; $\chi2$ = 27,614.745; df. = 3,741; p < 0.001), and the Kaiser-Mayer-Olkin (KMO) test revealed great sampling adequacy (KMO = 0.933), paving the way to conducting the Exploratory Factor Analysis (EFA). After conducting the EFA on approximately half of the sample (N = 780) to determine the structural validity aspects of the questionnaire, the researchers extracted five latent variables. The factor loadings on the items of the questionnaire resulted in the deletion of several items, leaving a 40 items for the following five factors according to parallel analysis, which compares the eigenvalues between parallel randomly generated data and the actual data. The 40 items are as follows: beliefs about the teacher's role (BTR) (eight items), freedom (F) (seven items), motivation and desire (M&D) (five items), metacognitive knowledge (MK) (five items), and metacognitive skills (MS) (15 items). All of the items were measured on a five point Likert scale. Figure 04. demonstrates the 40-item questionnaire model from the CFA, which is resulted from the highest five factor loadings above the acceptable threshold from the EFA. The abbreviations in the big circles elucidate latent variables and the small circles represent the measurement error of the observed variables (indicator variables). The rectangles represent the indicator variables. One way arrows represent factor loadings, and two way arrows represent correlations between latent variables.

Confirmatory Factor Analysis (CFA) was performed on these 40 items on the other half of the sample of the study (N = 785) to determine the goodness-of-fit indices of the hypothesised model through the calculation of Chi-square χ^2, the comparative fit index (CFI), the Tucker-

Lewis index (TLI), the root mean square error of approximation (RMSEA), the normed fit index (NFI), and the Standardized root mean square residual (SRMR). According to the developers of the questionnaire, the results of the CFA were good but not entirely satisfactory regarding the NFI, TLI, and CFI ($\chi^2 = 1,633.966$; df. = 367; χ^2/df. = 4.45 < 5.0; p < 0.01; RMSEA = 0.047 < 0.05; NFI = 0.860 ≈ 0.9; TLI = 0.876 ≈ 0.9; CFI = 0.888 ≈ 0.9; SRMR = 0.057). Hence the data showed adequate fit to the proposed model. The quality criteria of the proposed model were assessed by the developers of the questionnaires. This includes convergent and discriminant validity, and composite reliability. As far as convergent validity is concerned, all of the standardized regression weights in the model were greater than .50, which means that it is above the threshold needed for convergent validity, except for the indicator variable number 40 which had a factor loading of 0.407. However, according to Hair et al. (2013), the rule of thumb for the significance of the factor loading is dependent on the sample size.
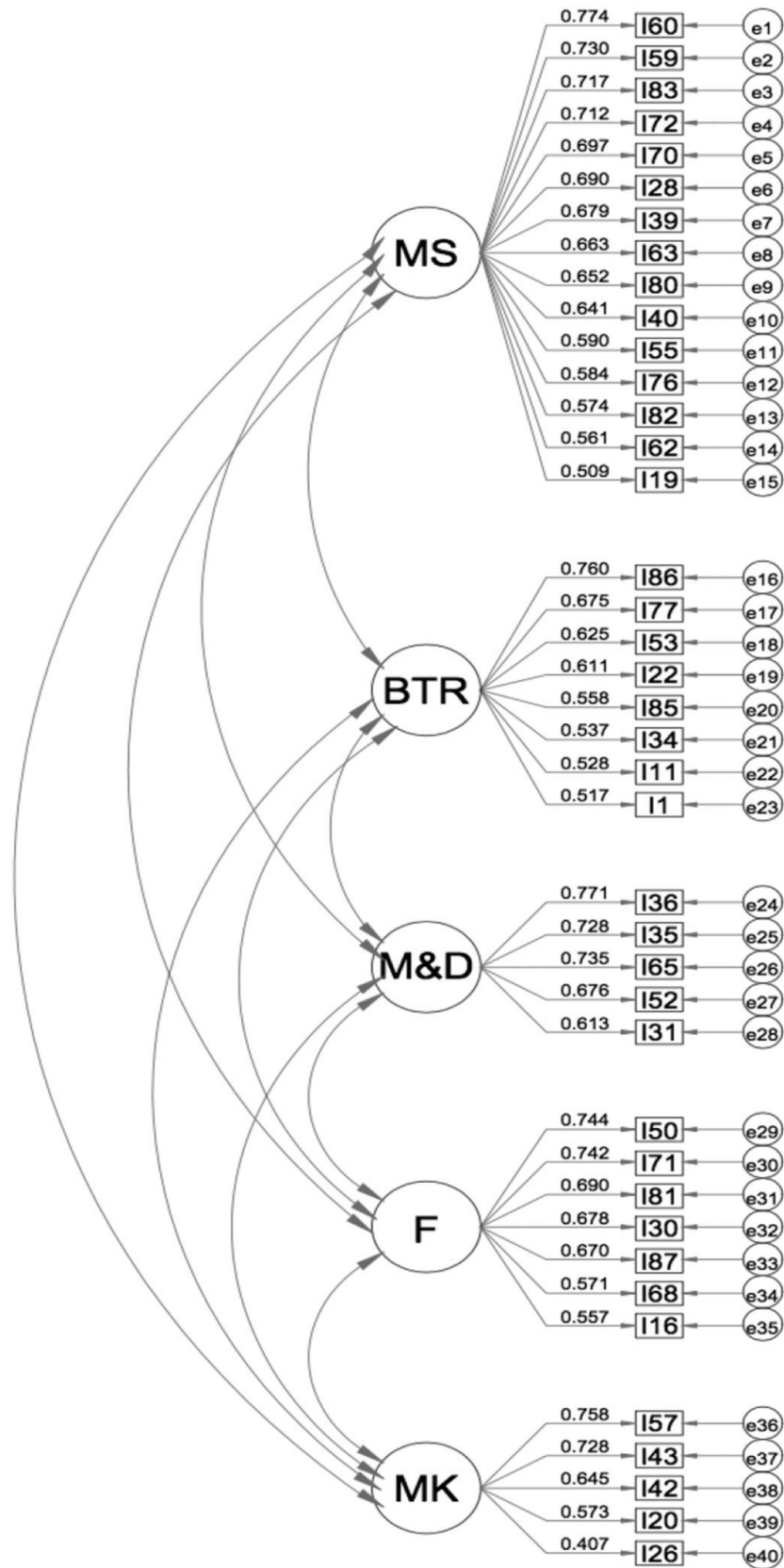
Figure 04. Model of the 40-item LAPQ (Nguyen & Habok, 2021)

Table 04.

Guidelines for Identifying Significant Factor Loadings Based on Sample Size (Hair et al, 2013, p. 128)

Factor loading	Sample size needed for significance
0.30	350
0.35	250
0.40	200
0.45	150
0.50	120
0.55	100
0.60	85
0.65	70
0.70	60
0.75	50

Table 04. demonstrates the acceptable sample sizes that justify the significance of the factor loadings. Given the sample size used to conduct a CFA on the developed instrument, the loadings of the factors on the model were acceptable. The average variance extracted (AVE) of the scales ranged from 0.368 to 0.502, and only scale score above the benchmark (M&D). However, they were compensated by composite reliability, which ranged from 0.764 to 0.915. Discriminant validity of the developed instrument was achieved since the Fornell-Larcker criterion (Fornell & Larcker, 1981) showed that the AVE of each scale was higher than the correlations of the observed variables with each other, cross loadings showed that the items of each scale showed better correlations with each other than with those of other scales, and finally, the heterotrait-monotrait (HTMT) ratios were greater than 0.9. Finally, the instrument marked acceptable to excellent reliability scores on all of the scales. Table 05. describes the different reliability scores of the scales of the LAPQ questionnaire, including Coefficient Alpha, rho_A, and Composite reliability.

Table 05.

Summary of reliability analysis of the LAPQ (Nguyen & Habok, 2021)

	Cronbach's α	rho_A	CR
BTR	0.767	0.798	0.821
F	0.791	0.803	0.848
M&D	0.751	0.760	0.834
MK	0.633	0.677	0.764
MS	0.901	0.907	0.915

The Cooperative Learning Questionnaire (CLQ)

The cooperative learning questionnaire has been developed and validated by a group of researchers from Spain (Fernandez-Rio et al., 2017). To a considerable extent, the instrument is in line with previous research. In the previous chapter, it was shown that there are five cooperative learning basics: positive interdependence, promotive interaction, individual accountability, group processing, and social skills. The cooperative learning questionnaire was designed and validated with 11202 elementary, secondary school, and baccalaureate students from 62 cities all over Spain. The sample included 5838 males and 5364 females. The final version of the questionnaire consisted of five subscales: Promotive Interaction, Positive Interdependence, Individual Accountability, Group Processing and Interpersonal skills.

The first version of the questionnaire was developed with the aid of a group of university professorswith adequate research knowledge on cooperative learning. It contained 30 items with 6 items for each subscale measuring the five dimensions of cooperative learning on a five-point Likert scale: Promotive Interaction (PI) Positive Interdependence (PID), Individual Accountability (IA), Social Skills (SS), and Group Processing (GP). Content validity of the questionnaire was then assessed with six professors to caluculate the content validity ceoffient (CVC) by dividing the mean average of the item by the maximum possible score on the Likert scale. The researchers retained only items with a CVC $\geq$ 0.90. The final version of the quesionnaire consisted of 20 items written in Spanish (4 items each) after a pilot study with 60 students. The developers of the questionnaire conducted a CFA and a second-level CFA to determine the fit indices of the model to the data through the calculation of the Satorra-Bentler scaled Chi-square (S-B χ^2) due to abnormal data distribution (Satorra & Bentler, 1994), the robust version of Comparative Fit Index (CFI), RMSEA, and SRMR. Convergent and discriminant validity were also calculated. All fit indices were satisfactory for both the first-level CFA: (S-Bχ^2 (160) = 2574.51, p < .001; *CFI = 0.953; *RMSEA (90% CI) = 0.037 (0.035-0.038); SRMR = 0.02), and the second level CFA: S-Bχ2 (165) = 3134.01, p < .001; *CFI = 0.942; *RMSEA (90% CI) = 0.040 (0.039-0.041); SRMR = 0.032.

Furthermore, as far as convergent validity is concerned, the factor loadings of the obvserved variables ranged from 0.53 to 0.74, resulting in a good measurement representation for the latent variables. The discriminant validity of the instrument was measured using only

the Fornell-Larcker (1981) criterion. The AVE of the subscales of the questionnaire had all higher AVE than the correlations of the observed variables with each other. Finally, the five subscales had excellent internal consistency scores. The reliability scores of the cooperative learning questionnaire are shown in Table 06.

Table 06.

Reliability Scores for the Subscales of the CLQ (Fernandez-Rio et al., 2017)

The CLQ	Cronbach's α
Social Skills	.74
Group Processing	.75
Positive Interdependence	.72
Promotive Interaction	.76
Individual accountability	.79

It is worth noting that, although the sample of students used to validate this questionnaire (Grade 5 through the Baccalaureate level) is not fairly similar to the the sample of the current study; the developed items for four out of the five subscales of measurement were inspired and elaborated from the first attempt to validate a cooperative learning application scale (CLAS) within university students (Achurra, Villardón, & Calvete, 2015), while the items for individual accountability were taken from a study to deleop the psychometric properties of the personal and social responsibility questionnaire (Escartí, C., & M., 2011). Concurrent validity has been tested by the authors to check whether or not the questionnaire is measuring what it is supposed to measure. The regression analysis indicated the existence of significant high predictive value of the subscales with the same measures from their equivalents in the previously mentioned studies (ranging from $\beta = 0.53$ for individual accountability to $\beta = 0.62$ for positive interdependece) The CLAS has been considered by the researcher for the current study, however, to the researcher's best knowledge and belief, it does not accurately and fully represent the five basics of cooperative learning compared to the questionnaire at hand, at least regarding the labels of the subscales in the CLAS. Hence, it is safe to say that the cooperative learning questionnaire used is adequate for the measurement accuracy of this study.

The Social Interdependence in Collaborative learning Scale (SOCS)

The Social Interdependence in Collaborative Learning Scale was developed by a group of researchers from Japan and the Netherlands. The researchers' intention was to develop an instrument to measure social interdependence in collaborative learning within the medical sector. They accumulated a combination of items based on a review of relevant social interdependence literature, and distributed the questionnaire on 10 medical students, 10 education experts, and 10 medical educators in 8 different countries, all of whom had decent experience with task based learning (TBL) and project based learning (PBL). After the recommendations of the panelists, the questionnaire was then distributed on a sample of 264 medical students after engaging in a collaborative learning task for validation purposes. The questionnaire is estimated by the researchers to take around 10 minutes to complete. Furthermore, the researchers conducted an EFA to determine the number of factors measured in the questionnaire. The KMO test of sampling adequacy was 0.913, and Bartlett's test of sphericity was statistically significant (χ^2 = 1838.56, d.f. = 120, p < 0.001). The Kaiser criterion for the selection of the number of items was executed (eigenvalue > 1). This resulted in the emergence of three factors measuring the three outcomes of social interdependence in collaborative learning: outcome interdependence, means interdependence, and boundary interdependence. The questionnaire, hence, included 15 items measured on a five-point Likert scale divided on three subscales: outcome interdependence (OID) (three items), means interdependence (MID) (three items), and boundary interdependence (BID) (nine items).

To confirm the model of the results of the EFA, the researchers conducted a CFA to measure the fit indices of the model. Results of the latter were satisfactory (χ^2/d.f. = 1.838, CFI = 0.951, GFI = 0.924, RMSEA = 0.061, and PCLOSE = 0.121). The indicators of the three subscales of the model had adequate factor loadings ranging from 0.442 to 0.768 for the boundary interdependence scale, from 0.763 to 0.824 for the means interdependence scale, and from 0.553 to 0.831 for the outcome interdependence subscale. This would mean that convergent validity in the SOCS has been established. Finally, the SOCS subscales were tested for internal consistency using coefficient Alpha. Table 07. demonstrates the reliability scores found by the developers of the scale.

Table 07.

Reliability Scores for the Subscales of the SOCS (Shimizu et al., 2020)

The SOCS subscales	Cronbach's α
Outcome interdependence	.818
Means interdependence	.866
Boundary interdependence	.811

Although the SOCS was developed to assess social interdependence amongst students and practitioners in the medical sector, its overall design and structure allow it to be a flexible instrument for the measurement of social interdependence in other educational contexts in which cooperative and collaborative learning is used. It is also equally important to note that, although this study focuses on cooperative learning, this study has highlighted that there is a thin line between cooperative and collaborative learning. Hence, the instrument at hand can be used to measure social interdependence in relation to cooperative learning since the focus of its observed variables do not take those difference into account.

Piloting the Instruments

The pilot study is of great importance in both qualitative and quantitative research methods. Its main aim is to detect the potential problems with the research instruments used to collect data. Piloting the instruments helps increase their reliability and validity, highlight ambiguities in the items of the questionnaires as a result of miswording or bad phrasing, refining the models, and assessing the extent to which the questionnaire is practical (Cohen et al., 2007; Weir & Roberts, 1994). In the case of this study, the instruments used have been validated by their original developers and have shown adequate reliability as explained in the previous secion. However, this would still call for a pilot study to take place because it could be argued that other metholodogical aspects that may have accured as a result, for example, of validation in a different setting or recruitment rates (Van Teijlingen & Hundley, 2001).

Given the above, the researcher deployed the instruments of the study with a small proportion of undergraduate students from the English Department at the University centre of Si-Lhaoues – Barika (N = 34). The researcher aimed at assessing the questionnaires' reliability and the time needed to complete all of the three instruments, and check for any potential misunderstanding of the items. The instruments were originally written in English, except for

the Cooperative Learning questonnaire, which was written in Spanish because it was validated in Spain. The latter was translated to English by the research with the informal help of two colleages and an official translator. Students of the department of English were assumed to have adequate undestanding of the English language, so there was no urge to used students' first language. The students reported that the questions were fairly straightforward and intelligible, which is why there was no need to rephrase any of the statements of the questionnaire. However, only one item on the MK subscale on the LAPQ was modified from "There are a lot of opportunities to learn English in Vietnam" to "There are a lot of opportunities to learn English in Algeria" to suit the context of the study. On average, student took 10 to 15 minutes to respond to the questionnaires. The reliability analysis at the level of the subscales of the three questionnaires showed that the subscales of the questionnaires had adequate internal consistency as given in Table 08.

Table 08.

Reliability Analysis for the Instruments for the Pilot Study.

Instruments	Subscales	Number of Items	Cronbach's α
LAPQ	BTR	08	.74
	M&D	05	.82
	F	07	.80
	MS	15	.72
	MK	05	.86
CLQ	PI	04	.86
	PID	04	.82
	IA	04	.79
	SS	04	.74
	GP	04	.87
SOCS	OID	03	.87
	MID	03	.82
	BID	09	.73

As a rule of thumb, a score of .70 or higher is indicative of an adequate internal consistency coefficient. As shown in table 08., all of the subscales of the instruments of study had good internal consistency. The LAPQ ranged from .72 to .86, the cooperative learning questionnaire ranged from .74 to .87, and the SOCS ranged from .73 to .87. This would indicate

that the instruments are reliable tools for the study, and will ensure consistent results with the data of the main study. Reliability analyses will also be carried out for the main data set. It is also important to note that a CFA is also needed to assess the fit indices, as well as the convergent and discriminant validity of the main data since all of the instruments of the study were have not been validated, nor have they been used, in an Algerian context.

Survey Administration

The researcher distributed the survey of actual use of cooperative learning to ten teachers at the department of English at the beginning of the academic year of 2021/2022. All teachers responded fully to the survey, and no missing data were hence recorded. Subsequently, the researcher deployed the questionnaire for both the pilot and the main study following a group distribution pattern in order to ensure a high response rate; although online surveys (e.g. using Google Forms or Survey Monkey) provide quick and easy access to the survey, and is especially practical during the pandemic, they do not always ensure greater response rate, nor do they guarantee the accuracy of targeting a given sample. In survey research, group distribution is a method of data gathering in which the researcher hands out surveys to distinct groups of participants face to face (Dörnyei, 2007). Although it was effort- and time-consuming, the researcher sought to maximise the response and return rate of the survey first hand, and made sure all responses are only gathered from genuine undergraduate students from the department of English. An item was added at the beginning of the questionnaire for student to determine their level (first, second, and third year), no background questions were added to the questionnaire because they had been deemed irrelevant to the overall purpose and research questions of the study. The researcher piloted the questionnaires with 34 students from the License levels during the first semester of the academic year 2021/2022. The deployment of the research instruments for the pilot study took place during the first two weeks of March 2022 in order to reach out for students from all undergraduate License levels before the mid-term examinations. The main data collection of the present study took place during the last two weeks of May near the end of the second semester. The researcher selected this period of the study to ensure that students had maximum exposure to cooperative learning. Since first year students are included in the sample of the study, and although cooperative learning is a familiar learning methodology to them prior to being enrolled at their university course, it would be irrational to

conduct this study at the beginning of the year, where there would be little to no experience with group work.

The students were handed a copy of the three questionnaires during the last 15 minutes of their respective sessions. The overall number of items in all the questionnaires was 75 items, measured on a five-point Likert Scale where 1 = Strongly Disagree, and 5= Strongly Agree. For second- and third-year students, the distribution of the questionnaires occurred during the researcher's own session since he had been assigned to teach them during the academic year of 2021/2022. As for first year students, the researcher, with the help of three colleagues, distributed the questionnaire to students due to their large number. However, the researcher explained the purpose of the study to all students, and made sure that responses are, and will remain entirely private and anonymous, and that access to data is restricted only to him and the supervisor of the study. It was also explained that the questionnaires are not related to their grading whatsoever. The researcher distributed the questionnaire on 270 students in total and received 261 full responses, ensuring a great response rate of 96.66%.

Data Analysis Procedures

The data gathered from the LAPQ, the Cooperative Learning Questionnaire, and the SOCS, were entered into a data file using the Statistical Package for Social Sciences (SPSS V26). It is of great importance to run preliminary analyses for make sure that, in the case of any missing data, accuracy measures should be taken into account. The researcher checked the data visually for missing data. A total of nine students did not respond fully to the questionnaire; three students did not respond the SOCS, which makes 20% of the overall number of items. Respondent number 96 failed to respond to 7 items from different subscales on the Cooperative Learning Questionnaire, and participant number 56 did not respond to any item on the OID subscale. There were missing data from the responses of three other students in various subscales covering a range of 20% to 35% of the overall number of items. These missing values were believed to damage the overall reliability and validity of the questionnaires. Perhaps is it would be safe to assume that these participants did not clearly grasp the meaning of the items. Finally, participant number 169 was removed because their answer recorded the existence of extreme values which affected the normality of the data distribution. The outlier had been removed to achieve a normal distribution; it is note-worthy that removing outliers in not a

recommended practice in social sciences (Kwak & Kim, 2017), but given the sample size of this study, the researched decided that the difference of removing this case was not of observed significance at least. The respondents were thus removed from the data set, leaving it with a total of 261 valid responses with no missing values. SPSS was then used to assess the data distribution normality. The researchers also used AMOS to conduct the CFA to assess the goodness-of-fit indices of the three models the validity of the research tools. SPSS was used examine the reliability of instruments and the descriptive and inferential statistics needed, namely means, standard deviation, Analysis of Variance (ANOVA), Multivariate Analysis of Variance (MANOVA), and correlations between the study variables. Finally, multiple linear regression and Structural Equation Modelling (SEM) analyses were carried out using the Analysis of Moment Structures software (AMOS) to assess the predictive relations among the study variables.

Normality Assumptions of the Data Distribution

More often than not do statistical errors occur in scientific literature (Curran-Everett & Benos, 2004). It is often neglected by researchers in social sciences to test the assumptions of normality of their data. Normality assumptions should be addressed because it is hard to derive accurate and trustworthy inferences about reality if the assumptions do not hold (Oztuna, Elhan, & Tuccar, 2006). According to Ghasemi and Zahediasl (2012, p. 486) "Many of the statistical procedures including correlation, regression, t tests, and analysis of variance, namely parametric tests, are based on the assumption that the data follows a normal distribution." However, if the data is not normally distributed, researchers should run statistical procedures that are referred to as non-parametric tests (Field, 2009), which are conducted based on distributional assumptions that are considered as weak (Anderson, 1961). If the data at hand violates normality assumptions, researchers should use the counterparts of the parametric tests mentioned above such as *Wilcoxon signed-rank* test as opposed to the independent samples t-test, *Kruskal-Wallis* test as opposed to the one-way Analysis of Variance (ANOVA), *Spearman's rho* correlation coefficient as opposed to Peasron's Correlation, and logistic regression as opposed to linear regression. However, it is claimed that, with larger samples exceeding 30 or 40, the data is more likely to be normally distributed, and would not cause major statistical problems (Pallant, 2007).

As far as Likert scales are concerned, there is hitherto an undesttled debate between researchers when it comes to normality assumptions. Considering the scales of measerement, there is surely a misconception as to type of measurement the Likert Scales have to offer. On the one hand, some researchers claim that Likert scales fall within the category of ordinal scales (Jakobsson, 2004; Kuzon, Urbanchek, & McCabe, 1996; Jamieson, 2004) since the data follows a given rank order (e.g. 1, 2, 3, 4, 5 for a five item Likert Scale), and therefore non-parametric analyses should be On the other hand, other scholars claim that Likert scale data are analysed at the interval scale of measurement (Boone & Boone, 2012; Subed, 2016), since there are linear and equal intervals between the the values of the scale. Hence, this would allow the user of the scale to test the normality assumptions and conduct parametric analyses often times even with non-normal distributions because of their robustness to skewed data (Norman, 2010).

On the balance of probabilities, and given the above-mentioned arguments, it is concluded that the normality assumptions should always be checked before engaging in further statistical tests. The teachers' survey was not checked for normality assumptions since its data was not used for inferential statistics. The assessment of the normality assumptions includes, but is not limited to, the Kolmogorov-Smirnov test, the Shapiro-Wilk test, and/or the skewness and kurtosis tests. In this study, all of these four methods were used. The first two tests compare the answers in the shape of scores from the respondents to a normal distribution, and only if the results of the tests are not significant ($p > .05$) can it be assumed that the data follows a normal distribution, while the skewness and kurtosis measures tend to assess the quantification of the asymmetry and the shape of the data distibution (Oztuna et al., 2006). In SPSS, these can also be observed visually in histograms and/or using the Normal Quantile-Quantile Plot (Q-Q Plot), albeit an abstract measure. It is generally argued that the more the z-score of the skewness and kurtosis is closer to zero, the closer it gets to a normal distribution, but it is agreed that these values should be between -1.96 and 1.96, because this would mean that 95% of the z-scores are bound between -1.96 and 1.96 (Field, 2009). The results of the normality assumptions tests using SPSS are as follows:

Normality Assumptions of the LAPQ.

Table 09.

Normality Assumptions Test of LAPQ Data

Kolmogorov-Smirnov		Shapiro-Wilk		Skewness	Kurtosis
df	Sig.	df	Sig.	-.025	.025
261	.053	261	.366		

The results shown in Table 09 demostrate that the normality tests have a p value greater than .05 (Kolmogorov-Smirnov: $p = .053$, Shapiro-Wilk: $p = 0.366$). This shows that the data is not statistically significantly different from a normal distribution. The values of both skewness and kurtosis tests are between -1.96 and 1.96, (skewness = -.025, kurtosis = .025) which indicated the existence of normality of data distribution. This can be observed by the naked eye the histogram represented in Figure 05.
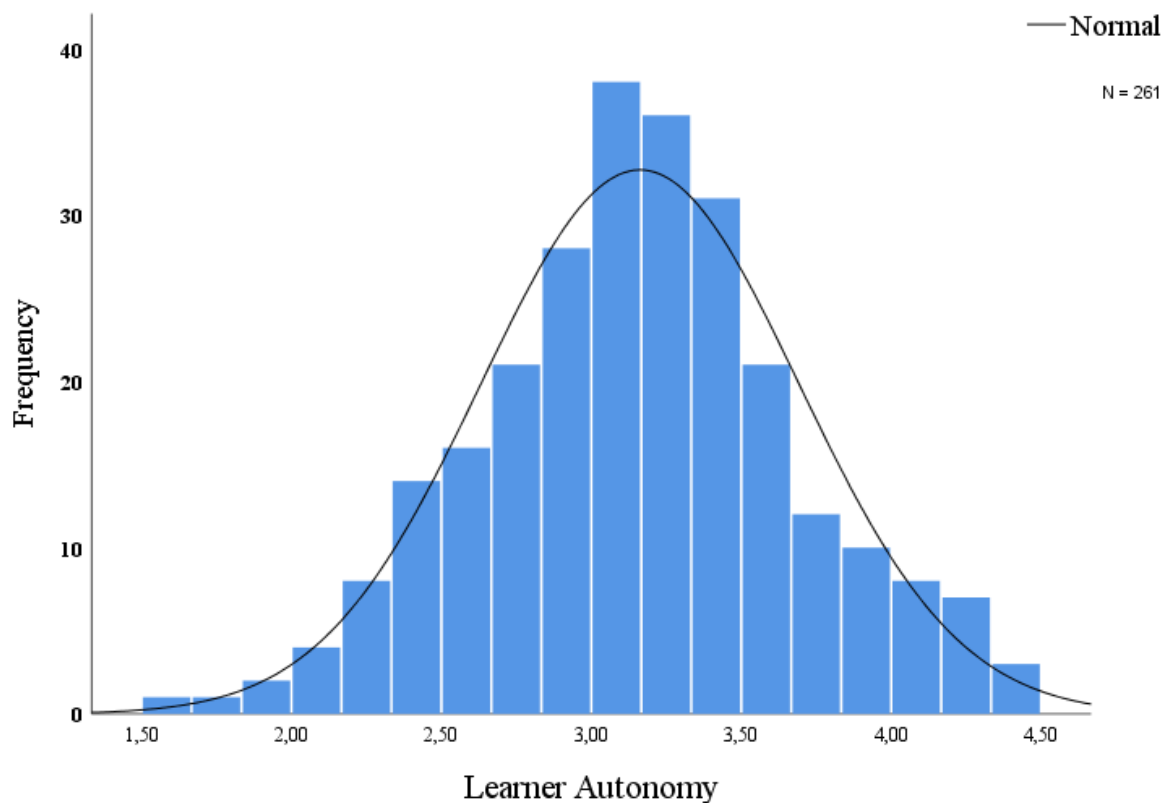
Figure 05. Data Distribution of the LAPQ

Normality Assumptions of the CLQ.

Similar to the previous results, both the Kolmogorov-Smirnov and Shapiro-Wilk test were statistically insignificant ($p = .089$, $p = .385$ respectively). Skewness and kurtosis test scores also displayed normality criteria (skewness = -.052, kurtosis = .003). Those results can also be observed in the histogram of the data distribution. It can be observed that the majority of the data is piled underneath the normality bell-shaped curve, which implies the existence of a normal distribution.

Table 10.

Normality Assumptions Test of Cooperative Learning Survey Data

Kolmogorov-Smirnov		Shapiro-Wilk		Skewness	Kurtosis
df	Sig.	df	Sig.	-.052	.003
261	.089	261	.385		
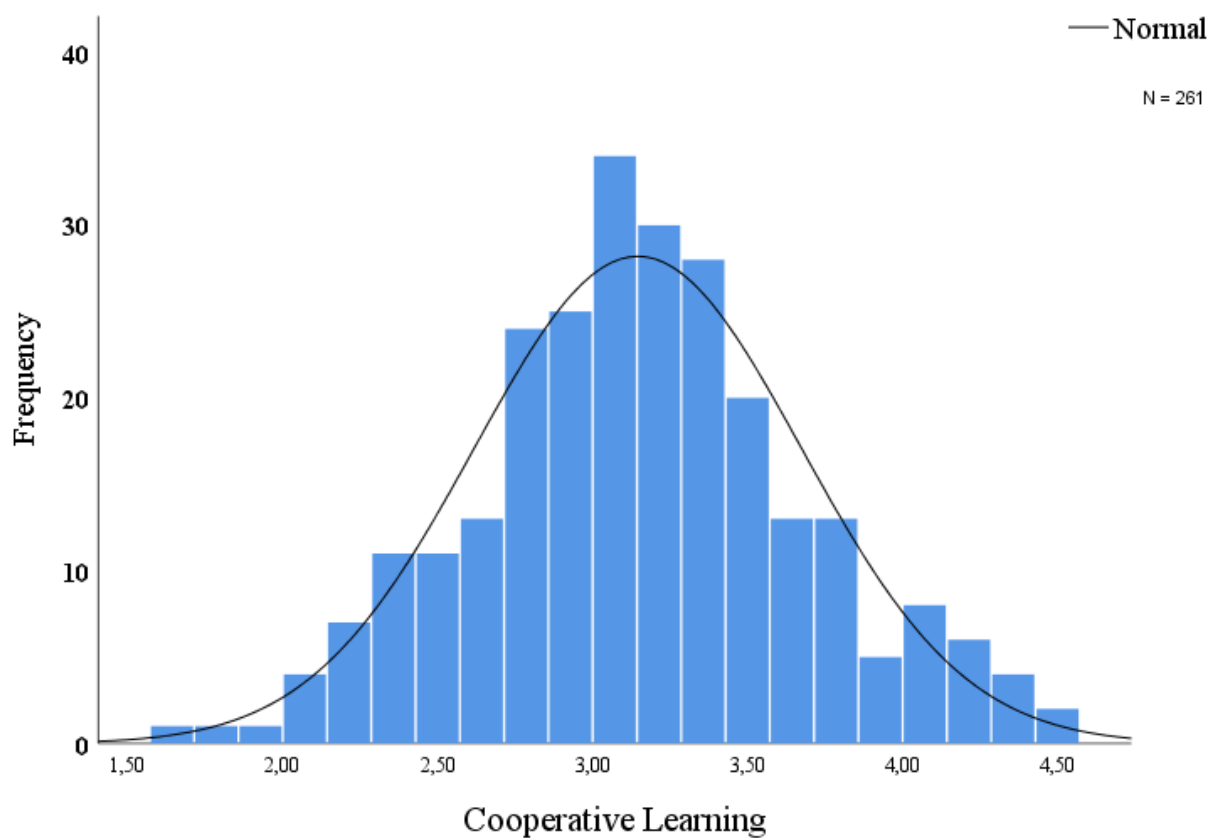
Figure 06. Data Distribution of the CLQ

Normality Assumptions of the SOCS.

Table 11.

Normality Assumptions Test of the SOCS Data

Kolmogorov-Smirnov		Shapiro-Wilk		Skewness	Kurtosis
df	Sig.	df	Sig.	-.219	-.272
261	.052	261	.189		

Table 11. demonstrates the normality tests for the data of the SOCS. Both the Kolmogorov-Smirnov and Shapiro-Wilk tests are statistically insignificant, implying that the data does not violate normality assumptions. In addition, Both skewness and kurtosis are between the benchmark values of normal distibutions (skewness = -.219, kurtosis = -.272). This is demonstrated in the histogram in Figure 07. The bell-shaped curve contains the vast majority of the distribution.
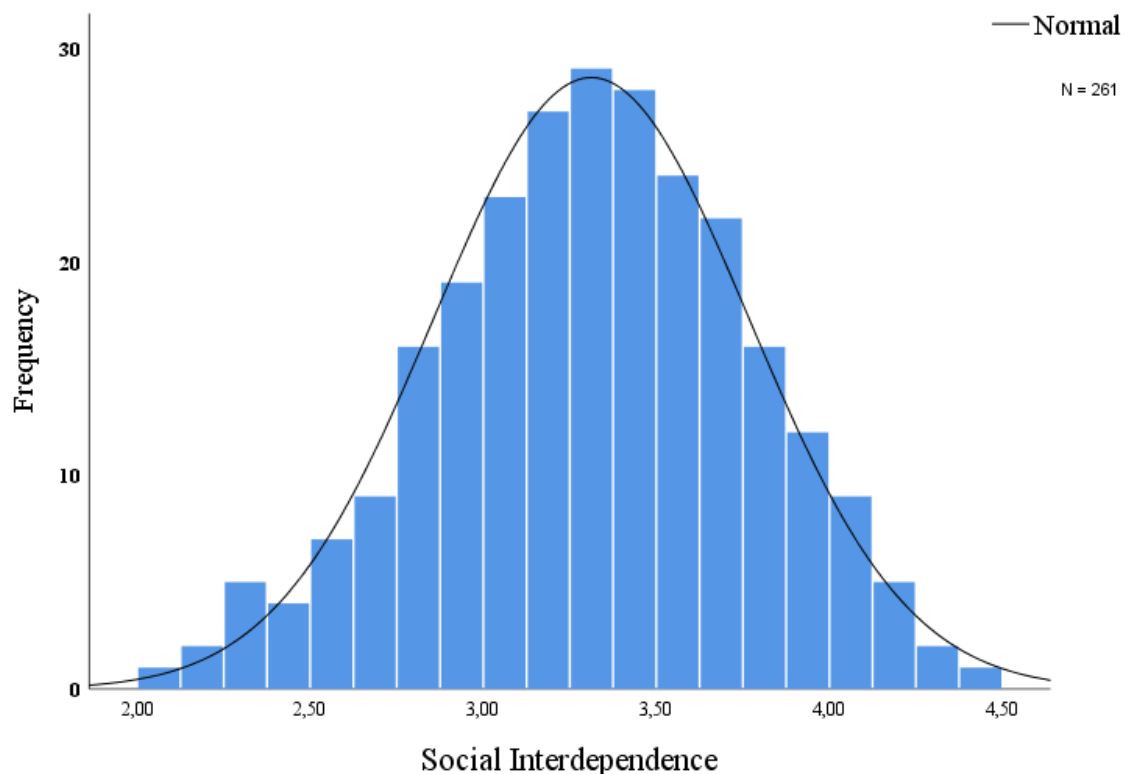
Figure 07. Data Distribution of the SOCS

In short, it is safe to conclude that the data of this study does not violate normality assumptions of the data distribution. All of the Kolmogorov-Smirnov tests and Shapiro-Wilk

tests were statistically insignificant; the researches thus failed to reject the null hypothesis that the data is not statistically significantly different from a normal distribution. This is also confirmed by the existence of a slight asymmetry in the distribution illustrated by skewness values. From the observation of figures 05, 06, and 07, the overwhelming majority of the data seems to pile under the normality curve. This conclusion ultimately impresses upon the research to adhere to parametric statistical analyses in this research; ANOVA, Pearson's *r*, and linear regressions will be run to answer the research questions and test the hypotheses of the study.

Confirmatory Factor Analysis (CFA)

Since the three instruments of the study were not developed or validated before in the Algerian context, the researcher conducted a confirmatory factor analysis to assess the fit indices of the data to the three models, as well as the construct validity of the main data using AMOS and Microsoft Excel.

Firstly, the goodness-of-fit indices of the three instruments were measured to assess the extent to which the data fits the models used in this study. In order to evaluate the fit indices, several measures should be taken into account, namely the Chi-Square (χ^2) test. However, "due to sensitivity of large sample sizes in the chi-squared statistic" (Finn & Schrodt, 2012, p. 120), other measures had to be calculated such as the Chi-square divided by the degrees of freedom (χ^2/df), the Good Fit Index (GFI) (Jöreskog & Sörbom, 1981), the Normed Fit Index (NFI) (Bentler & Bonett, 1980), the Comparative Fit Index (CFI) (Bentler, 1990), the Root Mean Square Error of Approximation (RMSEA) (Steiger & Lind, 1980), and the Standardised Root Mean Square Residual (SRMR) (Bentler, 1989).

Chi-square evaluates overall fit and the discrepancy between the sample and the matrices of fitted covariance. According to Mulaik (1989, p. 430) "the values of the chi-square statistic for most researchers' models are significant, implying that the researchers must reject their models." That is, in order to indicate a good fit, the p value of the Chi-square test should be insignificant ($p > .05$). Due to the large sample size, however, the ratio of the chi-square statistic to the relevant degrees of freedom (χ^2/df) is preferable (Wheaton et al,.1977), with a value benchmark of ≤3 for an acceptable fit. Furthermore, the Good Fit Index (GFI) is the fraction of variance accounted for by the calculated population covariance. The value of the GFI ranges from 0 to 1, and the closer it gets to the value of 1, the better the fit (Hayashi, 2011). Most

researchers use a value of .90 as a benchmark for GFI to achieve a good fit. The Normed Fit Index indicates the extent to which the model improves the fit of the data, and as it happens with the GFI, the closer the NFI is to the value of 1, the better the fit (Hayashi, 2011). An acceptable score on the NFI test would also be equal or greater than .90. the Comparative Fit Index (CFI) Compares the fit of a target model to that of a strict (or null) model (Bentler, 1990). The score of this test is also measured between 0 and 1, and should be equal or greater than .90. In addion, the Root Mean Square Error of Approximation (RMSEA) takes into account the badness-of-fit per degree of freedom (Steiger, 1989), which is why its value should be as close to zero as possible. A value of RMSEA is recommended to be less than .08. Finally, the Standardized Root Mean Square Residual (SRMR) is the square root of the sum of squares between the residuals of the sample covariance matrix (Hayashi, 2011), and, similar to the RMSEA, it should be as close to zero as possible, with an acceptable value of < .08.

Problems with model fit are common in every research. Often times does a given fit indice exceed the benchmark needed to achieve an acceptable fit. It is worth noting that some of these indices are very sensitive to large sample sizes such as the χ^2/df test; it is argued by Marsh and Hocevar (1985) that a value of ≤5 for the χ^2/df test in this case indicates reasonable fit. In addition, if an item is loading very low, the researcher might consider deleting that item with careful consideration not to damage content validity. Another solution to improve model fit is to observe the covarariance of error terms table on the modification indices in AMOS, and covary error terms with the highest estimates. Yet again, this is not remotely a recommended practice in social sciences (Shah & Goldstein, 2006; Tomarken & Waller, 2003), but Landis, Edwards, and Cortina (2009) argue that this can be safely done in SEM models if the observed variables related to the error terms are measuring approximately the same component. Overall, because there is no clear universal agreement amongst researchers on the acceptable values of these indices, and therefore they should consider these various fit indices collectively and calculate and report them whenever possible (Teo, Tsai, & Yang, 2013).

Construct Validity

The assessment of the construct validity of the instrument was carried out using AMOS and Microsoft Excel. At least two methods are widely used to determine construct validity: The new measure is predicted to correlate with one or more measures of a comparable feature (convergent validity) and not with measures of different qualities (discriminant validity) based

on the data of the study (Fink, 2010). In other words, if the indicators of a single latent variable are correlated with each other, convergent validity is achieved, and if they are uncorrelated with indicators from other latent variables, discriminant validity is achieved.

Convergent Validity.

The scale's convergent validity refers to the extent to which it measures what it is supposed to measure through the calculation of the subscale's correlations with other variables and measures of the same construct. The concept should not only correlate with related observed variables on the same subscales, but also not correlate with variables that are different on other subscales so as to discriminate between the construct measurement accuracy, achieving discriminant validity in the process (de Vet, 2011; Streiner, Norman, & Cairney, 2015). In this study, the convergent validity is determined using factor loadings (standardized regression weights between latent and observed variables that assert the extent to which they are asspciated), and their scores should be greater than 0.40 (Whitley & Kite, 2018), average variance extracted (AVE), and composite reliability (CR). The factor loadings in structural equation models represent the extent to which the indicator variables measure their respective latent variables. The Average variance extracted is measured using the following formula:

$$AVE = \frac{\sum_{i=1}^{n} \lambda_i^2}{n}$$

In this case, n represents the number of items in the subscale, λ_i is the factor loading of item i, and n is the number of items. An AVE value of 0.5 or greater is regarded as an acceptable score to achieve convergent validty. Moreover, similar to Cronbach's alpha, composite reliability (also known as construct reliability) measures of internal consistency withing the items of a given scales (Netemeyer, Bearden, & Sharma, 2003). An acceptable CR score should be equal or greater than 0.70, and it is calculated using the following formula:

$$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + (\sum \varepsilon_i)}$$

whereby ε is the error variance, which in turn is calculated based on the value of the standardised factor loading λ as follows:

$$\varepsilon_i = 1 - \lambda_i^2$$

Discriminant Validity.

Discriminant or divergent validity is a subtype of construct validity. It is the assessment of the existence of "evidence that a measure is *not* assessing something it is *not* supposed to assess" (Whitley & Kite, 2018, p. 158). The main purpose of evaluating discriminant validity, as the name suggests, is to make sure there is a discrimination between latent variables of the scale. This can be determined using three criteria: the Fornel-Larcker criterion (Fornell & Larcker, 1981), cross loadings, and the Heterotrait-Monotrait (HTMT) ratio method.

The most commonly used criterion for assessing discriminant validity is the one set by Fornell and Larcker (1981), which posits that, if the square root of AVE is greater than the correlation of one latent construct with other latent variables, discriminant validity can be established. Should the first criterion fail to determin discriminant validity, cross loadings could be used. In this case, the correlations of the items of one latent variable with the items of another latent variable should not be greater than the correlations with their own latent variable (Garson, 2016). For the final criterion, the HTMT ratio is "the average of the heterotrait-heteromethod correlations (i.e., the correlations of indicators across constructs measuring different phenomena), relative to the average of the monotrait-heteromethod correlations (i.e., the correlations of indicators within the same construct)" (Henseler, Ringle, & Sarstedt, 2015). The HTMT ratio score ranges from 0 to 1, and lack of discriminant validity is indicated by HTMT scores near the value of 1 (Hamid, Sami, & Sidek, 2017). The prefedined threshold of the HTMT ratio value should be below 0.90 (Gold, Malhotra & Segars, 2001; Teo, Srivastava & Jiang, 2008). However, it is claimed by Kline that (2011) an ideal HTMT score should not otherwise exceed 0.85.

All of the above mentioned tests hav been assessed using AMOS, to ensure the model-to-data fit and validity of the measures of the study. As in the case of structural Equation Models (SEM), these results are demonstrated using path analysis diagrams. Reliability analysis was then carried out once again on the main data of the study to ensure the intruments of the study had

adequate consistency through the calculation of coefficient Alpha. Since all of the instruments of the study make use of five-point Likert scales with no open ended questions, descriptive and inferential statistics were deployed to answer the research questions and test the hypotheses of this study.

Descriptive Analyses

In order to answer the first, second, and third research questions of the current study, SPSS V24 was used to calculate central tendency and variability of the responses of the sample to the questionnaires. Since the current study uses a 5-point Likert scale in all of the instruments, the analysis and interpretation of are shown in terms of means (M) and standard deviations (SD). As he Likert Scale falls within the category of interval scales, and the responses of the participants are encoded in SPSS as follows: 1= Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree. The different interpretations of the Likert scale are presented in Table 09.

Table 12.

The Interpretation of the Range of a Five-Point Likert Scale (Pimentel, 2010)

Scale	Value	Interpretation
5	4.21 – 5.00	Strongly Agree
4	3.41 – 4.20	Agree
3	2.61 – 3.40	Neutral
2	1.81 – 2.60	Disagree
1	1.00 – 1.80	Strongly Disagree

Inferential Analyses

The responses of the participants were then presented in the shape of tables for interpretation. The remainder of the research question require the use of inferential statistics to determine the differences between samples in terms of the study variables using ANOVA and MANOVA, and to estimate the relationship between the study variables using Pearson's r. This includes assessing the associations as well as the predictive relationships between the latent variables and to ultimately test the hypotheses of the study. It was explained earlier in this chapter that the type of inferential statistics to be carried out depends crucially on the normality assumptions of the data distribution.

Analyses of Variance

Differences between samples is studied using SPSS to compare the means of students in terms of their level of learner autonomy, cooperative learning, and social interdependence in terms of the level of students; that is, first, second, and third year students. Since the data of the study is normally distributed, analyses of variance, being a parametric statistical test is used to study these differences. Because cooperative learning and social interdependence are somewhat close concepts the differences between samples will join these two variables together using MANOVA, and the learner autonomy perceptions will be studied separately using ANOVA. In this regard, and Alpha level of significance is used at the 95% ($\alpha < .05$) confidence interval for ANOVA, and 97.5% for the MANOVA ($\alpha < .025$) (Bonferroni correction (Sedgwick, 2014)). MANOVA results in this study are reported according to the score of Wilk's Lambda. Furthermore, going beyond statistical significance, effect sizes for each of the means comparisons to determine the proportion of variance explained by the independent variables, and to showcase the practical significance of the differences. The Effect size of the difference between the means ($\mathbf{\eta^2}$) is calculated using the following formula:

$$\eta^2 = \frac{SS_B}{SS_{total}}$$

where SS_B is the Sum of Squares between groups, and SS_{total} is the total score of the sum of squares. However, this measure should only be reported in a one-way ANOVA. In MANOVA, however, researchers should report partial Eta squared (η_p^2), since it includes the sum of squares within groups, as explained in the following formula, to avoid overestimations in effect size results:

$$\eta_p^2 = \frac{SS_B}{SS_{total} + SS_w}$$

where *(SS_W)* is the sum of squares within groups. It is worth noting that some researchers overlook this difference and/or mistakenly report the scores of $\mathbf{\eta^2}$ as $\mathbf{\eta_p^2}$, on the results of mean comparisons in the univariate General Linear Model of one-way ANOVAs, which may result in "systematically overestimating the size of their effects" (Levine & Hullett, 2002, p. 618).

Furthermore, the score of the effect size is set between 0 and 1. Cohen (1988) ranged the effect size scores to signify small, medium, and large, and associated them with the following values: small effect sizes ($0.01 < \eta^2 < 0.06$), medium effect sizes ($0.06 < \eta^2 < 0.14$), and large effect sizes ($0.14 < \eta^2$). η_p^2 is reported with correspondence with the same benchmarks as η^2. Finally, the differences between the samples in terms of their level across the means of the study variables and their respective significance levels is be determined through the Post Hoc of multiple comparisons tests using the Tukey level of significance ($\alpha < .05$).

Pearson's Correlation

In order to study the potential associations between the study variables, SPSS was used to assess whether there are significant correlations between autonomous learning perception, cooperative learning, and social interdependence, Pearson's *r* correlation coefficient was used to determine the associations between the variables of the study. The correlation coefficient is calculated using the following formula:

$$r = \frac{\sum(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum(X_i - \bar{X})^2 \sum(Y_i - \bar{Y})^2}}$$

whereby X_i are the scores the *X* variable, Y_i are the values of the *Y* variable, and $\bar{X}$ and $\bar{Y}$ are the mean scores of variables *X* and *Y* respectively. The values of the correlation coefficients range from -1 to 1, indicating negative correlations from ($-1 < r < 0$), or positive correlations ($0 < r < 1$). It is imperative that the correlation coefficients should be associated with a *p* value of $< .05$ in order for the correlation to be statistically significant.

Table 13.
The Interpretation of Pearson's Correlation Coefficient r Values (Schober et al., 2018)

Coefficient *r* values	Interpretation
.00 — .10	Negligible correlation
.11 — .39	Weak correlation
.40 — .69	Moderate correlation
.70 — .89	Strong correlation
.90 — 1.0	Very strong correlation

Effect sizes are also measured for the correlation analyses to determine to percentage of variance explained by the independent variables. This is done through the calculation of the

square of the correlation coefficient *r*, resulting in a value of r^2 that resembles the amount of variance accounted for in the dependent variable (Cohen & Cohen, 1983). Values of r^2, similar to the pattern of η^2, are set to small effect sizes ($0.01 < r^2 < 0.09$), medium effect sizes ($0.09 < r^2 < 0.25$), and large effect sizes ($0.25 < r^2$). The results of mean comparisons, correlational analyses, and their respective effect sizes are presented in the tables, and correlation matrices.

Multiple Linear Regression Analysis

In order to calculate the predictive estimations, multiple linear regressions analyses were run to assess the extent to which the outcome variable (Learner Autonomy) is predicted by the independent variables using SPSS and AMOS. For the sake of going beyond the associations of the variables, it is possible not only to find a corresponding formula that expresses the predictive relationships, but also find a model that fits all three variables to improve the predictive relationships (Frost, 2019). Running a linear regression analysis demands a set of assumptions namely the normality of the distribution and independence of residuals, linearity, homoscedasticity, and multicollinearity (Berry, 1993).

Residuals are simply the difference between the observed and predicted values within the data of the study. The validity of the inferences of linear regressions implies the existence of normally distributed error terms around the value of zero due to this difference. It was mentioned earlier that case 169 was removed from the data due to extreme values and their effect on normality; this is justified because of the extreme sensitivity of the results of linear regression analyses are to outliers. The normality distribution of residuals can be tested analytically using the Kolmogorov-Smirnov and Shapiro-Wilk tests, or graphically using histograms or the Q-Q plot. Furthermore, since this study attempts to fit a linear model that joins cooperative learning and social interdependence as predictor variables for reactive autonomous learning, the researcher seeks to confirm that the error terms are scattered randomly around the values of predictors. In other words, there should be no relationship between residuals and predictor variables for the regression to be truly linear. This can be observed in the scatterplot for residuals versus predictor values in SPSS; the data should take a rectangular-like shape with no specific pattern that resembles a correlation between the two.

In addition, given its name, linear regression suggests the existence of a linear relationship between the dependent and the independent variables; an attempt to fit the data to a line that best describes the gathered data. The line can be calculated using the following equation:

$$\hat{Y} = a + bX$$

where $\hat{Y}$ is the value of the dependent variable, a is the intercept, b is the slope, and X is the value of the independent variable. The slope coefficient is calculated using the following formula:

$$b = \frac{N(\sum XY) - (\sum X)(\sum Y)}{N(\sum XY^2) - (\sum X)}$$

The intercept can then be calculated using the value of b through the following formula:

$$a = \bar{Y} - (b)\bar{X}$$

where $\bar{Y}$ is the mean of the dependent variable, and $\bar{X}$ is the mean of the independent variable. Similarly, multiple linear regression analyses can take multiple predictor variables to calculate the overall predictive relationship between the dependent variable and the independent variables. The equation for multiple regression analysis is as follows:

$$\hat{Y} = a + b_1X_1 + b_2X_2 + \cdots + b_nX_n$$

Where b_1 is the slope for variable X_1, and n is the total number of predictor variables.

Furthermore, homoscedasticity means that the variance of the dependent variable is constant along the values of the predictor variables (Field, 2009). It is worth noting that, when it comes to the validity of linear regression results, homoscedasticity assumptions are exceedingly more important than normality assumptions due to the sensitivity of linear regressions to heteroscedastic assumptions (Yang, Tu, & Chen, 2019). Meeting the linearity and homoscedasticity assumptions can be observed graphically in the dispersion of data in the scatterplot in a random and even manner (Field, 2009) with no curve of cone-shaped patterns (insinuating the existence of unequal variance and heteroscedasticity).

Finally, multicollinearity refers to the existence of strong correlations between the independent variables in a multiple regression analysis. It can be checked in SPSS by observing the values of the Variance Inflation Factor (VIF) and tolerance. It is argued that a VIF value greater than 5, a tolerance level below 0.2 indicate the existence of a multicollinearity problem between predictor variables (Kline, 1998; O'brien, 2007).

Once these assumptions are verified, it is important to check the significance of the F test in the ANOVA table. In regression, the F value of overall significance is the outcome of a test in which the null hypothesis suggests that all regression coefficients are equal to zero. In other words, there is no difference between the model at hand and the intercept-only model (absence of the independent variable). If the value of the F test is significant in the ANOVA summary table, the researcher can reject the null hypothesis and claim that the model has better fit than the model without predictors. The R-Squared and Adjusted R-Squared (Adjusted R^2) values (also known as the coefficient of determination) in regression analyses represent the percentage of variance in the dependent variable accounted for by the independent variable(s). A value of Adjusted $R^2 < .30$ represents none to very weak effect size, between .30 and .50 is a small effect size, between .50 and .70 represents a medium effect size, and any value that exceeds .70 is regarded as a large effect size (Moore, Notz, & Fligner, 2013). Finally, regression analyses are associated with standardized Beta (β) coefficients determining the extent to which the dependent variable changes for every standard deviation of change in the independent variable. The researcher used all of the above mentioned measures to ensure valid linear regression results in this study.

Structural Equation Modelling (SEM) Analyses

This study uses Structural Equation Modelling to assess the model-to-data fit, and the strengths of the predictive relationships, as well as to evaluate the proposed hypothesised models. Hayashi (2011, p. 202) affirms:

"Structural equation modelling (SEM) is a multivariate statistical technique for testing hypotheses about the influences of sets of variables on other variables. Hypotheses can involve correlational and regression-like relations among observed variables as well as latent variables. The adequacy of such hypotheses is evaluated by modelling the mean and covariance structures of the observed variables"

Given this claim and design of this research, it was identified that SEM is the most appropriate hypothesis testing method for this study to establish the proposed model of this study. The three models used for this study have been developed and validated to make excellent measures for learner autonomy, cooperative learning, and social interdependence, and are used to study the interrelationships of the study to test the hypothesised model (see Figure. 08).
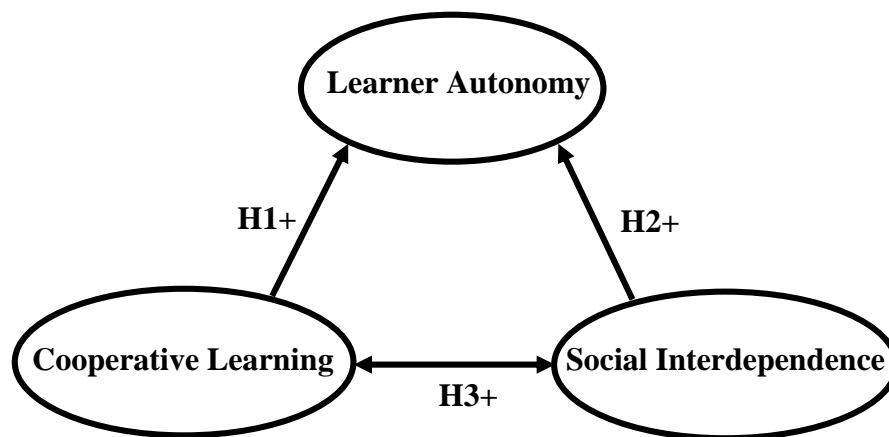
Figure 08. The Hypothesised Model of Cooperative Learning and Social Interdependence as Predictors of Learner Autonomy

The finalised model-to-data fit was assessed using SPSS AMOS with the same criteria to determine the goodness-of-fit ($\chi^{2/}$df, GFI, NFI, CFI, RMSEA, SRMR). The generated finalised model, similar to all SEM models, includes measurements of variance and covariance; it includes correlation coefficients (represented in double-headed arrows), standardised regression coefficients highlighting the strength of the predictive relationships of the variables (represented in single-headed arrows), latent variables represented in ellipses, observed variables in rectangles, and measurement errors in small circles associated with the observed variables. The model is generated based on the hypotheses of the study, which are as follows:

H_1: Perceived cooperative learning engagement positively predicts learner autonomy within undergraduate students of English.

H_2: Perceived social interdependence positively predicts learner autonomy within undergraduate students of English.

H_3: Cooperative learning is significantly and positively correlated with social interdependence.

SEM was also used to test the significance of the mediating role of social interdependence between cooperative learning and learner autonomy. While most research focuses on the effect of one independent variable "*X*" on the dependent variable "*Y*", mediation analyses consider the existence of a mediating variable "*M*" where "*X*" predicts the value of "*M*", and "*M*" in turn predicts the value of "*Y*" (MacKinnon, Fairchild, & Fritz, 2007). In mediation analysis, the effect of *X* on *Y* in the absence of *M* is called the total effect, the effect of *X* on *Y* in the presence of *M* is called the direct effect. The indirect effect of X on Y through M is calculated through the multiplication of the standardised regression weights of the predictive relationship of *X* on *M* and *M* on *Y*. The mediating effect of *M* is considered only within the range of an acceptable confidence interval of 95% ($p < .05$). If significant, the effect size of the indirect effect can be calculated using R^2. The range of effect sizes in mediation analysis in this study follows Cohen's (1988) rules (small effect size > .02, medium effect size > .15, and large effect sizes >.35).

It is of great importance to note that, if the direct effect of *X* on *Y* is equal to zero ($\beta = 0$), or if the latter is rendered statistically insignificant due to the interference of *M*, it can be claimed that *M fully* mediates the relationship between *X* and *Y*. If not, the relationship between *X* and *Y* is *partially* mediated. In this study, since social interdependence is strictly defined and associated with group work, be it cooperative or collaborative in nature, the researcher considered the existence of a partial mediation effect of social interdependence on the relationship between cooperative learning and learner autonomy. Therefore, the researcher hypothesised the following:

H4: Social interdependence has a significant indirect effect on the relationship between cooperative learning and learner autonomy perceptions.

Figure 09 illustrated the hypothesised mediation effect of social interdependence on the relationship between cooperative learning and learner autonomy.
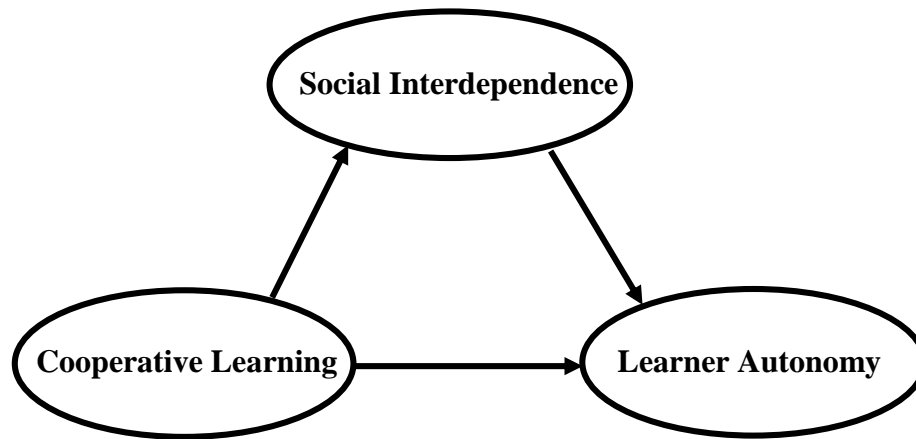
Figure 09. The Hypothesised Model of the Mediating Effect of Social Interdependence on the Relationship between Cooperative Learning and Learner Autonomy

Ethical Considerations

Approval to conduct this study was obtained from the Faculty of Letters and Languages at the University of Mustapha Stambouli – Mascara at the beginning of the doctoral training program. Since the sample of the current study are undergraduate students at the department of English, approval to conduct the study was obtained from the Dean of the Institution of Letters and Languages at the University Centre of Si-Lhaoues – Barika.

Furthermore, informed consents were added to the survey prints, detailing the purpose of the study. The consent asserted that the participation is absolutely voluntary. Anonymity and confidentiality were also asserted in the informed consent; participants were assured that access to data is restricted only to the researcher and the supervisor of the study. The confidentiality of participants is required under the ethical conduct of academic research. The procedures of data collection are in accordance with accepted ethical research norms; no information or trait that might lead to identify any participant was included in the instrument or the consent alike. Finally, all data was safely stored with the researcher during the duration of the study.

Conclusion

All things considered, quantitative research methods are used to test the hypotheses and answer the research questions of this study. this chapter presented details about the research methodology adopted in the current study. This includes the research design, the population and sample, samplings technique used for this study, the setting of the study. It also offered a

detailed description of the research instruments, including how and where they have been validated, and the dimensions of the measures which they assess. This chapter has also described the procedures of data collection and analysis; normality assumptions, CFA, reliability analyses, descriptive statistics, ANOVA, Pearson's correlations, multiple linear regression analyses, and SEM were used using SPSS and SPSS AMOS to test the hypotheses, answer the research questions, and generate the model joining the three variables of this study while ensuring reliable and valid inferences. The subsequent chapter will present in details the findings of the data analysis and their interpretations. The discussion of these of these findings will then be tackled in the discussion chapter.

Chapter Three: Research findings and Interpretations

Introduction

The previous chapter discussed the research methodology of this research, which involves quantitative research methods to answer the research questions and test the hypotheses of this study. The researcher deployed two questionnaires for teachers and for students of English at the University Centre of Si-Lahoues Barika. In this chapter, the collected data is hence quantitatively analysed and interpreted based on the responses of the participants. The actual use of cooperative learning survey was administered with nine teachers from the department of English. Therefore, in order to confirm the actual use of cooperative learning in the context of the study, this survey was analysed before engaging in the analysis of the students' survey. Subsequently, the students' surveys, which include three instruments measuring learner autonomy perceptions, cooperative learning, and social interdependence was thoroughly analysed. This chapter includes the CFA used to test the goodness-of-fit of the data gathered from the sample, and the validity of the measure, which will also be presented in a path diagrams. Reliability measures of the three instruments are reported, all of which is to make sure that they had adequate psychometric properties for subsequent analyses.

Descriptive analyses of the three instruments are discussed in this chapter. In order to answer the first and second search questions, the scores of the students were assessed descriptively to measure the tendencies of the sample towards the variables of the study. This is done on the level of subscales for a detailed analysis, and on the level of the scale for generalized inferences. Furthermore, this chapter includes parametric inferential analyses such as ANOVA, MANOVA, Pearson's correlations, multiple linear regression analyses. Comparing the means of the three levels is shown in the ANOVA and MANOVA analyses, including the results of the statistical and practical significance of the difference between the students' level in Post Hoc tests. The associations between the variables are measured and reported in this chapter in the shape of covariance matrices on the level of scales and subscales. Moreover, the regression analyses are also presented to highlight the predictive relationships between the study variables. This chapter includes the finalised path analysis diagram which resulted from the SEM analysis determining the overall design and most essential results of this study, and concludes with the mediation analysis for the indirect effect of social interdependence on the relationship between cooperative learning and learner autonomy.

Results and Interpretation of the Teachers' Survey

The purpose of the teachers' survey is to assert that cooperative learning is indeed a common pedagogical practice at the department of English. This survey serves as a pre-study questionnaire to provide evidence of the existence of cooperative learning practices dedicated for the sample of the study, and to check for the different perceptions of teachers regarding their use of cooperative learning. Table 14. presents the overall results from the teachers' survey as well the reliability analysis of the survey.

Table 14.

Descriptive Statistics and Reliability Analysis of the Overall Scores of the Teachers on the Actual Use of Cooperative Learning Survey

Variable	*Number of Items*	*M*	*SD*	*Cronbach's α*
Teachers' Actual Use of Cooperative Learning	9	3.44	.49	.69

N = 09

The results from table 14. indicate that teachers at the department of English actually incorporate cooperative learning as an educational practice in their teaching ($M = 3.44$, $SD = .49$). According to Table 12, this mean value falls within the agreement category, which means that teachers are inclined to believe that they actually use cooperative learning. The instrument used consists of 9 items measuring teachers' actual use of cooperative learning. Table 15. shows descriptive statistics of the 9 items based on the teachers' scores.

The results presented in Table 15. indicate that teacher have neutral responses regarding the arrangement of seats and chairs of desks close to each other ($M = 3.22$, $SD = .83$). Teachers agreed that they divide a task into individual parts and/or as groups to do so themselves ($M = 3.44$, $SD = .88$). The third item tackles maintaining base groups for a relatively long period of time; teachers demonstrated neutral perceptions regarding this issue ($M = 2.78$, $SD = .97$). In addition, Teachers agreed that they use Think-Pair-Share with their students when using group work before they answer a given question ($M = 3.89$, $SD = .78$). Neutral perceptions were recorded in terms of allowing students to team-study for a test ($M = 3.00$, $SD = .50$). Conversely, teachers agreed that they allow students time to think about the extent to which their groups are well-functioning ($M = 4.00$, $SD = .71$). The next to last item "I think there is

less time to use cooperative learning than a few years ago" was reverse coded in SPSS (where 1 = Strongly Agree, 5 = Strongly Disagree) because it was believed by the researcher to measure the extent to which cooperative learning is *not* used in cooperative learning. Besides, before reverse coding this item, the survey had lower reliability coefficient than the one reported above (α = .69). This was detected using the "Reliability if Item Deleted" function is SPSS. Hence, the accurate measurement of this item after reverse-scoring the item is the extent to which there is *more* time to use cooperative learning than a few years ago. Teachers had neutral opinions regarding this item, but the responses were almost inclined to disagreement (M = 2.67, SD = .50). Finally, teachers agreed that they actually observe positive academic results in their students when applying cooperative learning strategies (M = 3.88, SD = .78).

Table 15.

Descriptive Statistics of the Scores of the Teachers on the Actual Use of Cooperative Learning Survey

Item	M	SD
I arrange a group's chairs of desks close together.	3.22	.83
I divide a task into individual parts, or ask a group to do this.	3.44	.88
I maintain base groups.	2.78	.97
I use think-pair-share before students answer a question.	3.89	.78
I allow students to team study for a quiz or test.	3.00	.50
I have students practice taking turns and other social skills.	4.11	.60
I allow students time to think about how well the group is working.	4.00	.71
I think there is less time to use cooperative learning than a few years ago.*	2.67	.50
I see academic results using cooperative learning strategies.	3.88	.78

* The scores of this item have been reverse-coded. N = 09

Results and Interpretation of the Students' Surveys

Three measures were used in this study (LAPQ, CLQ, and SOCs). This section will be dedicated to the analysis of these three measures, including a confirmatory factor analysis (CFA) detailing the goodness-of-fit indices of the data and the validity of the three instruments. Reliability analyses for the data of the study will also be presented in this section. Subsequently, this section will present the descriptive and inferential parametric tests needed to respond to the research questions and to test the hypotheses of this study.

Confirmatory Factor Analysis

The instruments of the study have been developed in contexts which are different to that of the Algerian one. Validating an instrument in a given context does not mean that researchers should take the survey as a standardised unit of measurement in all contexts, for there are number of unobserved variables that might interfere and ultimately compromise the accuracy of measurement. A CFA was carried out to ensure the fit indices and the construct validity of this research.

Goodness-of-Fit Indices of the LAPQ Model.

As explained in the previous chapter, the goodness-of fit indices determine the extent to which the data at hand fits the model. The LAPQ had a good fit in the Vietnamese context where it had been developed. The results of the model-to-data fit tests were not satisfactory. After the revision of the covariance of error terms in the modification indices in AMOS. The researcher had to establish a covariance between error terms e33 and e35, which are associated with the fifth and seventh items on the Freedom subscale. This resulted in an slight improvement in model fit. The results of the different fit indices of the LAPQ before and after revision are shown in Table 16.

Table 16.

Model-to-Data Fit indices for the LAPQ Model

LAPQ	χ^2/df	GFI	NFI	CFI	RMSEA	SRMR
Acceptable Fit	<3	>.90	>.90	>.90	<.08	<.80
Model-to-Data Fit	4.27	.92	.96	.91	.073	.071
Revised Model-to-Data Fit	3.34	.92	.96	.91	.071	.069

Before covarying error terms e33 and e35, The Chi-square devided by the degrees of freedom test was just above the benchmark, resulting in a poor fit (χ^2/df = 4.27; p > .05). The Good Fit Index, the Normed Fit Index, and the Comparative Fit Index scores showed that the model had acceptable fit indices (GFI = .92; NFI = .96; CFI = .91). The Root Mean Square Error of Approxiamtion (RMSEA) and the Standardized Root Mean Square Residual (SRMR) indicated acceptable model fit (RMSEA = .073; SRMR = .071). It can be observed in Table 16. that the revised model fit slightly improved after covarying residuals e33 and e35 relative to the

Freedom subscale. While there was not an obvserable improvement in GFI, NFI, and CFI, the χ^2/df test achieved reasonable fit ($\chi^2/df = 3.34$), and a slight improvement was recorded in the RMSEA and SRMR (RMSEA = .071, SRMR = .069).

Construct Validity of the LAPQ.

The assessment of Construct Validity invloves checking the convergent and discriminant validity of the LAPQ. Convergent validity of the LAPQ is assessed using factor loadings, Average Variance Extracted (AVE), and Comporite Reliability. All the observed variables on the LAPQ model achieved acceptable factor loadings. Table 17 shows the range of factor loadings for each subscale in the LAPQ.

Table 17.

Range of Factor Loadings in the LAPQ

Subscale	Number of Items	Factor Loadings Range
MS	15	.74 — .90
BTR	8	.75 — .86
M&D	5	.78 — .80
F	7	.66 — .88
MK	5	.80 — .86

Given the sample size of this study (N = 261), all factor loadings exceeded the benchmark set for a sample that exceeds 250 cases as explained in Table 04. The range of values can be seen in greated details in Figure 10. Furthermore, the AVE and CR were calculated using Excel following the formulas explained in the previous chapter. Table 18. contains the AVE and CR scores of the LAPQ.

All of the subscales had adequate AVE and CR scores, exceeding the benchmark value of .50 for AVE and .70 for CR. An exception, however, can be observed for the MK subscale, which had a CR value below the recommended benchmark of .70.

Table 18.

Composite Reliability (CR) and Average Variance Extracted (AVE) for the LAPQ

Subscale	AVE	CR
MS	.60	.96
BTR	.74	.94
M&D	.62	.89
F	.57	.72
MK	.67	.61

Moreover, the discriminant validity of LAPQ was measures using the Fornell-Larcker Criterion, Cross Loadings, and HTMT. The Fornell-Larcker criterion of discriminant validity is shown in Table 19. The square root of AVE for the latent variables of the LAPQ is as follow: $(\sqrt{AVE_{MS}} = .77; \sqrt{AVE_{BTR}} = .86; \sqrt{AVE_{M\&D}} = .79; \sqrt{AVE_F} = .75; \sqrt{AVE_{MK}} = .81)$. The results show that the square root of the AVE of each of the five constructs of the LAPQ is greater than all of the of the inter-construct correlations. This implies that discriminant validity is achieved with the Fornell-Larcker criterion.

Table 19.
The Fornell-Larcker Criterion of Discriminant Validity for the LAPQ
*Square Root of AVE

	MS	BTR	M&D	F	MK
MS	.77*				
BTR	.28	.86*			
M&D	.32	.56	.79*		
F	.22	.26	.41	.75*	
MK	.51	.31	.29	.21	.81*

The Heterotrait-Monotrait (HTMT) ratio criterion was also used to assess the correlations between indicators of other latent variables with those of other latent variables. Table 20. Shows the results of the HTMT ratio of correlations.

Table 20.
The Heterotrait-Monotrait Ratio of Correlations for the LAPQ

	MS	BTR	M&D	F	MK
MS					
BTR	.31				
M&D	.36	.61			
F	.29	.32	.52		
MK	.62	.37	.35	.24	

It can be observed in Table 20. that all of the HTMT ratios for the indicators of the LAPQ are below the score of .90. Thus, it can be infered that discritiminant validity is confirmed by the HTMT ratio criterion. Finally, divergent validity was confirmed by crossloadings. Results of cross loadings can be found in Appendix C.

The indicators of each of the five subscales of the LAPQ had higher correlations with their respective latent variables than with those of different latent variables. Taking the above-mentioned discriminant validity criteria into consideration, it can be concluded that discriminant validity is achieved within the dimentions of the LAPQ.

In short, it can be safe to assume that the LAPQ has achieved contstruct validty. The AVE, CR and factor loadings have confirmed the existence of convergent validity at the level of each subscales, and the Fornell-Larcker, HTMT ratios, and crossloadings asserted the existence of discriminant validity. Figure 10. illustrates the path analysis of the LAPQ, which includes factor loadings, covariance measurements and error terms of the instrument.
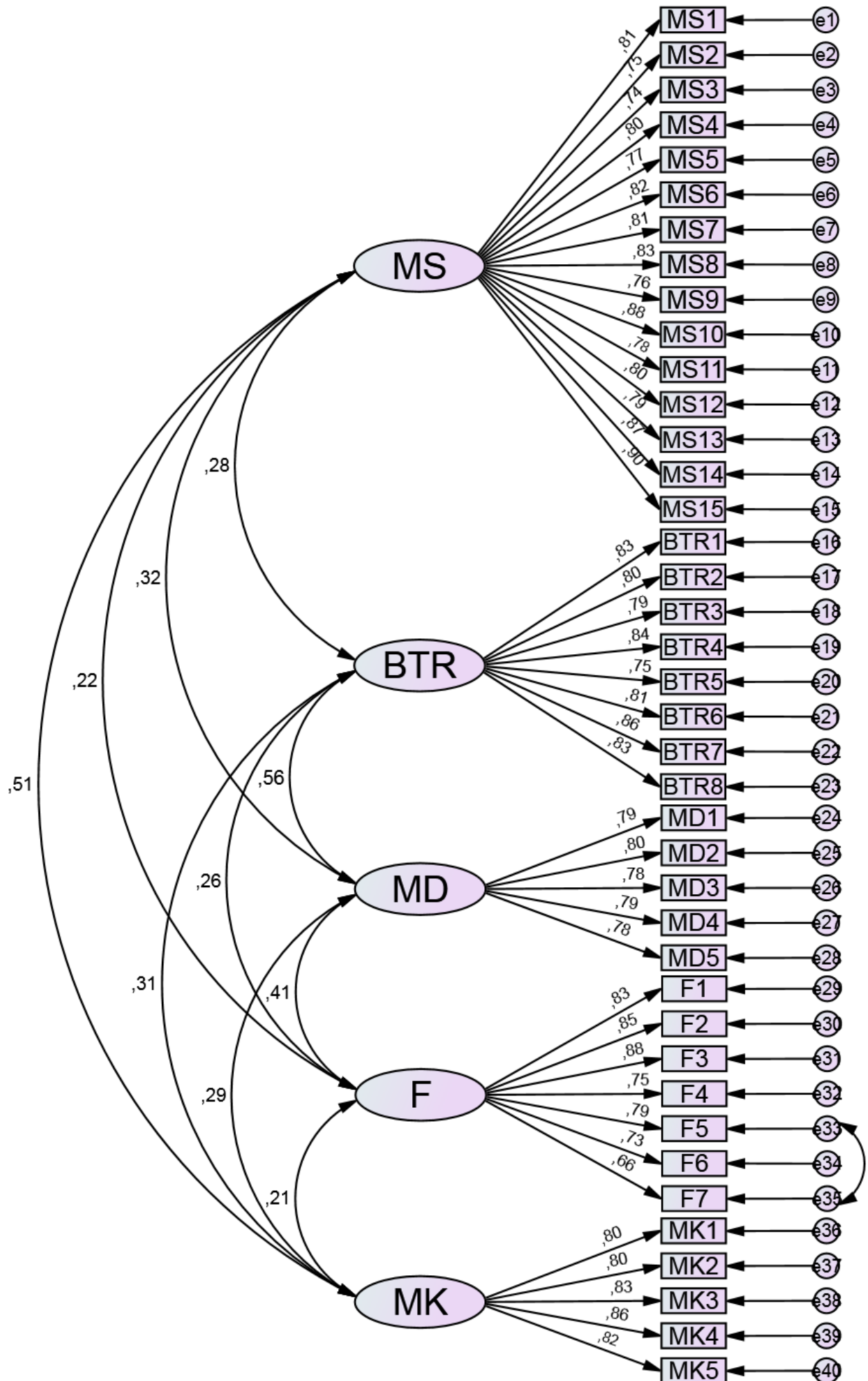
Figure 10. Path Analysis Diagram of the LAPQ

Goodness-of-Fit of the CLQ Model.

The fit indices of the CLQ model have been checked in accordance with the data of the current study. Table 21. presents the goodness of fit indices of the CLQ. The results show that the instrument had acceptable fit on all of the six citeria used in this study ($\chi^2/df = 2.77$; p > .05; GFI = .97; NFI = .92; CFI = .95; RMSEA = .052; SRMR = .036).

Table 21.

Model-to-Data Fit indices for the CLQ Model

CLQ	χ^2/df	GFI	NFI	CFI	RMSEA	SRMR
Acceptable Fit	<3	>.90	>.90	>.90	<.08	<.80
Model-to-Data Fit	2.77	.97	.92	.95	.052	.036

Construct Validity of the CLQ.

The construct validity of the CLQ has been measured by assessing the convergent and discriminant validity of the latent variable of the CLQ. This includes promotive Interaction (PI), Positive Interdependence (PID), Individual Accountability (IA), Social Skills (SS), and Group Processing (GP). Convergent validity of the CLQ is verified using factor loadings, AVE, and CR. The Range of all of the loadings of the observed variables on the LAPQ model achieved acceptable scores. Table 22 demonstrates the range of factor loadings for each subscale in the CLQ.

Table 22.

Range of Factor Loadings in the CLQ

Subscale	Number of Items	Factor Loadings Range
PI	4	.80 — .86
PID	4	.61 — .86
IA	4	.77 — .83
SS	4	.69 — .82
GP	4	.78 — .90

It can be observed in Table 22. that all ovserved variables had acceptable factor loadings. The items of PI ranged from .80 to .86, PID ranged from 0.61 to .86, IA ranged from .77 to .83,

SS ranged from .69 to .82, and GP ranged from .78 to .90. The range of these values can be seen in greated details in Figure 10.

Furthermore, the AVE and CR have been calculated to assess the convergent validity of the CLQ. Table 23. shows the results of the AVE and CR calculations for the CLQ.

Table 23.

Composite Reliability (CR) and Average Variance Extracted (AVE) for the CLQ

Subscale	AVE	CR
PI	.70	.89
PID	.56	.83
IA	.64	.88
SS	.58	.85
GP	.67	.90

The AVE and CR results show that all subscales of the CLQ had acceptable scores to achieve convergent validity. The closest results to the benchmark of the AVE are PID (AVE = 0.56) and SS (AVE = .58). The rest of the latent variables had better AVE scores, and all latent variables are excellent CR score exceeding a benchmark of 0.70. It can be concluded that Convergent validity is achieved within the latent variables of the CLQ.

The discriminant validity of the the CLQ was assessed using the Fornell-Larcker Criterion, HTMT ratio, and crossloadings. The results of the Fornell-Larcker Criterion of discriminant validity of the CLQ are shown in Table 24.

Table 24.
The Fornell-Larcker Criterion of Discriminant Validity for the CLQ
*Square Root of AVE

	PI	PID	IA	SS	GP
PI	.84*				
PID	.39	.75*			
IA	.44	.35	.80*		
SS	.43	.29	.39	.76*	
GP	.46	.57	.24	.51	.82*

The root square of the AVE score of the CLQ were greater than any of the correlations with other latent variables ($\sqrt{AVE_{PI}} = .84$; $\sqrt{AVE_{PID}} = .75$; $\sqrt{AVE_{IA}} = .80$; $\sqrt{AVE_{SS}} = .76$; $\sqrt{AVE_{GP}} = .82$). Therefore, discriminant validity is confirmed by the Fornell-Larcker criterion. Additionally, the HTMT ratio was calculated using AMOS. Table 25. shows the scores of the HTMT ratio of correlations for the CLQ.

Table 25.

The Heterotrait-Monotrait Ratio of Correlations for the CLQ

	PI	PID	IA	SS	GP
PI					
PID	.41				
IA	.49	.38			
SS	.47	.31	.45		
GP	.51	.64	.26	.59	

The resuts show that all HTMT ratios of correlations of the indicator variables across contructs the were below the value of .90. It is hence safe to claim that discriminant validity is achieved by the HTMT ratio criterion. Cross loadings between the latent variables of the CLQ and the ovserved variables are shown in Appendix D. It can be observed that all latent variables had higher correlations with their respective items than with those of other latent variables. It can thus be infered that divergent validity has been confirmed by the cross loadings criterion. Given the three above-mentioned criteria of discriminant validity, it is safe to assume, on the balance of considerations, convergent validity has been achieved in the CLQ.

In conclusion, the CLQ model in this study has proven to have excellent construct validity. Convergent validity was confirmed at the subscale level by the AVE, CR, and factor loadings, whereas discriminant validity was established by the Fornell-Larcker, HTMT ratios, and crossloadings. The dimensions of the CLQ including latent and observed variables, factor loadings, covariance coefficients, and residuals are explained in the path analysis diagram depicted in Figure 11.
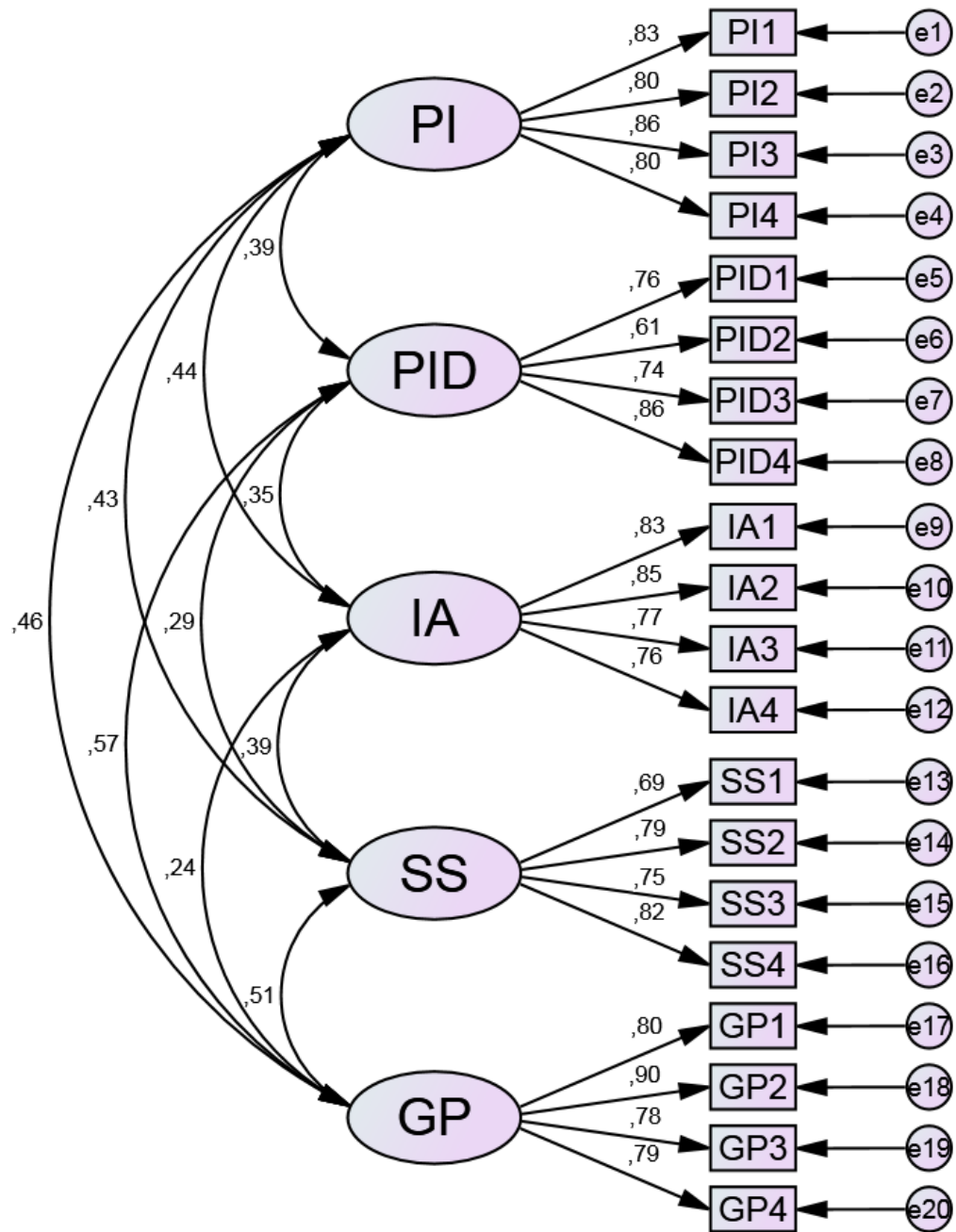
Figure 11. Path Analysis Diagram of the CLQ

Goodness-of-Fit of the SOCS Model.

The goodness of fit indices of the SOCS were measured using AMOS. The model-to-data fit was not entirely satisfactory as those of the LAPQ and the CLQ. Strong error covariance relationships were found between error terms e5 and e6 on the boundary interdependence subscale, and between error terms e13 and e14 on the means interdependence subscale. The

association of these error terms resulted in a slight improvement in the model fit on the levels of the χ^2/df , CFI, and RMSEA. Table 26 shows the results of the model-to-data fit of the SOCS.

Table 26.

Model-to-Data Fit indices for the SOCS Model

SOCS	χ^2/df	GFI	NFI	CFI	RMSEA	SRMR
Acceptable Fit	<3	>.90	>.90	>.90	<.08	<.80
Model-to-Data Fit	6.21	.91	.90	.85	.089	.079
Revised Model-To-Data Fit	4.89	.93	.92	.89	.079	.073

It can be observed that the SOCS had the poorest of model-to-data fit indices compared to the LAPQ and the CLQ (χ^2/df = 4.89; p > .05; GFI = .93; NFI = .92; CFI = .89 ≈ .90; RMSEA = .079; SRMR = .073). It can be seen in Figure 11. that item six on the boundary interdependence and item one on the means interdependence had the lowest of standardised regression weights compared to the rest of the items of their respective subscales, allowing more room for measurement error. The researcher did not eliminate these items as it would damage the content validity of the subscales, especially for the MID variable because it consists of three items only. Considering the fit indices shown in Table 26. collectively, as well as the sample size, it can be safe to assume that the SOCS has reasonable fit model-to-data fit.

Construct Validity of the SOCS.

The construct validity of the SOCS has been determined through convergent and divergent validity. Following the pattern of the previous two measures, the assessment of the convergent validity of the SOCS is done through factor loadings, AVE, and CR. Table 27. displays the range of factor loadings of the SOCS. All of the factor loadings for the latent variables of the SOCS are above the required benchmark for convergent validity as explained on chapter 02 in Table 04.

Table 27.

Range of Factor Loadings in the SOCS

Subscale	Number of Items	Factor Loadings Range
BID	9	.59 — .85
OID	3	.78 — .85
MID	3	.61 — .83

Furthermore, the AVE and CR scores are shown in Table 28. It can be observed that, while the BID and OID subscales had satisfactory AVE and CR scores, the AVE of the MID was just below the benchmark ($\text{AVE}_{\text{MID}} = .49 \approx .50$)

Table 28.

Composite Reliability (CR) and Average Variance Extracted (AVE) for the CLQ

Subscale	AVE	CR
BID	.61	.93
OID	.65	.85
MID	.49	.74

Considering the results of Table 28 and Table 29., it can be concluded that the SOCS achieved acceptable convergent validity.

The discriminant validity of the SOCS was determined using the Fornell-Larcker Criterion, HTMT ratio, and cross loadings. The results of the Fornell-Larcker criterion are shown in Table 29. It can be observed that the root square of the AVE exceeded all of the inter-variable correlations of the SOCS ($\sqrt{\text{AVE}_{\text{BID}}} = .78$; $\sqrt{\text{AVE}_{\text{OID}}} = .81$; $\sqrt{\text{AVE}_{\text{MID}}} = .70$). Discriminant validity is thus confirmed using the Fornell-Larcker Criterion.

Table 29.
The Fornell-Larcker Criterion of Discriminant Validity for the SOCS
*Square Root of AVE

	BID	OID	MID
BID	.78*		
OID	.23	.81*	
MID	.19	.39	.70*

Moreover, the HTMT ratio scores were all below the threshold of .90. Table 30 reveals the scores of the HTMT ratio test. Discriminant validity is thus confirmed by the HTMT ratio criterion.

Table 30.

The Heterotrait-Monotrait Ratio of Correlations for the SOCS

	BID	OID	MID
BID			
OID	.27		
MID	.22	.45	

Finally, cross loadings revealed that all latent variables had better correlations with their respective items than with items of the two other latent variables on the SOCS scale (see Appendix E)

In conclusion, it can be claimed that the SOCS achieved construct validity based on the scores of factor loadings, AVE, and CR for convergent validity, and based on the scores of the Fornell-Larcker criterion, the HTMT ratio Criterion, and cross loadings. Figure 11. summarises the path analysis of the SOCS in this study in a SEM diagram, and includes covariance between latent variable, standardized regression weights, and residuals covariance.

To sum up, the CFA conducted for the three measures of this study revealed promising results for measurement accuracy in the Algerian higher education context. The LAPQ, CLQ, and SOCS had acceptable goodness-of fit indices, which means that the three models fit the data of the study well. The scores of fit indices of the LAPQ and CLQ were slightly better than those of the SOCS. However, the problems in model-to-data fit of the latter were subtle, and an overall consideration to all the criteria makes fit the data well. It is worth noting that the covariance of the residuals was only established because, to the researcher's best knowledge and beliefs, the items correlated were measuring almost the same aspect on the subscale. Since the content validity of the three instruments had been confirmed by the original authors, the three measures were verified for construct validity by the researcher, and proved to be valid tools for measuring autonomous learning beliefs, cooperative learning perceptions, and social interdependence in cooperative learning in the Algerian higher education context.
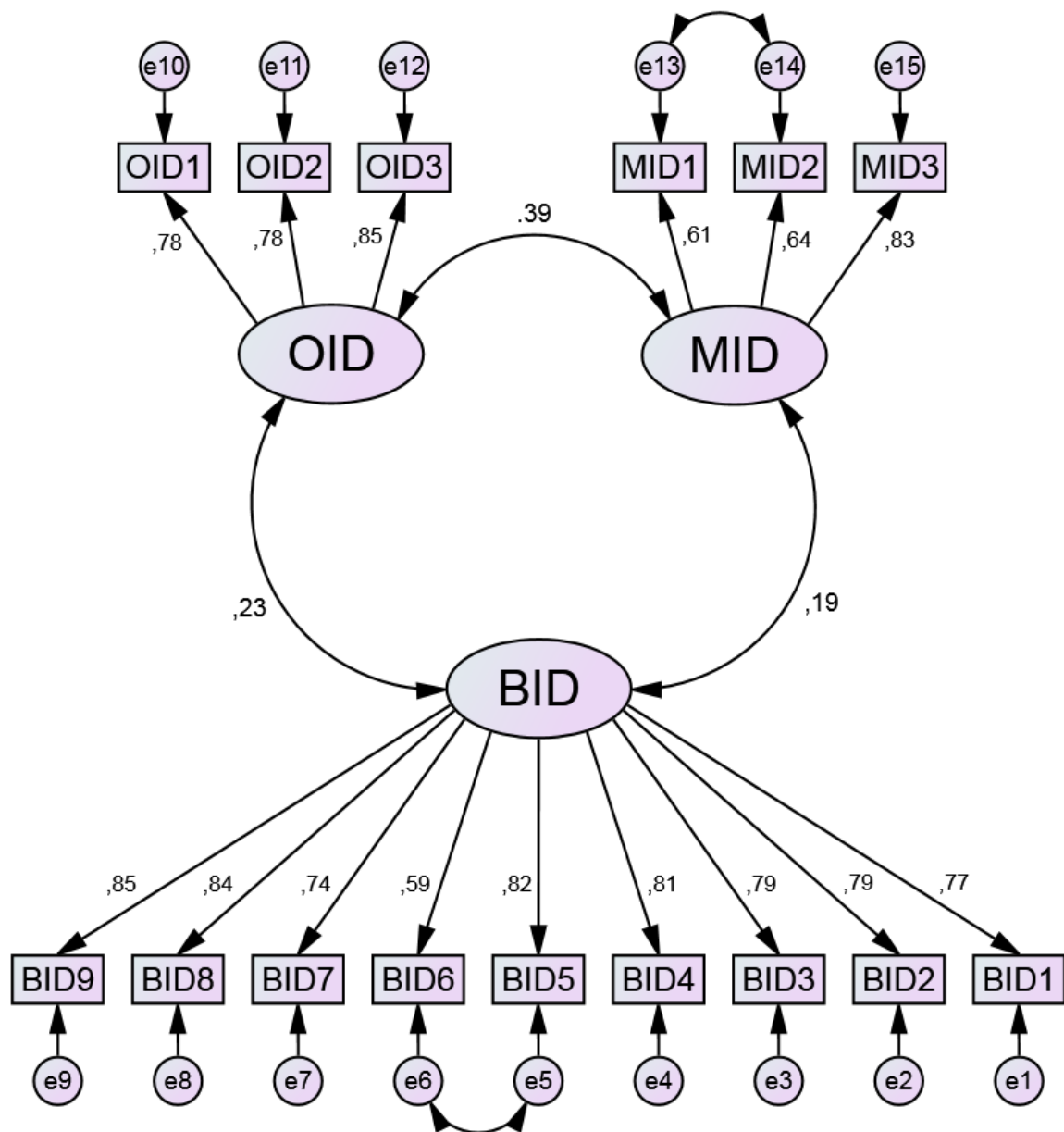
Figure 12. Path Analysis Diagram of the SOCS

Reliability Analyses

To determine the internal consistency of the three measures of this study, Cronbach's Alpha coefficient has been calculated at the level of the subscales. The results of the reliability analysis are shown in Table 31. It can be observed that all of the subscales of the three measures had acceptable internal consistency; scores for the LAPQ subscales range from .81 to .96, the scores the CLQ range from .71 to .89, and the scores the SOCS range from .76 to .93. Normally, a value

of α coefficient higher than .70 indicates the existence of internal consistency (Nunnally & Bernstein, 1994).

Table 31.

Reliability Analysis for the Instruments for the Study.

Instruments	Subscales	Number of Items	Cronbach's α
LAPQ	MS	15	.96
	BTR	08	.94
	M&D	05	.89
	F	07	.81
	MK	05	.91
CLQ	PI	04	.89
	PID	04	.71
	IA	04	.88
	SS	04	.85
	GP	04	.88
SOCS	OID	03	.85
	MID	03	.76
	BID	09	.93

Descriptive Analyses of the Students' Surveys

This section contains descriptive analyses and interpretation of the students' surveys. This includes the assessment students' tendencies towards the different dimensions of the three instruments through the measurement of the means and standard deviations of the participants' responses to the LAPQ, CLQ, and SOCS.

Descriptive Analyses of the LAPQ.

The measurement of autonomous learning perceptions, as referred to in chapters one and two, is done through analysis students' metacognitive skills and knowledge, beliefs about the teacher's role, motivation and desire, and freedom. The responses of participants on the LAPQ are shown in details in this subsection.

The first subscale on the LAPQ is designed to measure students' metacognitive skills. Table 32. shows the scores of students on the MS subscale.

Table 32.

Descriptive Statistics of the MS Subscale

Item	M	SD
I reflect on what I learn and look for something important.	2.82	.82
I plan how I learn English.	3.34	.92
I set my goals in learning English.	2.93	.87
I check to make sure I have understood what I need to learn.	3.04	.95
I try to study English regularly even with limited time.	3.25	.89
I carry out learning plans once they have been made.	3.19	.91
I make my schedule so I would have enough time to study English.	3.24	.99
I notice my mistakes and use that information to improve.	3.00	.98
Before I do class work or homework, I analyse what is required.	3.26	1.00
I deal with things related to English but not necessarily related to English class.	3.43	.98
After I get my English work back, I always read it again to correct my mistakes.	3.47	.87
I put great effort into learning English.	3.08	1.00
I try to complete things I have decided to do.	3.16	1.03
I give myself a reward or treat when I do something well in English.	3.00	.89
I make good use of materials and resources when studying English.	2.91	1.11
Metacognitive Skills	**3.14**	**.78**

N = 261

Overall, it appears that undergraduate students of English at Si-Lhaoues University Centre had neutral views regarding their own metacognitive skills (*M* = 3.14, *SD* = .78). All of the responses to the items of the MS subscales indicate a tendency to unsure and neutral perceptions about planning, self-monitoring, and self-assessment (neutral score means ranging from 2.91 to 3.34). An exception can be observed, where student agreed on items 10 "I deal with things related to English but not necessarily related to English class" (*M* = 3.43, *SD* = .98) and 11 "After I get my English work back, I always read it again to correct my mistakes" (*M* = 3.47, *SD* = .87).

The next subscale on the LAPQ deals with students' beliefs about the role of the teacher. Table 33. shows the scores of the participants on the BTR subscale.

Table 33.

Descriptive Statistics of the BTR Subscale

Item	M	SD
The teachers should set my learning goals.	2.98	1.06
The teachers should choose what materials to use to learn English in English class.	3.26	1.05
The teachers should correct all of my mistakes.	3.33	1.05
The teachers should ensure my progress in learning English.	3.22	1.12
I need a lot of guidance in learning English.	3.03	.87
The teachers should decide how long to spend on each activity.	3.17	1.00
The teachers should decide the objectives of my English courses.	3.02	1.06
The teachers should explain everything to us.	3.11	1.16
Beliefs About the Teacher's Role	**3.14**	**.88**

N = 261

All of the items of the BTR scores had neutral tendencies towards the teacher's role ($M = 3.14$, $SD = .88$). The score means of the five-point Likert scale ranged from 3.03 for the fifth item on the BTR subscale ($SD = .87$) "I need a lot of guidance in learning English." to 3.26 on the second item of the BTR subscale "The teachers should choose what materials to use to learn English in English class" ($SD = 1.05$). These results insinuate that students of English do not have a clear conception of the role of the teacher as a facilitator in the language classroom.

Furthermore, the participants' scores of the M&D subscale are presented in Table 34. The overall score of students the Motivation and Desire subscale, yet again, indicate neutral tendencies towards motivation and desire to learn English at the University Centre of Si-Lhaoues ($M = 3.38$, $SD = .83$). However, it is worth mentioning that there exists an agreement among the sample of the study that they find learning English very interesting. ($M = 3.65$, $SD = .95$), that they would like English to be used as much as possible in the classroom ($M = 3.59$, $SD = .81$), and that they find English useful for a successful academic career ($M = 3.51$, $SD = 1.16$)

Table 34.
Descriptive Statistics of the M&D Subscale

Item	M	SD
I would like English to be used as much as possible in English class.	3.59	.81
If English were not taught at my university, I would try to take English classes somewhere else.	2.98	1.10
I learn English because I find it very interesting.	3.65	.95
I learn English because it will help me to be successful in my studies.	3.51	1.16
I would like to have friends from English-speaking countries.	3.20	.95
Motivation and Desire	**3.38**	**.83**

N = 261

The subsequent subscale on the LAPQ deals with students' perception of freedom (the extent to which they are allowed to control their own learning and the different learning chances they have at the university. Table 35. shows the scores of participants on the Freedom subscale.

Table 35.
Descriptive Statistics of the F Subscale

Item	M	SD
I can go see my teachers about my English learning.	3.14	1.03
I have chances to ask the teachers questions when I do not understand something.	2.90	1.03
I have chances to make suggestions to the teachers.	2.75	1.08
I have chances to discuss learning issues with my classmates.	3.05	.83
I have chances to do English self-study with friends.	3.22	1.39
We use a lot of English in the classroom at my university.	2.50	.96
I have chances to work with my classmates on activities in the classroom.	3.57	1.25
Freedom	**3.03**	**.88**

N = 261

Although students had and overall neutral score on the Freedom subscale ($M = 3.02$, $SD = .88$), a discrepancy of opinions was scored. That is, students have agreed that they have chances to work with their classmates on various activities in the classroom ($M = 3.57$, $SD = 1.25$). In contrast, they have disagreed that they use English in the classroom at the university ($M = 2.50$, $SD = .96$).

The final subscale on the LAPQ is the Metacognitive Knowledge subscale. The subscale is intended to measure students' awareness concerning their own learning strengths and weaknesses, how they manage their learning tasks, and the strategies of successful learning. Table 36. contains the participants' results the MK subscale.

Table 36.

Descriptive Statistics of the MK Subscale

Item	M	SD
I know my strengths and weaknesses in learning English.	2.71	1.07
I am responsible for the success of my English-language learning.	3.64	.88
I understand my own personality.	2.38	1.22
To learn English well, it is important to know one's personality, motivation, personal needs, expectations, learning styles, my strengths, weaknesses, etc., in English.	2.96	.91
There are a lot of opportunities to learn English in Algeria.	3,41	1.20
Metacognitive Knowledge	**3.02**	**.91**

N = 261

The results of Table 36. indicate that students of English had neutral perceptions towards metacognitive knowledge ($M = 3.02$, $SD = .91$). Participants disagreed that they understand their own personalities ($M = 2.38$, $SD = 1.22$). However, a promising tendency towards learner autonomy can be seen in the scores of items two "I am responsible for the success of my English-language learning." ($M = 3.64$, $SD = .88$).

Descriptive Analyses of the CLQ.

Cooperative learning among students was assessed through the measurement of the five dimension of cooperative learning (promotive interaction, positive interdependence, individual accountability, social skills, and group processing). The first measure on the CLQ is the Promotive Interaction subscale. Table 37. reveals the scores of students on the PI subscale.

Table 37.

Descriptive Statistics of the PI Subscale

Item	M	SD
Groupmates relate and interact during tasks.	2.90	.89
Interaction between groupmates is necessary to do the task.	3.28	1.03
We relate to each other to do the activities.	2.78	1.04
We work directly with each other.	3.06	1.18
Promotive Interaction	**2.99**	**.89**

N = 261

It can be observed in Table 37. that students were inclined to have neutral tendencies regarding promotive interaction in cooperative learning (*M* = 2.99, *SD* = .89). results for all the items had neutral tendencies towards PI with mean scores ranging from 2.78 (SD = 1.02) "We relate to each other to do the activities" to 3.28 (SD = 1.03) "Interaction between groupmates is necessary to do the task."

Furthermore, the results of the positive interdependence subscales are shown in table 38.

Table 38.
Descriptive Statistics of the PID Subscale

Item	M	SD
The help of my classmates is important to complete the tasks	2.80	0.86
We cannot finish an activity without the contributions of colleagues	3.56	1.11
It is important to share materials, information... to do homework	3.03	.93
The better each member of the group does his task, the better the group gets	2.91	1.18
Positive Interdependence	**3.07**	**.96**

N = 261

As far as positive interdependence is concerned, students showed neutral perceptions (*M* = 3.07, *SD* = .96). However, students agreed on item two on the PID subscales "We cannot finish an activity without the contributions of colleagues" (*M* = 3.56, *SD* = 1.11), which implies the existence of a promising prospect for positive interdependence in cooperative learning within students of English. Subsequently, score of the Individual Accountability subscale were calculated. Table 39 demonstrates the participants' results of the IA subscale

Table 39.

Descriptive Statistics of the IA Subscale

Item	M	SD
Each member of the group must participate in the tasks of the group	2.81	1.05
Each member of the group must make an effort in the activities of the group	3.19	1.12
Each member of the group should try to participate, even if she does not like the task	2.89	.98
Each member of the group must do their share of the group's work to complete the task.	2.71	1.28
Individual Accountability	**2.93**	**.95**

N = 261

The lowest scores on the CLQ were found in the individual accountability subscale. According to the results shown in Table 39, students were unsure of their individual roles to complete learning tasks cooperatively ($M = 2.93$, $SD = .95$). All of the items on the subscale had neutral mean scores ranging from 2.71 ($SD = 1.28$) to 3.19 ($SD = 1.12$).

The next variable on the CLQ is the Social Skills subscale. Table 40. reveals the participant scores on the SS subscale.

Table 40.

Descriptive Statistics of the SS Subscale

Item	M	SD
We work on dialogue, listening skills and/or debate at the university	3.66	1.18
We expose and defend ideas, knowledge and points of view before our classmates	2.51	1.05
We listen to the opinions and points of view of our classmates	3.06	.89
We reach agreements in the face of different opinions or conflicts	3.07	1.01
Social Skills	**3.08**	**.89**

N = 261

Students have agreed that they work on dialogue listening skills at the university ($M = 3.66$, $SD = 1.18$). Paradoxically, they disagreed that they expose and defend ideas and perception in front of their classmates ($M = 2.51$, $SD = 1.05$). Participants had neutral perceptions regarding

the third and fourth items on the SS subscale concerning listening to each other's opinions, and agreement on conflict settlement ($M = 3.06$, $SD = .89$; $M = 3.07$, $SD = 1.01$).

Finally, the results of the Group Processing subscale of the CLQ are shown in Table 41.

Table 41.

Descriptive Statistics of the GP Subscale

Item	M	SD
We share ideas so that the whole group knows what is being done	3.45	1.12
We make decisions by agreement among the group mates	3.02	.95
We discuss the ideas among the members of the group	3.42	.96
We reflect individually and jointly within the group	3.03	1.08
Group Processing	**3.23**	**.91**

N = 261

The overall scores of the GP subscale indicate the existence of a neutral tendency towards group processing in cooperative learning ($M = 3.23$, $SD = .31$). Participants agreed that they both share ideas to the whole group to clarify the objectives of the task ($M = 3.45$, $SD = 1.12$), and discuss their ideas among group members ($M = 3.42$, $SD = .96$).

Descriptive Analyses of the SOCS.

The analysis of the Social Interdependence in Collaborative learning Scale includes descriptive statistics of the three subscales of the instrument (boundary interdependence, outcome interdependence, and means interdependence). First, the BID was analysed to reveal the tendencies of the participants towards negative interdependence amongst groups, group identity, and environmental interdependence. Table 42. shows descriptive statistics of the BID subscale.

Participants showed agreement towards the first, eighth and ninth items of the BID. That is, they agreed that they wish for their group to be dominant and superior (negative interdependence among groups) compared to other groups ($M = 3.43$, $SD = .86$), that they have respect for students with whom they interact in the group ($M = 3.55$, $SD = 1.28$), and that they think it is desirable to share the learning tasks for more inter-member efficiency ($M = 3.48$, $SD = 1.10$). The rest of the items on the BID construct showed neutral tendencies towards identity

in boundary interdependence, and hence overall neutral perception on boundary interdependence ($M = 3.19$, $SD = .84$).

Table 42.

Descriptive Statistics of the BID Subscale

Item	M	SD
I hope my learning group is superior to others.	3.43	.86
When there are different opinions, I would like to coordinate them.	3.06	.89
For me, it is important to maintain harmony within the group.	2.86	1.02
I incorporate the advice of others when preparing a study plan.	3.02	1.23
Group members should carefully summarize each other's arguments.	3.09	1.18
Discussions with other members who have different opinions will improve me.	3.03	1.06
I try to share my own thoughts and materials if they are useful to other students.	3.07	.82
I have respect for the others with whom I interact.	3.55	1.28
It is a good idea to share the tasks for more efficient group work.	3.48	1.10
Boundary Interdependence	**3.17**	**.84**

N = 261

The next construct on the SOCS is the Outcome Interdependence subscale. Table 43. demonstrates descriptive statistics of the OID items.

Table 43.

Descriptive Statistics of the OID Subscale

Item	M	SD
I can learn important things from other students.	3.41	1.16
It is a good idea for students to help one another in their studies.	3.45	1.04
We learn numerous important things from one another.	2.98	1.00
Outcome Interdependence	**3.28**	**.88**

N = 261

It can be observed that participant have agreed that they can learn important things from one another ($M = 3.41$, $SD = 1.16$), and that they think it is a good idea for them help one another in their studies ($M = 3.45$, $SD = 1.04$). Conversely, neural perceptions were scored for item three

of the OID construct regarding students' actual learning from one another ($M = 2.98$, $SD = 1.00$). The latter affected the overall mean of the OID subscale, resulting in a somewhat neutral tendency ($M = 3.28$, $SD = .88$).

Finally, Descriptive statistics of the Means Interdependence subscale were calculated. Table 44. shows the scores of participants on the MID variable.

Table 44.

Descriptive Statistics of the MID Subscale

Item	*M*	*SD*
My peers rely on my information and advice.	3.37	1.17
My peers rely on my presence as well as my help and support.	3.45	1.13
I draw conclusions from information in group discussions.	2.99	.98
Means Interdependence	**3.27**	**.84**

N = 261

Participants indicated that their peers rely on their presence and support in cooperative learning ($M = 3.45$, $SD = 1.13$), while neutral perceptions were recorded regarding information reliance ($M = 3.37$, $SD = 1.17$), and conclusion drawing from group discussions ($M = 2.99$, $SD = .98$). The overall score of the MID construct leads infer that neutral tendencies are manifested in by student of English ($M = 3.27$, $SD = .84$).

The results of the descriptive statistics of the three measures of this study have shown that undergraduate students of English at the University Centre of Si-Lhaoues – Barika are unsure about autonomous learning perceptions ($M = 3.14$, $SD = .53$), cooperative learning ($M = 3.06$, $SD = .52$), and social interdependence ($M = 3.24$, $SD = .45$). There was no evidence of inclination towards any of the three concepts. Descriptive statistics about the overall means of the LAPQ, CLQ, and SOCS are shown in Table 45.

Table 45.

Descriptive Statistics of the Scores of the Instruments of the Study Subscale

Measure	M	SD
LAPQ	3.14	.53
CLQ	3.06	.52
SOCS	3.24	.45

N = 261

Analyses of Variance

The results from the descriptive analyses of the three measures of the study indeed shows a firm inclination towards neutral and unsure perception. The sample of the study, however, consists of three levels (first, second, and third year students). In order to determine whether there is a statistically significant different between these levels in terms of learner autonomy perceptions, cooperative learning, and social interdependence, analyses of variance were run using SPSS. This entails the use of ANOVA to determine the sample differences in autonomy perception, and MANOVA to determine the differences of cooperative learning and social interdependence across the level of participants

Analysis of Variance (ANOVA).

SPSS was used to assess the differences across first, second, and third year students in terms of learner autonomy perceptions. The results of the one-way ANOVA test are shown in Tables 46. and 47.

Table 46.

Descriptive Statistics of Learner Autonomy Perceptions in Terms of Level Differences

Level	N	Min	Max	M	SD
First year	127	2.00	4.06	3.03	.47
Second Year	73	2.18	4.39	3.22	.54
Third Year	61	1.63	4.43	3.35	.57
Total	**261**	**1.63**	**4.43**	**3.14**	**.53**

It can be observed in Table 46. That, in terms of autonomous leaning perceptions, second year students ($M = 3.22$, $SD = .54$) scored more than first year students ($M = 3.03$, $SD = .47$),

and that third year students scored better than first and second year students ($M = 3.35$, $SD =$ .57).

Table 47.

ANOVA Results of Learner Autonomy Perceptions in Terms of Students' Level

Autonomous Learning	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.572	2	2.286	8.600	.000
Within Groups	68.587	258	.266		
Total	73.159	260			

The results of the ANOVA test shown in Table 47. indicate the existence of a statistically significant difference in autonomous learning in terms of the level of students [$F(2, 258) = 8.60$, $p < .05$]. The effect size of this ANOVA test is done through the calculation of Eta Squared (η^2) as referred to in chapter two.

$$\eta^2 = \frac{SS_B}{SS_{total}} = \frac{4.572}{73.159} = .0624$$

Based on the ANOVA test, the results indicate the existence of a medium effect size ($\eta^2 = .062$). In other words, the differences of students' level explained 6.24% of the variance in autonomous learning perceptions. Furthermore, in order to assess the differences between the means of students in terms of their level and their significance values were calculated. Table 48 demonstrates the results of the Post Hoc test using the Tukey criterion of significance ($\alpha < .05$).

Table 48.

Post Hoc Multiple Comparisons Tests for Learner Autonomy Perceptions

Test	Mean difference	Sig.
Third year – First year	.32	.000
Third year – Second year	.13	.309
Second year – First year	.19	.036

The Post Hoc Comparisons indicated that the mean score of autonomy perceptions of third-year students was significantly different than that of first-year students ($M = .32$; $p < .05$). There was no significant difference between second- and third-year students in terms of

autonomy perceptions ($M = .13$; $p = .309$). Finally, second- and first-year students were significantly different in terms of autonomy perceptions ($M = .19$; $p < .05$).

Multivariate Analysis of Variance (MANOVA).

In order to test the differences in cooperative learning and social interdependence among the sample of the study in accordance with their level, and because these two variables are closely related, multivariate analysis of variance (MANOVA) was run in SPSS. Results of the MANOVA test are shown in Table 49.

Table 49.
MANOVA Results of Cooperative Learning and Social Interdependence in Terms of Students' Level

	Value	F	df	Error df	Sig.	η_p^2
Wilk's Lambda	.913	5.954	4	514	.000	.0442

The results of the MANOVA test as indicated that students of English perceive jointly cooperative learning and social interdependence significantly different [Wilk's $\Lambda = .913$, F(4, 514) = 5.954, $p < .05$]. When considered together, students' level has a small effect size (partial Eta squared) on cooperative learning and social interdependence ($\eta_p^2 = .0443$), which means that only 4.43% of the variance accounted for cooperative learning and social interdependence is explained by the level of students.

Since the results of the MANOVA indicated a statistically significant difference between the participant, a separate one-way ANOVA was run for each of the dependent variables to determine the significance of the differences and estimates of effect size.

Table 50.

ANOVA Results of Cooperative Learning in Terms of Students' Level

Cooperative learning	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5.575	2	2.787	10.769	.000
Within Groups	66.777	258	0.259		
Total	72.352	260			

Table 50. contains the results from the ANOVA tests of the CLQ measure in terms of students' level. There is a statistical significant difference in cooperative learning perceptions

between students in terms of their level [$F(2, 258) = 10.77$, $p < .025$] (Bonferroni correction) with a medium effect size, accounting for 7.7% of the variance in cooperative learning perceptions ($\eta^2 = .077$). The mean comparisons of the CLQ responses are shown in table 51.

Table 51.

Post Hoc Multiple Comparisons Tests for Cooperative Learning

Test	Mean difference	Sig.
Third year – First year	.58	.000
Third year – Second year	.47	.003
Second year – First year	.11	.652

The Post Hoc test for multiple comparisons indicated that third-year students *(M = 3.41, SD = .61)* had significantly higher cooperative learning perceptions scores than first-year students (*M* = 2.83, *SD* =.44) (*p* < .05) and second-year students (*M* = 2.94, *SD*= .51) (*p* = .003). No significant difference was found between first- and second-year students (*p* = .652).

Moreover, Table 52 shows the results of the ANOVA test for the participants' responses on the SOCS. There is a statistically significant difference in social interdependence amongst students in terms of their academic levels [$F(2, 258) = 4.58$, $p < .025$], with a small effect size ($\eta^2 = .0342$), explaining 3.42% of the variance in social interdependence.

Table 52.

ANOVA Results of Social Interdependence in Terms of Students' Level

Social Interdependence	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.847	2	0.924	4.578	.0111
Within Groups	52.043	258	0.202		
Total	53.890	260			

Lastly, the Post Hoc test for multiple comparisons, as shown in Table 53, revealed that the social interdependence mean score of third-year students *(M = 3.43, SD = .46)* is significantly greater than that of first-year students (*M* = 3.13, *SD* =.41), with a mean difference of .30 (*p* = .008) and second-year students (*M* = 3.25, *SD*= .50) with a mean difference of .18 (*p* = .039), and that no significant difference was found between first- and second-year students (*p* = .359).

Table 53.

Post Hoc Multiple Comparisons Tests for Social Interdependence

Test	Mean difference	Sig.
Third year – First year	.30	.008
Third year – Second year	.18	.039
Second year – First year	.12	.359

Correlational Analyses

In order to measure the associations of the variables of the study, correlations were calculated using SPSS. Because the data of the study did not violate normality assumption, Pearson's *r* correlation coefficients were run to test the extent to which the latent variables as well as the scales of this study are correlated. This study hypothesised the existence of significant positive associations between learner autonomy, cooperative learning, and social interdependence. This implies that positive and significant correlations exist between the latent variables of each measure. Table 54. contains the covariance matrix of all of the latent variables of the LAPQ, CLQ, and SOCS. Significant positive correlations coefficients can be observed between the variables of the study.

Table 54.
Pearson's Bivariate Correlation Matrix between the Latent Variables of the Study

	MS	BTR	M&D	F	MK	PI	PID	IA	SS	GP	BID	OID	MID
MS													
BTR	.281*												
M&D	.319*	.564**											
F	.227*	.264**	.407**										
MK	.508**	.315*	.291*	.212*									
PI	.406*	.517*	.352*	.145*	.231*								
PID	.314*	.342*	.562*	201*	.242*	.394*							
IA	.664*	.504*	.311	.189	.275*	.444*	.352*						
SS	.345*	.277	.362	.117*	.329*	.429*	.287*	.391					
GP	.261*	.243*	.228	.279*	.314*	.461*	.575*	.238*	.511**				
BID	.396*	.354	.313*	.162*	.285*	.317**	.409**	.227*	.271*	.312*			
OID	.341*	.412*	.273**	.188*	.261*	.678**	.712**	.489**	.324**	.601*	.235		
MID	.277*	.386*	.265	.241	.409**	.357*	.518*	.729**	.663**	.496**	.186	.391**	

**Significant at the level of .01
*Significant at the level of .05

The metacognitive skills construct is associated significantly and positively with all of the constructs of cooperative learning and social interdependence (weak to moderate correlations ranging from $r = .261$, $p < .05$, to $r = .664$, $p < .05$), with small to large effect sizes (r^2) ranging from 6.8% to 44% of the variance accounted for. Beliefs about the teacher's role was significantly and positively correlated with all the constructs of cooperative learning and social interdependence (weak to moderate correlations ranged from $r = .243$, $p < .05$, to $r = .517$, $p < .05$), except with social skills ($r = .277$, $p > .05$) and boundary interdependence ($r = .354$, $p > .05$). Effect sizes ranged from small (5.9%) to large (26.7%). Motivation and desire was correlated significantly and positively with promotive interaction ($r = .352$, $p < .05$), positive interdependence ($r = .562$, $p < .05$), boundary interdependence ($r = .313$, $p < .05$), and outcome interdependence ($r = .273$, $p < .01$). The variance accounted for in these associations ranges from 6.7% to 31.5%. The freedom construct had the weakest of significant correlation coefficients with the latent variables of cooperative learning and social interdependence (weak correlations were recorded, ranging from $r = 117$, $p < .05$, to $r = .279$, $p < .05$), explaining a small range of variance of 1.4% to 7.7%. This construct, however, was not significantly correlated with individual accountability ($r = .189$, $p > .05$) and means interdependence (($r = .241$, $p > .05$). Finally, the metacognitive variable was correlated with all of the variables of cooperative learning and social interdependence, with weak to moderate correlations ranging from $r = .231$, $p < .05$, to $r = 409$, $p < .01$, explaining a small to medium range of variance (from 5.3% to 16.7%).

It can also be observed that cooperative learning constructs were strongly associated with social interdependence constructs. For example, positive interdependence was significantly and positively associated with outcome interdependence ($r = .712$, $p < .01$), with a large effect size ($r^2 = .506$). Individual accountability was also strongly associated with means interdependence ($r = .729$, $p < .01$), accounting for 53.1% of the variance. All of the constructs between the two independent variables of the study had significant positive correlations ranging from weak to moderate, and explaining a range of small to large variance (from 5.2% to 45.9%)

Pearson's correlation tests between the mean scores of all latent variables were run in SPSS to assess the covariance coefficients between the variables of the study. Table 55. contains the results of the associations of these variables. It is clear that there are moderate positive associations between autonomous learning perceptions, cooperative learning, and social interdependence. Learner autonomy perceptions are significantly and positively correlated with

cooperative learning ($r = .606$, $p < .01$). This association accounted for 36.7% of the variance, resembling a large effect size. They are also associated significantly and positively with social interdependence ($r = .422$, $p = .01$), with a medium effect size of 17.8%. Cooperative learning and social interdependence were significantly and positively correlated ($r = .671\%$, $p < .01$), and accounted for 45% of the variance.

Table 55.
Pearson's Correlation between the Variables of the Study

	LAPQ	CLQ	SOCS
LAPQ			
CLQ	.606**		
SOCS	.422**	.671**	

**Significant at the level of .01

Multiple Linear Regression Analysis

Despite the existence of significant associations between the variables of the study, they are applicable only to the context in which the study is conducted; they do not assess the extent to which cooperative learning and social interdependence predict learner autonomy perceptions. Therefore, in order to check the predictive linkage between the independent and the dependent variables. Prior to engaging in the regression analysis, the assumptions of linear regression were assessed to ensure valid linear regression results and accurate interpretation. This includes the results of the normality and independence of residuals, linearity, homoscedasticity, and absence of multicollinearity.

The normality of distribution assumptions of standardized residuals was tested in SPSS using the Kolmogorov-Smirnov and Shapiro-Wilk tests of normality, as well the assessment of skewness and kurtosis. Table 56 shows the results of normality distributions.

Table 56.
Normality Assumptions Test of Standardized Residuals

Kolmogorov-Smirnov		Shapiro-Wilk		Skewness	Kurtosis
df	Sig.	df	Sig.	-.141	-.051
261	.064	261	.131		

The above results indicated that both Kolmogorov-Smirnov and Shapiro-Wilk tests of normality are insignificant; the researcher rejected the null hypothesis that the residuals data are different from a normal distribution. The values of both skewness and kurtosis are within the acceptable range for normal distribution (-1.96 to 1.96). Figure 13. shows the histogram of normality of residuals. It can be visually observed that most of the data are underneath the normal distribution curve.
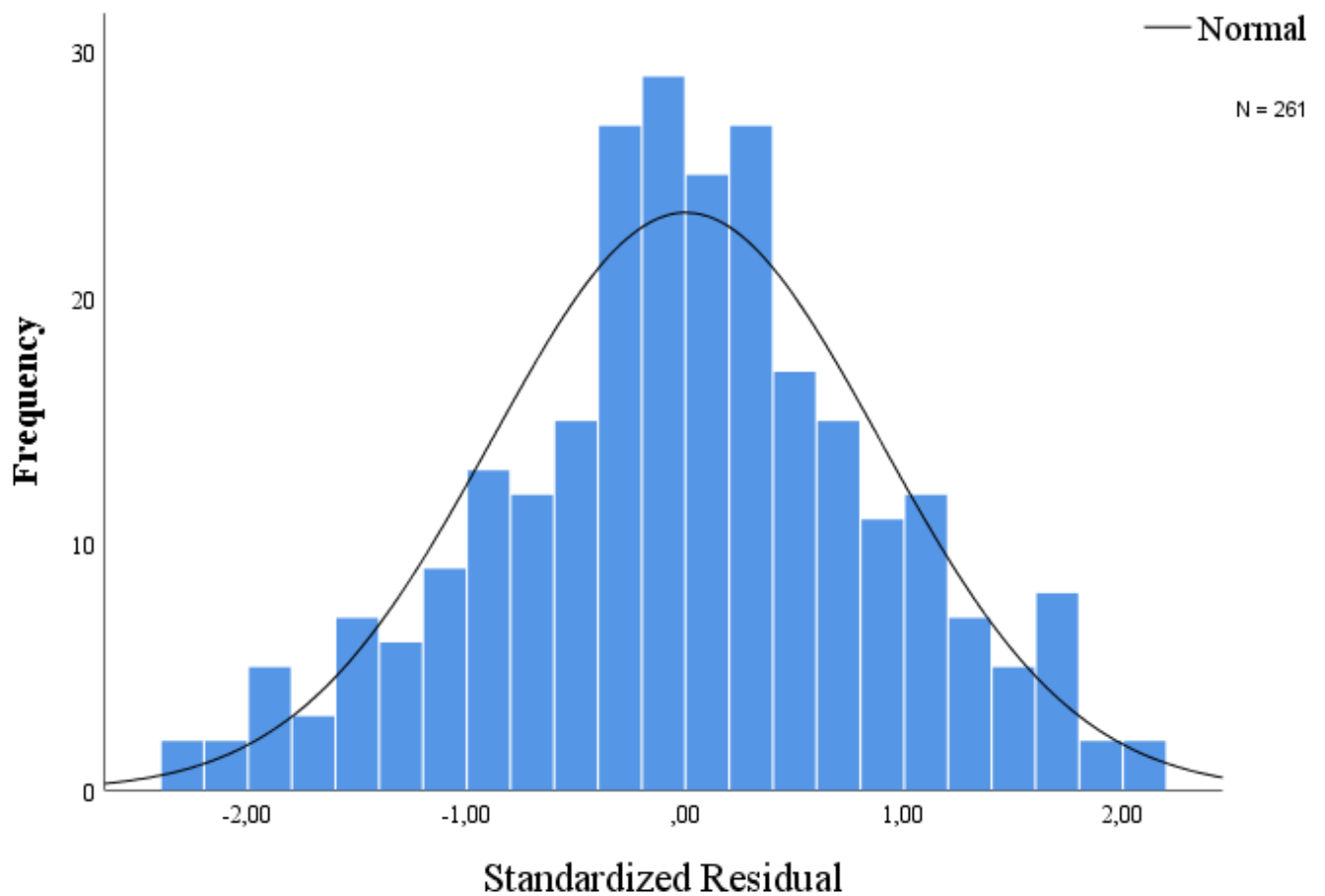
Figure 13. Data Distribution of Residuals

Moreover, the independence of residuals from the predictors was assessed graphically in SPSS. Figure 13. show the scatterplot of regressions residuals versus predicted values. it can be observed that the shape of the data is not following a specific pattern that would indicate the existence of a relationship between residuals and the predicted values. In other words, there is equal variance of residual along the z-score following a rectangular-shaped pattern; the data does not take any triangular-shaped pattern or curvature and does not cluster in any shape around the z-value line. This confirms that residuals of the regression are indeed independent from the values

of cooperative learning and social interdependence, and, by extension, asserts that the relationship between the dependent and independent variables is truly linear.

Dependent Variable: Learner Autonomy
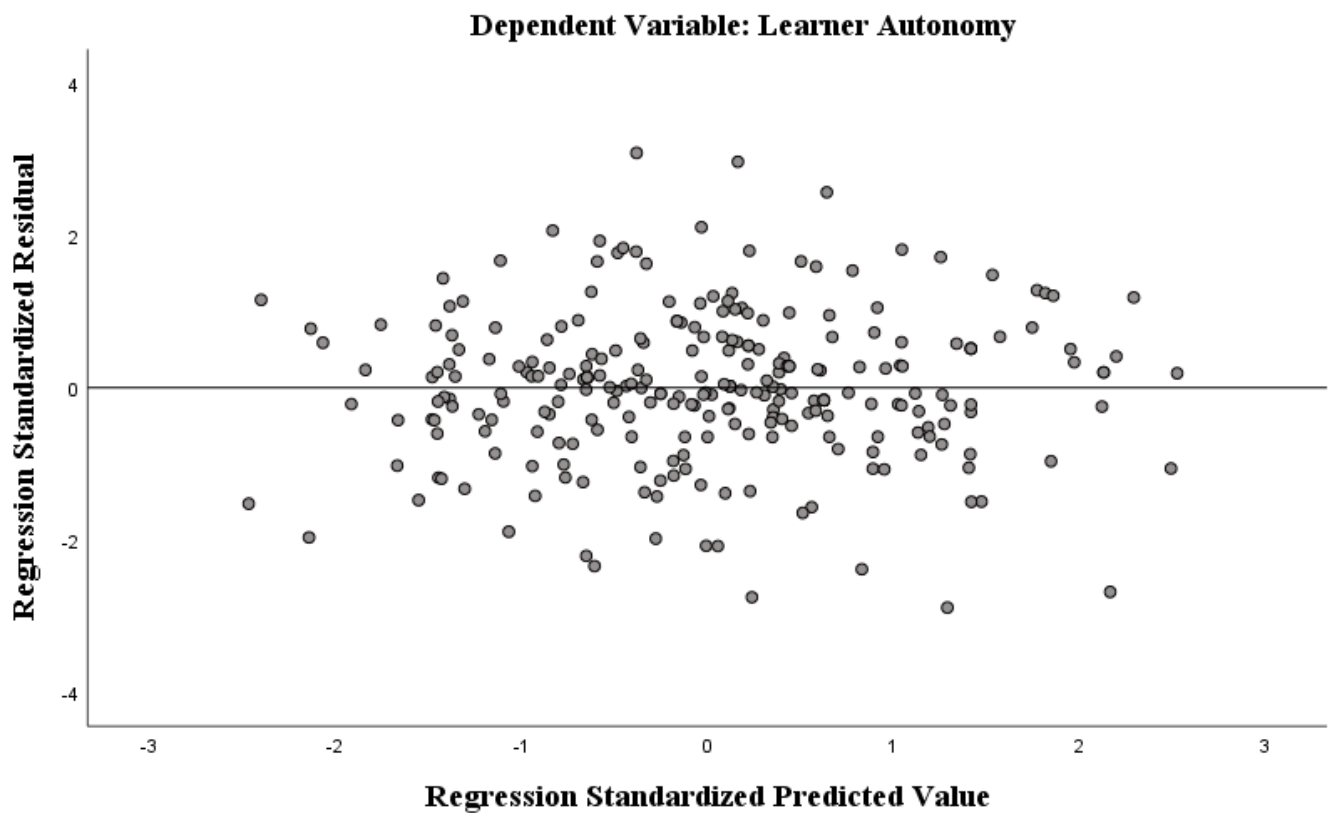
Figure 14. Independence of Standardized Residuals

Furthermore, the linearity and homoscedasticity assumptions of linear regression were checked graphically in SPSS. Figures 15 and 16 illustrate the scatterplot for autonomy by cooperative learning and social interdependence respectively. It can be visually observed that a linear relationship exists between cooperative learning and social interdependence separate as independent variables, and learner autonomy as a dependent variable. The linear equation for learner autonomy by cooperative learning in the context of the study is as follows:

$$\hat{Y} = 1.24 + 0.46X$$

where $\hat{Y}$ is the value of learner autonomy, and X is the value of cooperative learning. As such, the linear relationship between learner autonomy and social interdependence is as follows:

$$\hat{Y} = 1.53 + 0.61X$$

It can also be noted that cooperative learning a stronger effect size on learner autonomy than social interdependence by comparing the effect sizes (R^2) of both relationships and the observed slope of the regression line in the scatterplots.

R^2 Linear = 0,367

$y=1,24+0,61*x$
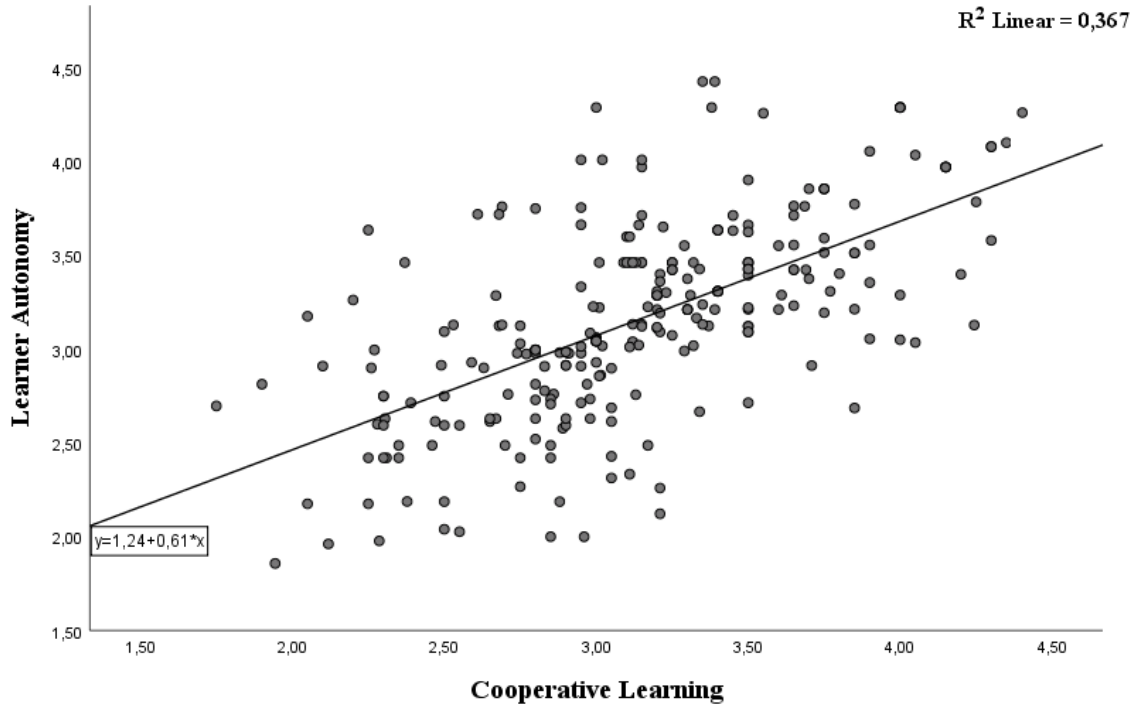
Figure 15. Scatterplot for Autonomous Learning by Cooperative Learning

R^2 Linear = 0,178

$y=1,53+0,49*x$
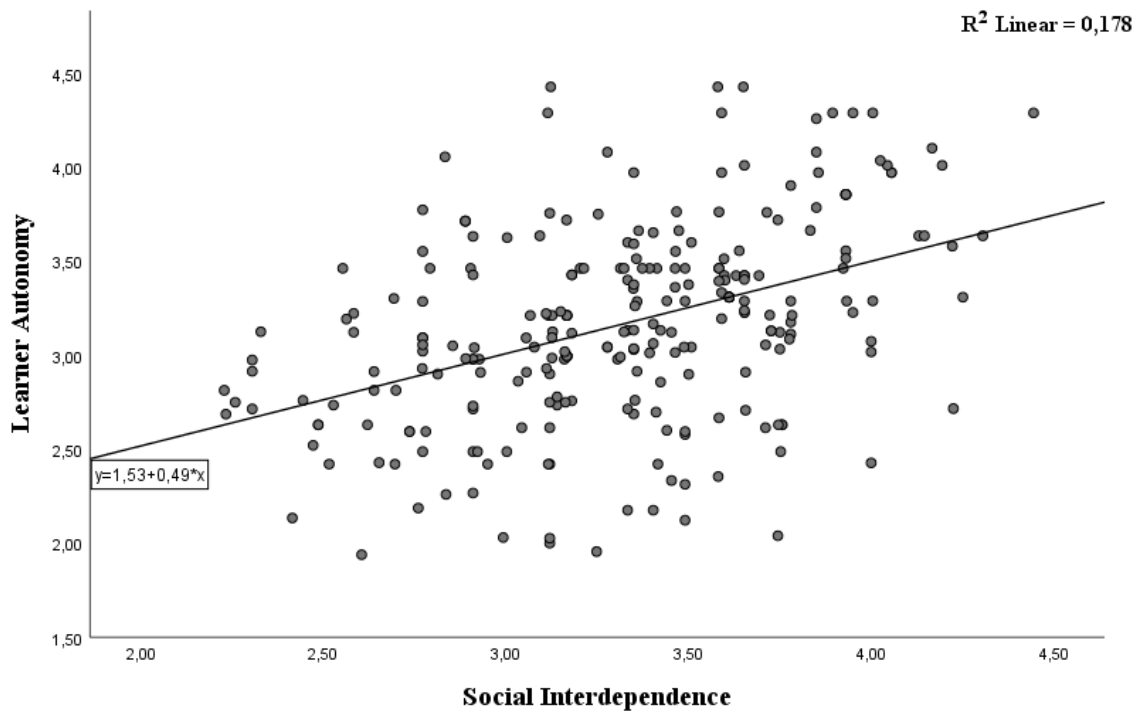
Figure 16. Scatterplot for Autonomous Learning by Social Interdependence

The existence of homoscedasticity can also be observed in Figures 15 and 16; the data is fairly dispersed along the regression line, and does not take a cone-shaped or a curvature pattern that would otherwise insinuate a change in the variance with the increase in the values of the independent variable.

Finally, the researcher checked for the absence of multicollinearity assumption of the multiple regression model. Table 57 shows the results of collinearity diagnostics of the regression model, including the VIF and tolerance.

Table 57.

Collinearity Diagnostics

Model	VIF	Tolerance
Cooperative Learning	.867	1.153
Social Interdependence	.913	1.254

The results in the above table show that the variance inflation factor (VIF) for both the cooperative learning and social interdependence models were less than the threshold value of 5 (VIF = .867, VIF = .913, respectively), and the tolerance of both models was greater than the value of 0.2. As discussed in the previous chapter, the scores in Table 57 indicate the absence of multicollinearity in the multiple regression model of this study. In other words, the independent variables of the regression model are not strongly correlated with each other.

In short, the four assumptions of linear regression are met in this study. The errors are normally distributed and independent from the predictors of the regression model, the relationship between the dependent and independent variables is linear and homoscedastic, and there is no multicollinearity between the independent variables of the model. Having checked all the required assumptions, the results of the multiple regression analysis are presented as follows:

Table 58.

ANOVA^a For Regression Model Fit and Effect Size

Regression Model	Sum of Squares	df	Mean Square	F	Sig.	Adjusted R²
Regression	30.277	2	15.139	91.08	.000^b	.409
Residual	42.882	258	0.66			
Total	73.159	260				

^a Dependent Variable: Learner Autonomy
^b Predictors: Cooperative Learning, Social Interdependence

The results of Table 58 for regression model-fit signal that the regression model has a better fit that of the intercept-only model $[F(2, 258) = 91.08, p < .001]$. Hence, the researcher failed to reject the null hypothesis that the regression model has better fit than the model without predictors. Taken as a set, cooperative learning and social interdependence accounted for 41.4% of the variance (R^2) in Learner Autonomy (Adjusted $R^2 = .409$). A detailed view of the multiple regression model is offered in the coefficients table, and is illustrated in Figure 17.

Table 59.

Coefficients of the Multiple Regression Model

Model	Unstandardized Coefficient B	Standardized Coefficient β	t	Sig.
Cooperative Learning	.525	.522	10.921	.000
Social Interdependence	.270	.231	4.522	.000

Dependent Variable: Learner Autonomy

According to the results of Table 59, cooperative learning is a significant positive predictor of learner autonomy $[\beta = .52, t = 10.921, p < .001]$, and social interdependence is also a significant positive predictor of learner autonomy $[\beta = .23, t = 4.522, p < .001]$. This means that for each standard deviation of increase in cooperative learning, learner autonomy significantly increases by a factor of .52, and for every standard deviation of increase in social interdependence, learner autonomy significantly increases by a factor of .23.
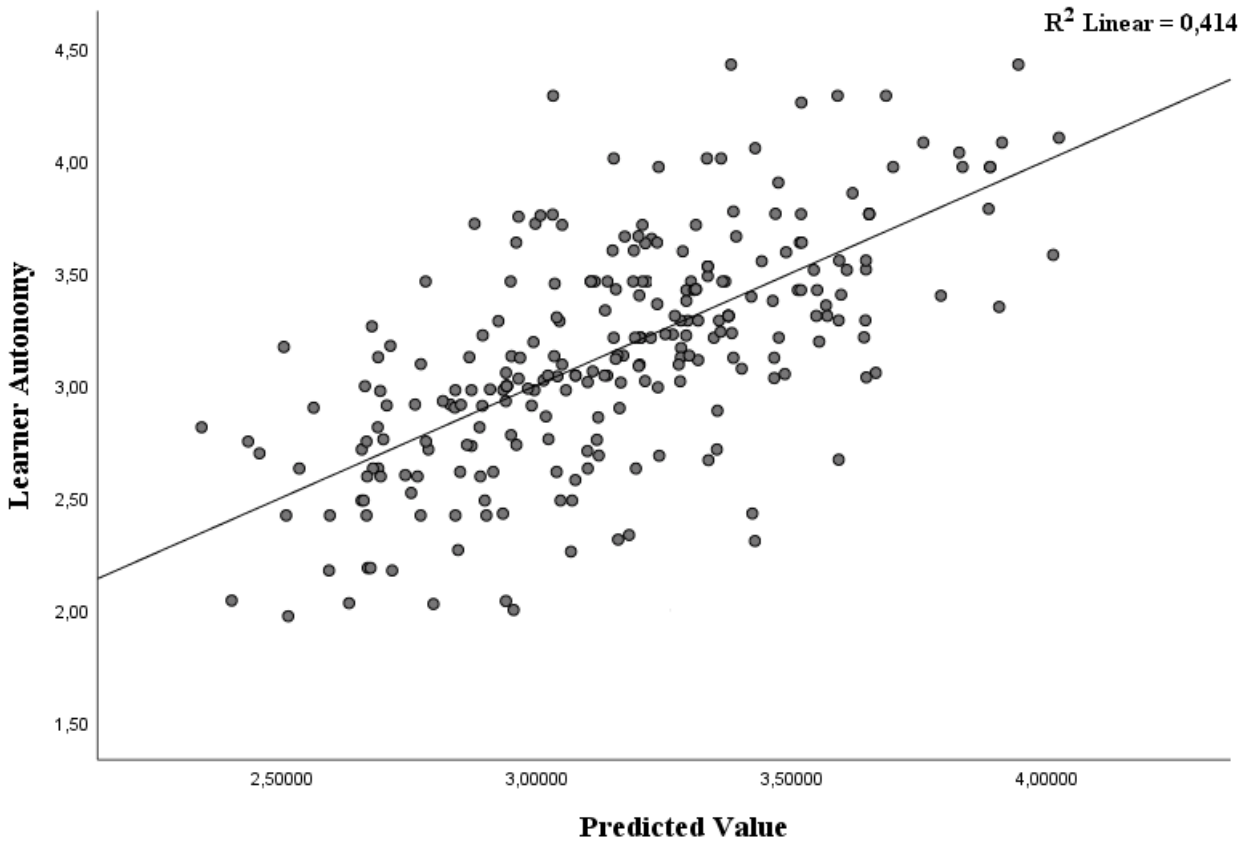
Figure 17. Scatterplot for Learner Autonomy by Predicted Values

Structural Equation Modelling Analysis

Structural equation modelling was deployed in SPSS AMOS to asses the goodness-of-fit indices and to illustrate the finalized model of the study with standardised parameters. Following the previous pattern of the CFA, the researcher evaluated the χ^2/df ratio, GFI, NFI, CFI, RMSEA, and SRMR indices to ensure the proposed model had acceptable model-to-data fit.

Table 60.

Model-to-Data Fit indices of the Proposed Model

Proposed Model	χ^2/df	GFI	NFI	CFI	RMSEA	SRMR
Acceptable Fit	<3	>.90	>.90	>.90	<.08	<.80
Model-to-Data Fit	3.29	.92	.90	.89	.079	.077

The proposed model, as shown in Table 60, demonstrated an resonable fit to the data of the study (χ^2/df = 3.29; p > .05; GFI = .92; NFI = .90; CFI = .89; RMSEA = .079; SRMR = .077). Finally, the proposed SEM model joining the variables of the study is presented in Figure18.
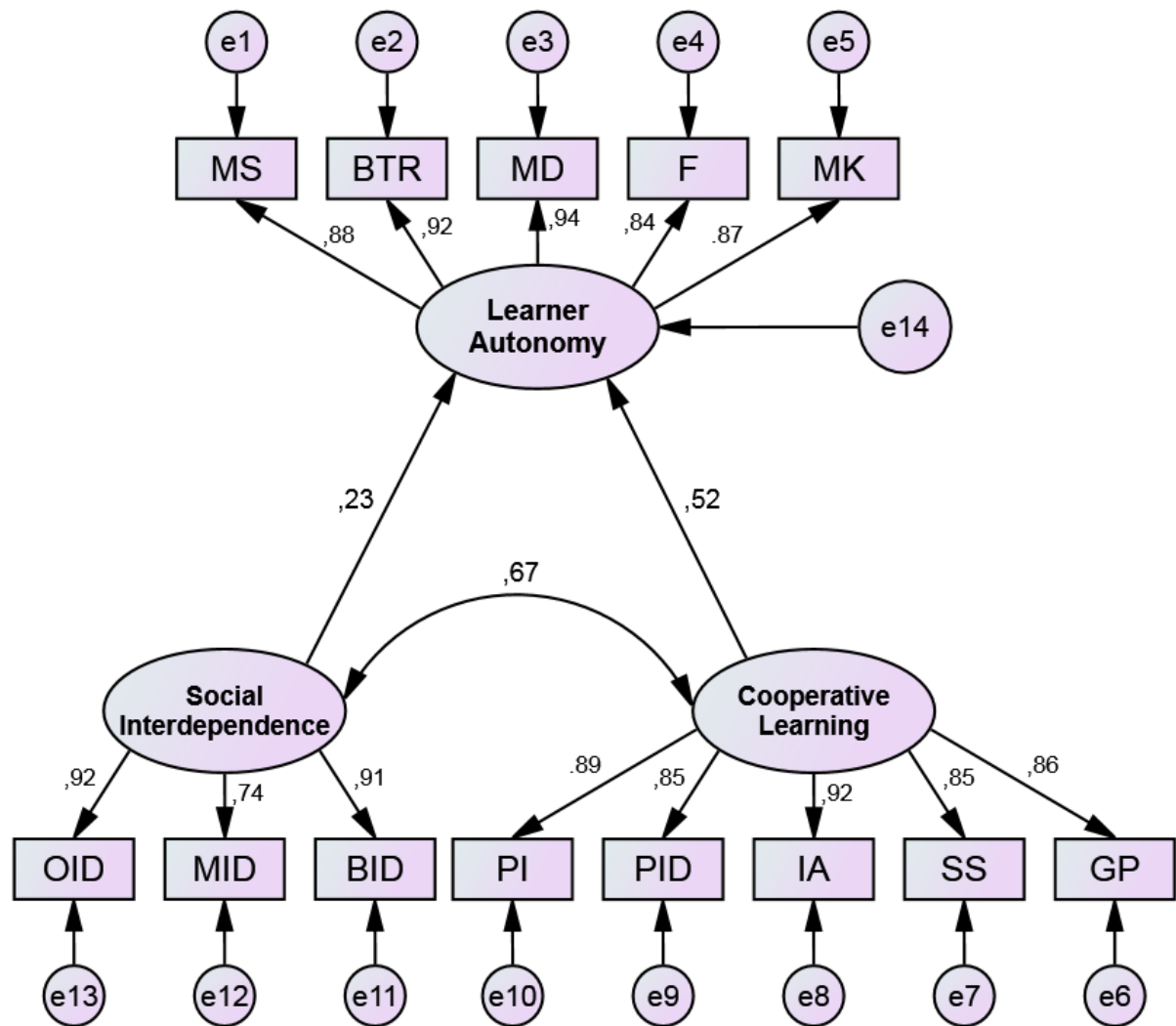
Figure 18. The Proposed SEM Model of Cooperative Learning and Social Interdependence as Predictors of Learner Autonomy

Mediation Analysis.

Mediation analysis was carried out using SPSS AMOS to determine the mediating role of social interdependence on the predictive relationship of cooperative learning and learner autonomy. The reseacher assessed the model fit indices of the mediation model first. The results of the model-to-data fit are presented in Table 61.

Table 61.

Model-to-Data Fit indices for the Mediation Model

Proposed Model	χ^2/df	GFI	NFI	CFI	RMSEA	SRMR
Acceptable Fit	<3	>.90	>.90	>.90	<.08	<.80
Model-to-Data Fit	2.72	.97	.96	.97	.063	.054

It can be observed that the mediation model had acceptable model-fit (χ^2/df = 2.72; p > .05; GFI = .97; NFI = .96; CFI = .97; RMSEA = .063; SRMR = .054). Table 62. shows the results of the mediation analysis, including the significance of each effect.

Table 62. Mediation Analysis

Total Effect		Direct Effect		Indirect effect	
Coefficient	*Sig.*	*Coefficient*	*Sig.*	*Coefficient*	*Sig.*
.606	.012	.522	.016	.154	.003

The results indicated that the total effect of cooperative learning was significant [β = .606, p = .012]. With the inclusion of social interdependence as a mediator variable, the direct effect of cooprative learning was still significant [β = .522, p = .016], and the indirect effect of the latter on autonomous learning through social interdependence was found significant [β = .154, p = .003]. This indicates that the relationship between cooprative learning and learner autonomy is partially mediated by social interdepence. The indirect effect is of a small effect size, and accounted for 2.4% of the variance in learner autonomy perceptions (R^2 = 0.024). The mediation analysis is illustrated in Figure 19.
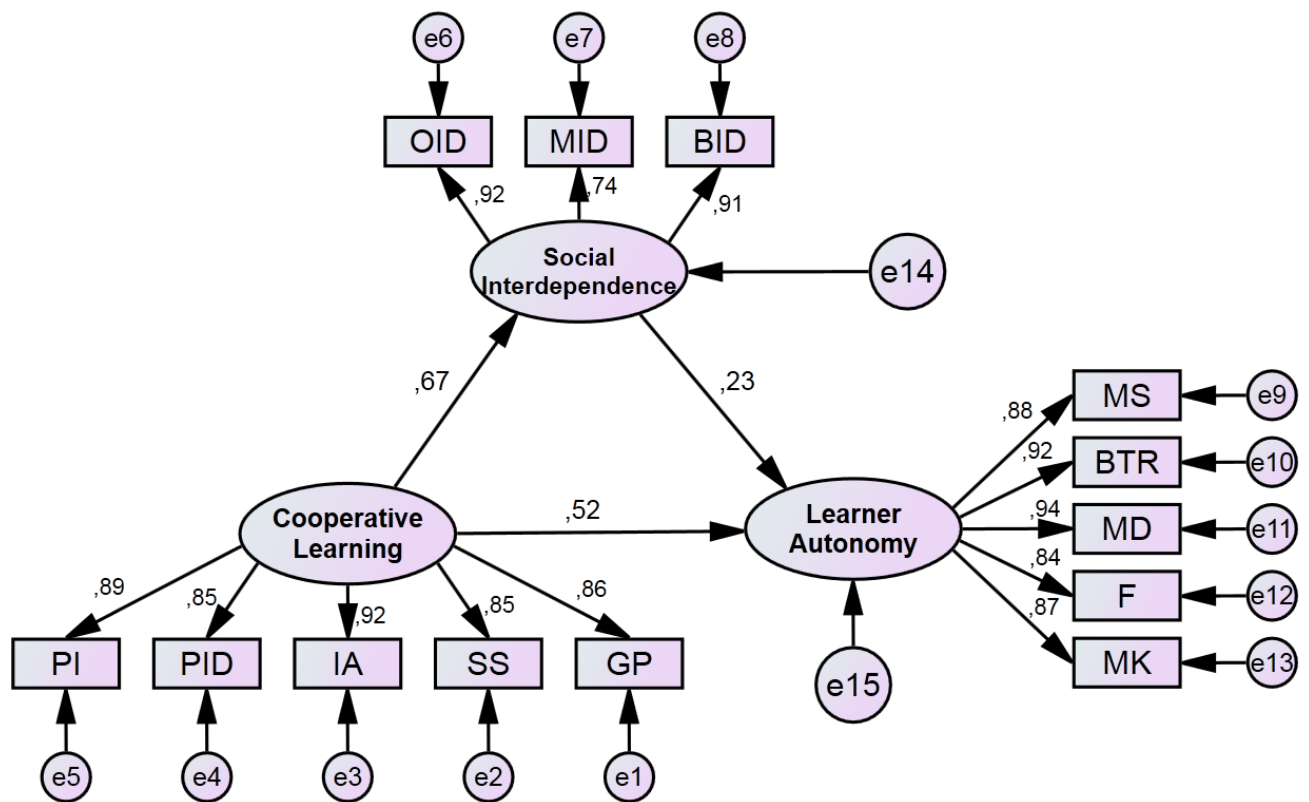
Figure 19. The Proposed SEM Model of the Mediating Role of Social Interdependence between Cooperative Learning and Learner Autonomy

Conclusion

This chapter contains the results and interpretation of the measures of the current study. The data was analysed and interpretated quantitatively for the sake of responding to the reseach questions and testing the hypotheses of this study. First, the researcher analaysed the teachers' questionnaire to enure that cooperative learning is indeed an educational practice at the University Centre of Si-Lhaoues – Barika. Then, the three measures incorporated in this study were assessed in a CFA to check the goodness-of-fit of the LAPQ, CLQ, and SOCS, as well as the construct validity of each measure. The measures had acceptable fit indices, and proved to be valid units of measurements in the Algerian higher education context. Reliability analyses were run on the level of subscales, and all instruments achieved an acceptable Alpha coefficient scores. Subsequently, descriptive statistics were revealed to determine the central tendency and standard deviations of students of English towards to the three variables of the study. Overall, it appears that students had unsure tendencies towards the concepts of this study. Furthermore, the differences between students in terms of their level has been studied using ANOVA and MANOVA to offer clearer views about the central tendencies of the descriptive statistics offered for each of the variables. Significant differences were found between students in terms of their level in autonomous learning, cooperative learning, and social interdependence. This chapter also included inferrential statistics about the associations between the depenent and independent variables of the study Using Pearson's r coefficients, and revealed significant positive correlations between the vast majority of the constructs of all of the instruments. The predictive associations between the variables have been tested using multiple linear regression analysis; this chapter reveals the existence of significant positive predictive linkage between learner autonomy as an dependent variable, and cooperative learning and social interdependence as independent variables. Finally, this chapter was concluded by assessing the goodness-of-fit of the proposed model and illustrating its path analysis, as well as the mediation analysis for the indirect effect of social interdependence on the total effect of cooperative learning as a predictor of learner autonomy. In greater details, the results will be discussed in the following chapter.

Chapter Four: Discussion

Introduction

The previous chapter revealed the results of this study, and their various interpretations. After quantitatively analysing the measures of this study, this chapter will formally discuss the implications of the results of the participants responses along with previous research. The discussion encompasses teachers' responses on cooperative learning use, the model fit of the research tools in the context of the study, the tendencies of students towards learner autonomy, cooperative learning and social interdependence, the differences between students, and the associations and pridictive relationships between the variables of the study. Significant differences between students in terms of their level at the university were found. These differences more or less affect the inferences based on the descriptive statitics which have emerged from the analysis of the instruments. In addition, significant associations and predictive relationships were found between cooperative learning and social interdependence as independent variables and learner autonomy as an dependent variable. These different relationships have a number of implications on the levels of the constructs and overall concepts of the three variables. The discussion of the relationships attempts to determine the overall effect of cooperative learning and social interdependence on enhancing reactive, and, by extension, proactive autonomous learning.

Exploratory Implications from the Teachers' Responses

The scores of teachers of the Department of English responding to the actual use of cooperative learning questionnaire indicated their agreement of their use of cooperative learning at the University Centre of Si-Lhaoues. The researcher has thus avoided falling into the mistake of wrongly formulating a false positive hypothesis. The dispertion of the data of their responses may be interpreted in accordance with different reasons. For example, their neutral tendencies to arrange group work settings in the classroom may be due to the lack of adequate classrooms for group work at the University Centre of Si-Lhaoues; the vast majority of classrooms contain fixed chairs and tables which are not suitable for cooperative learning. In addition, teachers agreed that they devide their tasks into individual parts for groups to, and ask groups to devide the task amongst themselves. This means that teachers allow students a measure of freedom in selecting their roles in group works, which is somewhat beneficial to learner autonomy. Some of the tendencies of teachers manifested on the actual use of

cooperative learning may be justified with the COVID 19 restictions. For instance, maintaining base groups throughout the semester, year, or even the whole course would be relatively difficult during the restrictions of COVID, since most in-person sessions were devided in bi-monthly program. This argument may also justify teachers' tendency to disagree that there is more time to use cooperative learning at the university compared to few years ago.

For all intents and purposes, and on a positive note to cooperative learning, it was promising that teachers agreed on the use of think-pair-share in group work, have students to work on their social skills, and allow them time to reflect on the extent to which the group is functionning. This would help improve students' promotive interaction, social skills, and group processing. Overall, teachers have reported that cooperative learning strategies are seen in the academic development and results of student, which asserts the use and benefits of using incorpotating cooperative learning at the University Centre of Si-Lhaoues – Barika.

Model Fit Implications

This study used three measures as instruments of collecting data: the LAPQ, the CLQ, and the SOCS. These three models have been developed and validated in previous studies as described in chapter two. The CFA was conducted in this study to determine the model-to-data fit in the Algerian higher education context. Results have shown that the CLQ had the best fit compared to the LAPQ and SOCS, which had some unaccaptable fit indices. This may be due the fact that autonomous learning and social interdependence are not very familiar concepts in Algerian higher education concepts. Problems were found in both measures regarding the value of the Chi-Square to the degrees of freedom ratio, and the comparative fit index. The RMSEA for the SOCS was just below the benchmark before modifying the model. This demands a deeper look intro the standardised regression weights of the items in the models to assess potential problems with validity in the context of the study.

Item nine on the MS subscale "Before I do class work or homework, I analyse what is required" had the weakest loading compared to other items on the same construct. This items may have been unclear to students since they exhibited poor planning skills. Other aspects of unexplained variance may be due to the lack of understanding of the purpose of each subject on the course. Item five on the BTR scale "I need a lot of guidance in learning English" had a

regression weight of .75. The researcher presumes that this item does not completely define guidance as a designated role the teacher themselves, but rather for any other party that might interfere in providing guidance, be they friends or peers. Furthermore, perhaps the most troublesome of all constructs for model fit is the Freedom subscale. Items six and seven of the F construct "We use a lot of English in the classroom at my university" and "I have chances to work with my classmates on activities in the classroom" had the lowest of factor loadings compared to items on the entire questionnaire. For item six, this may have been caused because the entire syllabus of English Language and Literature at the Algerian university is taught in English, and interactions in English are not only encouraged, but prescribed to a considerable extent, at least with teachers in the classroom. Perhaps this item would have had better factor loading if it had been reworded adequately to suit the needs of the LAPQ in the context of the study. Reasons are unclear for the researcher concerning the low regression weight on item seven on the F scale despite the clarity of the question to students. Despite their agreement on this item, students' scores were more dispersed on this item compared to other items ($SD =$ 1.25), which indicates their different opinions concerning their chances to work together on activities. Perhaps this item should have been reworded to measure students' freedom to work with peers of choice. In addition, the researcher had to establish a covariance between the error terms of item five and seven because of the strong correlation between them. This is probably because item five "I have chances to do English self-study with friends" and item seven are not very different from each other in terms of measurement. Researchers using this instrument in different contexts are thus recommended to take these aspects into consideration.

Although the CLQ was designed and validated originally with elemantary, secondary, and Baccalaureate students from spain, and despite of the change of the educational and age ranges in the current study, the model had the best fit to the data of the study compared to the other two measures. This implies that the CLQ is a well-designed unit of measurement for cooperative learning perception in the Algerian higher-education context. The researcher recommends the use of this instrument for relevant research in the near future. However, it is imporant to note that the first item on the SS subscale "We work on dialogue, listening skills and/or debate at the university" had the lowest standardized regression weight compared to items of the same construct, and the whole questionnaire. The researcher presumes that students might have perceived this question in different ways, most of which are not related to social

skills. Perhaps it would have resulted in a stronger factor loading if the researcher had slightly modified this item to evaluate group work at the very least.

As far as the SOCS is concerned, Item six on the BID subscale "Discussions with other members who have different opinions will improve me" had a factor loading of .59, which is the weakest standardised regression weight in the entire subscale. Although this item is clearly designed to measure the environmental interdependence side of boundary interdependence, abrupt discontinuities between members of groups may have been confused with that of other groups. According to teachers from the English departments, cooperative base groups are rarely maintained, which means that there is little to no belonging to a certain cooperative group in the classroom. This may affect students' understanding of conflict-resolution within groups at least at the context of the study, and lead to discontinuities amongst members of the same group. The true implications of the unexplained variance for this item remains subtle. The error term of this item had to be correlated with error term "e5" relative to item five "Group members should carefully summarize each other's arguments." to improve model fit. This may have occurred due to the existence of somewhat similar aspects about environmental interdependence relative to interactions of group members. A significant improvement of model fit was also established by correlating error terms "e13" and "e14"; items 13 "My peers rely on my information and advice" and item 14 "My peers rely on my presence as well as my help and support" on the means interdependence subscale appear to have been designed to measure relatively close aspects. This may more or less justify the low factor loadings on both of these items compared to other items.

Furthermore, it is of crucial importance to take the differences of model-to-data fit between the two proposed models of the study into consideration. The second proposed model with social interdependence as a mediating variable had a better fit (χ^2/df = 2.72; p > .05; GFI = .97; NFI = .96; CFI = .97; RMSEA = .063; SRMR = .054) than that of the first proposed model (χ^2/df = 3.29; p > .05; GFI = .92; NFI = .90; CFI = .89; RMSEA = .079; SRMR = .077). This is indicative of the importance of the mediating role of social interdependence between cooperative learning and learner autonomy. Naturally, the existence of social interdependence depends on the existence of cooperation and/or collaboration. Although the effect of social interdependence has been considered collectively with cooperating learning as predictors of learner autonomy using multiple regression analysis, the results have shown that it is actually

better to consider social interdependence for its mediating role between cooperation and autonomy.

In short, although the three measures had acceptable model-fit indices, it is important for Algerian researchers and social scientists to pay close attention to the factor loadings of each item and determine whether there is a problem in fitting the model to their data. Different variables may affect the use of these instruments such as the sample size (as the Chi-Square to the degrees of freedom ratio is very sensitive to sample sizes) and the population's familiarity with the aspects being measured. In extreme cases, deleting items may sometimes be an option to improve model-fit if factor loadings are below the acceptable benchmark, with being extra careful not to damage content validity. Finally, this research impresses upon practitioners in the field to consider social interdependence as a mediator in the relationship between cooperative learning and learner autonomy.

Students' Sense of Learner Autonomy

It was found in the previous chapter that students of English at the University Centre of Si-Lhaoues had unsure tendencies towards learner autonomy. Autonomous learning is a vital asset to ensure a successful academic career at the Algerian university. One of the motives for conducting this study is to attempt to expand on the existing literature of fostering learner autonomy in higher education settings. It was not surprising to the researcher to find unclear perceptions about learner autonomy concepts within students. The responses of student to the five subscales of the LAPQ contains a number of implications about the sample of the study.

First of all, students' level of metacognition was not what the researcher believes to be satisfactory for higher education. Their beliefs on planning, self-monitoring, and self-assessment skills were very uncertain. The researcher recorded an approximate absence of reflection on previously acquired information, setting clear learning plans and goals for an efficient university learning experience, organising learning schedules, making sense of the learning resources available to their language learning, checking their mistakes on corrected tasks, and assessing their language learning progress, all of which are mandatory academic success traits not only in the Algerian Higher education context, but in almost every higher education in the world. Similarly, students' metacognitive knowledge about themselves, their

language learning abilities were not satisfactory to meet the needs of autonomous learning. The only promising exception is that students knew well that they are responsible for the success of failure of their English-language learning, and that there is a good deal of opportunities to learn English in the Algerian context.

Students had neutral tendencies towards the role of the teacher as a facilitator. Learners who believe that teachers should dictate to them what to do inside and outside the classroom, and explain everything are not yet ready for autonomy; on the other hand, learners who perceive teachers as facilitators tend to be more autonomous (Rungwaraphong, 2012). The data of the study showed no agreement of the teacher as a facilitator. This excludes the role of the teacher in setting learning goals, choosing learning materials for students, correcting mistakes, monitoring students' progress, and making classroom-related decisions such as course objectives and time management.

Although the Motivation and Desire subscale indicated a neutral overall mean score, discrepancies were found in students' answers. There is no question that students of English at the university Centre of Si-Lhaoues – Barika are interested in the English language and the English Language and Literature course to the extent that they would willingly attempt to learn and use English as much as possible. They also find English to be of great utility in leading a successful academic career. However, it may have been due to socio-economic reasons that students would refrain from choosing to study English elsewhere if they had not had access to English-language courses at the university, and desiring to have native-speakers with whom they would interact in the target language as friends; taking English courses outside the university is likely to be costly for students, while making friends from English-speaking countries may be a far-fetched goal for students with limited autonomous learning beliefs and learning goals. Further studies are needed to dig deeper into these variables.

Furthermore, freedom of English language learning in Algerian higher education context would refer to the extent to which learners' observable learning behaviours are manifested through the intervention of other parties such as their peers or teachers. This research indicated that students' perceived freedom to interact with teachers is very limited. This may have been the result of disconnections between teachers of the department of English and/or the lack of a friendly atmosphere between the two parties. It is somewhat safe to claim that these results are

in line with the results of the BTR subscale; it would be hard for students to view teachers as facilitators due to the existence of such distance between them. Voluntariness to use English at the university is very poor. The only promising aspect to autonomy on the freedom of language learning construct in the context of the study is that student feel free to work on language-related activities in the classroom. Overall, the discussion above provides an answer to the first research question: "To what extent are undergraduate students of English at the University Centre of Si-Lhaoues autonomous learners?" This study recommends students and academic alike to put greater focus on the concept of learner autonomy for a more successful higher education learning experience.

Cooperation and Social Interdependence among Learners

Boosting learning, shared responsibility, and coordinated interaction patterns are the ultimate desired goals of cooperative learning and social interdependence. In order to answer the second research question of this study, "How do undergraduate students of English perceive cooperative learning and social interdependence?", students' responses on the CLQ and SOCS should be further discussed to assess the extent to which these goals are manifested.

Much like the autonomous learning, it appears that students were not sure about the concepts of cooperative learning and social interdependence in the context of the study. Detrimental tendencies in perceptions to promotive interaction and positive interdependence were recorded in this study. For example, students did not feel the importance of interaction, working together, individual skills needed to complete the task, and/or sharing relevant materials to complete during cooperative tasks or homework. Paradoxically, it was obvious that students are well-aware that a cooperative task could not possibly be finished without the contribution of each member. This discrepancy leads the researcher to infer that cooperative learning is not desirable amongst students of English. Therefore, students would not prefer to work cooperatively unless it was absolutely necessary, and this would certainly result in a scarcity of coordination between members. These results are in line with Dzemidzic's (2020) results that challenges arise for teachers and students alike when planning face-to-face promotive interaction such as interpersonal behaviours, supportive communications, and peer assistance.

Similarly, individual accountability, social skills, and group processing amongst students are not on a level that is perceived, at least to the researcher, to be satisfactory for successful cooperative learning. The formation, functioning, formulation, and fermenting skills discussed by Johnson, Johnson, and Holubec (1994), and which are crucial component of social skills are not on a satisfactory level in the context of the study. The absence of effort and responsibility to perform assigned tasks by the majority of students may have been due mischievous desires to rely on others to do their task. If the group is graded based on their overall collective work, low-achievers are likely to seize the opportunity to passively depend on high-achievers to get a good grade. Social skills and were definitely not convenient enough to cooperative learning. Although students have agreed that they work on dialogues and debates, this item showed subtle problems in convergent validity due to a low factor loading as discussed in the second section of this chapter. Yet again, students' awareness of the importance of sharing ideas and discussing them amongst group member does not seem to be reflected their lack the actual skills and/or motivation to freely express viewpoints in front of each other, to listen to each other, and to resolve conflicts that may arise. The students' level of social skills may be associated with students' level of individual accountability and the cognitive complexity of the tasks as explained in the literature (Ferrer, 2004; Booysen & Grosser, 2008; Lavasani, Afzali, & Afzali, 2011; Buchs & Butera, 2015).

It would still be rather difficult to draw strong inferences about cooperative learning in general even with a descriptive paradigm that involves classroom observation, especially when it comes to positive interdependence, promotive interaction, and individual accountability. That is, there three constructs posit an assumption that an atmosphere should be created where students can attain their personal learning and task goals only if the whole group does (Slavin, 2011), use involves trust-building, conflict-resolution, leadership skills (Johnson & Johnson, 2013), and depend on each other in an equal and fair manner. These variables are very subtle to the observer, and are susceptible to many latent variables. For example, if groups are heterogeneously formed in overcrowded classroom where ultimate goal is task-achievement rather than learning – as in the case of most Algerian public education facilities – it is almost inevitable that only high achievers would do most of the work, and would not go the extra mile of explaining the answers to low-achievers (Tran, 2013). Instead, it would be easier and more convenient for them to hand their answers to their peers in order to achieve their individualistic

goals. The different group processing behaviours, which can be observed in students' productive relationships, encouraging or discouraging certain behaviours, and appreciating hard work (Johnson, Johnson, & Smith, 2014), is more likely to be prevalent with cooperative base-groups. Therefore, the neutral tendencies of students regarding group processing may be explained by the lack of use of cooperative base-groups due to overwhelming circumstances such as Covid-19 restrictions.

The overall mean scores of boundary, outcome, and means interdependence indicated neutral tendencies towards the concept of social interdependence. For boundary interdependence, abrupt discontinuities between groups, pride of belonging to a given group were certainly, and awareness of the positivity of sharing tasks among group members were certainly prevalent. Environmental interdependence, however, was weak among students. Orientation towards a positive learning goals, which is resembled in outcome interdependence, is reflected in students' positive tendency towards their ability to learn important information and helping one another to reach their goals. Lastly, students had good sense of means interdependence, which is reflected in their self-confidence as reliable members to provide help and support for their peers. Task interdependence, however, was not as satisfactory are role and resource interdependence. A pattern can be sensed in students' responses; while their desires seem promising for the whole concept of group work, their actual task performance in groups somewhat contradicts with these desires. Following the typology of interaction paradigm of Johnson and Johnson (1989) (explained in Table. 03), and given the results of this study, it is, again, difficult to deduce the kind of interaction that results out of these variables. What is certain, however, is that the results are indicative of the absolute hardship of reaching a satisfactory level of coordinated interactions towards mutual goals. The best desirable outcome that the researcher would infer out of the results of this study is the existence of either coordinated actions towards individual outcomes, or uncoordinated interactions towards mutual outcomes. While the former can somewhat be indicative of proactive autonomous efforts, both scenarios remain detrimental to the concept of cooperative learning in any educational context.

Sampling Bias Implications

This study used convenience sampling to collect the data from undergraduate students of English at the University Centre of Si-Lhaoues Barika. This non-probability sampling

technique does not provide equal sampling probabilities to students in terms of their level, which is why it was of great importance to the researcher to study the differences between students in terms of their level. This would relatively minimize sampling bias and erroneous inferences about the sample of the study. This section will equally provide an answer to the third and fourth research questions "Is there a significant difference in terms of English-language learning autonomy across undergraduate students of English?" and "Is there a significant difference across undergraduate students of English in terms of cooperative learning and social interdependence?"

The ANOVA test indicated the existence of significant differences between students' level of autonomy perceptions in terms of their level, explaining 6.24% of the variance in autonomous learning. Second- and third-year students were significantly more autonomous than first year students. Being the least autonomous amongst the three levels, and representing the vast majority of the whole sample, first year students decreased the overall mean of learner autonomy in this study; it cannot thus be strongly inferred that students of English at the University Centre of Si-Lhaoues are lacking learner autonomy. This study infers that students' level of autonomous learning might increase with more years spent in their course, and with more experience they gain when attending university. At the context of the study, however, the level of learner autonomy remains relatively unsatisfactory for all of the three levels when considering the needed autonomous-learning level required for all higher education institutions around the world. In short, the third research question is thus answered: there is a significant difference between students in terms of their level.

Similarly, the MANOVA test showed the existence of a significant difference between students in terms of cooperative learning and social interdependence on the multivariate level, with a small effect size of 4.43% of explained variance in both variables when considered jointly. When looking at these variables on a univariate level, separate ANOVAs showed that third-year students had exceedingly better cooperative learning and social interdependence consensus than first- and second-year students. These results are in line with the sample differences in terms of autonomy. It appears that, due to their experience at the university, third-year students had clearer, more positive tendencies for cooperation and social interdependence. The difference between the univariate mean scores lie in the effect sizes of both concepts; a medium effect size of level on cooperative learning (7.7%), and a small effect size on social

interdependence (3.42%). The researcher implies that this discrepancy is due to the unfamiliarity of social interdependence as an educational concept to English students from all levels. Overall, the results offer a clear answer to the fourth research question: there is a significant difference between students' perception of cooperative learning and social interdependence in terms of their level on the multivariate as well as the univariate level.

Naturally, it would be safe to assume that learners would gain more academic experience during their years of enrolment at the university. It is undeniable that the sample size of first-year student (N= 127) is a contributing factor to the inferences made on the sample regarding English-language learning autonomy, cooperative learning, and social interdependence. That is, the sample size of second- and third-year students was not small for the inferences to be trivial, but the low level of first-year students regarding the variables of the study relatively reduced the overall mean of the sample. The differences in the scores may have also had an impact on the indirect effect of social interdependence on the predictive relationship between cooperative learning and learner autonomy. In other words, the low scores on social interdependence and the lack of experience of first year students, when considering their sample size, may have been the cause of reducing the total effect of the cooperative learning, causing it to be a detrimental factor to the relationship. Therefore, sampling bias should be taken into account when comparing means of categorical data using non-probability sampling techniques.

Using Cooperative Learning and Social Interdependence to Promote Learner Autonomy

The ultimate aim of this research is to investigate the nature of the relationships between learner autonomy, cooperative learning, and social interdependence. Pearson's correlations, multiple regression analyses and SEM were conducted to test the hypotheses and ultimately answer the research questions of this study. Significant positive associations and predictive relationships were found between the constructs of the variables.

First, it is worthwhile discussing the interrelationships inside each construct. As far as autonomous learning subscales are concerned, students' beliefs about the role of the teacher as a facilitator were moderately associated their motivation and desire to learn English. The latter is moderately associated with students' sense of freedom. These highly significant associations are in line with previous research indicating that students who are inclined to believe that the

teacher is a facilitator rather than an authoritarian figure in the classroom are more ready for learner autonomy (Cotterall, 1995; Chan et al., 2002). It is only natural for metacognitive knowledge and skills to be significantly and positively correlated since they define student's English language learning ability. The remainder of the inter-construct relationships were significant but not strong enough to damage the divergent validity of the LAPQ. Similarly, significant moderate correlations were found between the latent variables of cooperative learning. It seems that higher promotive interaction between students in is associated with all of the constructs of the independent variables, which asserts its importance in the context of the study. Group processing was moderately associated with positive interdependence and social skills, while the rest of significant associations were weak but never negligible. These results strengthen Huddy's (2012) claim of the equal importance of each of the five cooperative learning basics. The same cannot be said about the constructs of social interdependence, for the relationship between boundary, means, and outcome interdependence are not of the same importance as found in the correlation matrix.

The positive correlations found between the dependent and independent variables were all highly significant. The answer to the fifth research question "To what extent is autonomous learning associated with cooperative learning and social interdependence" lies in the practical significance of these associations: Although both measures were moderately correlated with learner autonomy, it should be noted that the variance explained in the association between cooperative learning and learner autonomy is exceedingly greater than that of social interdependence. The association of learner autonomy and cooperative learning had a medium large size ($r^2 = .357$), while social interdependence had medium effect size ($r^2 = .178$). These findings imply that cooperative learning has a stronger effect on learner autonomy. Perhaps the discrimination in the two values is justified with the subtlety of social interdependence as a contributing factor in the success of cooperative learning.

Furthermore, the researcher failed to reject the third hypothesis of the study (H_3): cooperative learning is significantly and positively correlated with social interdependence (H_3 supported: $r = .671, p < .01$). This association had a large effect size accounting for 45% of the variance. This moderate correlation accentuates the extent to which the two variables are connected; which, in turn, justifies their integration on the multivariate level of analysis. When considered jointly, cooperative learning and social interdependence were both significant

positive predictors of learner autonomy, which supports the first and second research hypotheses. Similar to bivariate correlations cooperative learning was a stronger positive predictor for learner autonomy [β = .52, p < .001] (H$_1$ supported) than social interdependence [β = .23, p < .001] (H$_2$ supported), which provides a straightforward answer to the sixth and final research question "To what extent does cooperative learning and social interdependence predict autonomous learning perceptions?" If cooperative learning basics are summarised in what and how groups should do to achieve a learning goal, social interdependence answers the question of "how can the group function better to achieve a shared learning goal?" The incentive to formulate the final hypothesis stems from this very statement. Given the results of the mediation analysis, the researcher failed to reject the fourth hypothesis: Social interdependence has a significant indirect effect on the relationship between cooperative learning and learner autonomy perceptions (H$_4$ supported).

The absence of research on the impact of cooperative learning on learner autonomy makes it difficult to infer precisely which category of autonomy is being affected. The association of cooperative learning and learner autonomy has only been directly discussed in the literature on theoretical standpoints (Xu-sheng, 2010; Lu, Jiang, & Throssell, 2013; Ren & Ma, 2016; Chowdhury, 2021), all of which perceive interaction in cooperative learning as means of taking responsibility of one's own learning. At this point of time, literally only one study has attempted to provide empirical evidence of the possibility of promoting learner autonomy through cooperative learning (Shi & Han, 2019). In spite of the latter supporting that cooperative learning can be used to promote learner autonomy, the inferences are judged by the researcher of the current study to be weak as far as methodological framework is concerned.

Although the LAPQ clearly tackles proactive autonomous learning beliefs, and on the balance of considerations, one might carefully infer that a proportion of the variance in autonomous learning explained by cooperative learning and social interdependence in this study is relative to reactive learner autonomy. On the one hand, this the results are in line with needs of fostering autonomy set by Lee (1998); teacher- and peer-support is a suitable ways to compensate for the lack of voluntariness, choice, and/or flexibility in the English language course. On the other hand, this contradicts with the cultural backgrounds effect on autonomy proposed by Palfreyman and Smith (2003) and the paradigm of individualism and collectivism on autonomous learning. The results of this study are also somewhat in line with

Slavin's (2011) theoretical model of the effect of cooperative learning and social cohesion on the learning experience of individuals through the motivation to learn and to help groupmates, cognitive elaboration, peer-practice, peer tutoring, and peer-evaluation (as illustrated in Figure 03. in chapter one); Since learner autonomy is viewed, at least theoretically, as a desirable aspect which often results in enhanced learning, it would be somewhat logical to claim that this shared outcome strengthens the inferences of this study.

In this sense, Blidi (2017, p. 105) asserts: "Autonomous learners are wrongly described as individual learners who must act individually. This description can be refuted based on the argument that autonomy does not mean rejection of the teacher and the peers." Given this discrepancy of ideas, perhaps it would be safe to assume that, in collectivist communities, fostering autonomous learning via interaction is the best solution to direct students to achieve full proactive autonomy. It important to note that the vast majority of the participants of this study are from Generation Z, which is why the researcher is offering no claim about students' tendency towards individualism or collectivism, and neither do the descriptive statistics of social interdependence. This tendency is even more difficult to infer since this research argues that social interdependence must be regarded as partially mediating variable between cooperative learning and learner autonomy; although the direct effect of predictive linkage of cooperation on autonomy was still statistically significant, the total effect was reduced in the presence of social interdependence.

Furthermore, based on the viewpoint of promoting reactive autonomy through cooperative learning, students' grouping should never be homogeneous in terms of ability. The zone of proximal development should be considered in each group to allow high-achievers a measure of autonomy influence on low- and medium-achievers. Although this increases the risk of reduced individual accountability in groups, there is always that possibility of increasing the cohesiveness of the group by encouraging low-achievers to participate more in group activities. In a perfect world, no one would try to hitch-hike on other individuals to get free grades in heterogeneous groups. After all, cooperative learning would last for only few years in a higher education institution, which means that learners will ultimately encounter individualistic learning situations in which interaction is not an option. The variance explained via the joint effort of cooperative learning and social interdependence in predicting learner autonomy is of logical and promising amount. As discussed in the first chapter of this study, the rest of the

possible variance in learner autonomy for students of English at the University Centre of Si-Lhaoues – Barika can be influenced by different autonomy-fostering practices such as classroom discourse about the learning process, direct learner training on autonomy, the use of logbooks to assess students' own metacognitive skills, task design, the use of self-access centres, and tandem learning.

Conclusion

This chapter discusses the results of the current study to answer the research questions and respond to the hypotheses of this study. It involves a discussion of the implications from the teachers' questionnaire, model-fit of the three instruments, students' perceptions of autonomous learning, cooperation, and social interdependence, sampling bias issues, and the use of cooperative learning as a means of predicting autonomous learning. In short, the teachers' actual use of cooperative learning questionnaire was only meant for exploratory purposes. It gave the green light for the researcher advance safely in hypothesis making, and data analysis. This research has revealed the existence of neutral tendencies towards all the variables of the study, with differences across the levels of students indicating a gradual increase in all of the scores of the dependent and independent variables with more years of enrolment at the university. After that, the optimality of enhancing learner autonomy through cooperative learning is discussed, together with the inclusion of social interdependence as a mediating variable in the predictive relationship between cooperation and autonomy. The researcher ultimately answered all six research questions, and failed to reject all four hypotheses of the current study.

General Conclusion

In this study, the researcher has attempted to test the possibility of associating the concept of learner autonomy to cooperative learning and social interdependence to expand on the existing literature of fostering autonomous learning. Through valid measurement of the three concepts, the researcher tried to diagnose the current perceptions of students of English regarding students' autonomous learning, cooperation, and social interdependence. In addition, an inferential study was carried out to dig deeper into the implications of the sample, and assess the nature of the relationships between the variables of the study. Considering the sampling technique of this study, the researcher has tried to reduce the effects of sampling bias through the comparison of first-, second-, and third-year students, and offer clearer assumptions on the sample of the study. After clarifying the differences assumptions, the researcher studied the associations and the predictive relationships existing between the variables of the study. This conclusion recapitulates the main findings of this study, and provides recommendations for practitioners in the field of education, as well as for future research.

Synthesis of the Main Findings of the Study

Teachers have confirmed the use of cooperative learning as a teaching practice at the University Centre of Si-Lhaoues. The researcher had to proceed with caution. If the researcher had not checked for the actual use of cooperative learning in the context of the study, it would have increased the chances of falling into type-one error; hypothesising a false positive that cooperative learning is being used as an educational practice while it is not, and damaging the credibility of the whole research in the process.

The researcher formulated six research questions and four hypotheses in accordance with the aim and objectives of the study. Then, the measures of learner autonomy, cooperative learning, and social interdependence in cooperative learning perceptions were deployed with students of English at the context of the study. The assessment of the variables of the study was done through the measurement of several latent variables which comprised the three measures of the study. This includes metacognitive skills and knowledge, beliefs about the role of the teacher, motivation and desire, and freedom for the measurement of autonomous language learning. Promotive interaction, positive interdependence, individual accountability, social

skills, and group processing were assessed for the sake of measuring cooperative learning perceptions. Finally, outcome, mean, and boundary interdependence were assessed for the measurement of social interdependence in cooperative learning.

The three models have not been used in the Algerian context beforehand. Therefore, the researcher has tested the model-to-data fit in the context of the study. The results indicate that, despite the existence of some minor problems in model fit in the models as described in the fourth chapter of this dissertation, the models had reasonable to acceptable fits in the context of the study.

In response to the first and second research question of the study ("To what extent are undergraduate students of English at the University Centre of Si-Lhaoues – Barika autonomous learners?" and "How do undergraduate students of English perceive cooperative learning and social interdependence"), the current study revealed that students' perceptions of learner autonomy, cooperative learning, and social interdependence scales were neutral and not clear, nor were the responses regarding the cooperative learning and social interdependence. The researcher recorded neutral tendencies on the level of scales and of subscales. the researcher inferred that the three concepts of the study were somewhat unfamiliar for the sample of the study according to their perceptions, and/or due to the lack of ability, desire, freedom, interpersonal and social skills, responsibility and accountability, positive environmental, identity, means, and outcome interdependence within members of the same group and negative interdependence between groups.

However, because students were not on the same level of studies (first-, second-, and third-year), and because the convenience sampling technique used in this study does not offer equal opportunities of participation for every level with the same sample size, the researcher studied the differences between students in terms of their number of years on enrolment. Therefore, in response for the third and fourth research questions ("Is there a significant difference in terms of English-language learning autonomy across undergraduate students of English?" and "Is there a significant difference across undergraduate students of English in terms of cooperative learning and social interdependence?" respectively), the researcher found statistically significant difference between students in terms of their levels across all variables of the study. The means of first-year students were significantly behind the means of second-

and third-year students. It is important to note that medium effect sizes were found between students' perceived learner autonomy and cooperative learning, while only a small effect size was found regarding social interdependence. Based on the gradual ascent in students' means in line with their level, this research has thus inferred that students' experience at the university centre somewhat affects their perception of the three concepts of the study: more years of enrolment were relatively associated with higher degrees in the perception of autonomous and cooperative learning, and social interdependence in accordance with the significance level of each difference in the mean scores.

Subsequently, the researcher studied the associations and the predictive linkages between learner autonomy as a dependent variable, and cooperative learning and social interdependence as independent variables in an attempt to test the four hypotheses, and, by extension, answer the two remaining research questions ("To what extent is autonomous learning associated with cooperative learning and social interdependence", and "To what extent does cooperative learning and social interdependence predict autonomous learning perceptions"). The researcher failed to reject all hypotheses of the study. Concerning the first and second hypotheses "Perceived cooperative learning engagement positively predicts learner autonomy within undergraduate students of English" and "Perceived social interdependence positively predicts learner autonomy within undergraduate students of English", the researcher has found that both cooperative learning and social interdependence are both significant positive predictors of learner autonomy. The predictive relationship of cooperative learning, however, was stronger than that of social interdependence; the researcher recorded small and weak predictive effect sizes respectively. Furthermore, the results of the study supported the third hypothesis "Cooperative learning is significantly and positively correlated with social interdependence." A moderate significant positive association study with a large effect size was found between the independent variables of the study. Finally, the supported the fourth and final hypothesis of the study "Social interdependence has a significant indirect effect on the relationship between cooperative learning and learner autonomy perceptions". The findings indicated that social interdependence partially mediated the relationship between cooperative learning and learner autonomy perceptions, with significant direct, indirect, and total effects between all of the variables of the study.

Pedagogical Recommendations

This research has a number of pedagogical recommendations for teachers and educators in general, and higher education academic staff in particular. First, the Algerian educational context, at least in the middle and secondary schools, is still believed to be a passive learning atmosphere, where the teacher is the dominant figure in the classroom. It would be extremely bold to assume that the shift from the secondary school level to the undergraduate-level studies automatically results in a shift from passive to active learning. Despite the efforts of the institutions of the Algerian Ministry of Higher Education and Scientific Research to urge students to take more control over their learning, the level of autonomous and self-directed learning remains humble. Academic staff, at least in the context of the study, are thus recommended to regulate their expectation towards students' learner-autonomy perceptions especially regarding freshmen. If the problem of teacher authority is still prevalent in middle and high schools, it would be rather late to attempt to remedy the situation in higher education. Nonetheless, university teachers are recommended to recognize and be hopeful of students' potential ability to acquire greater autonomy with more years spent on their respective courses. It also a must for teachers to assert their role as facilitators and autonomy-supportive in the classroom rather than the providers of knowledge. Urging students to take more responsibility for their learning as young adults, and implementing autonomy-fostering strategies such as classroom discourse about learning in general, and autonomous and self-directed learning in particular, to regulate their expectations of the course for the sake of enhancing their metacognitive skills and knowledge, beliefs about the role of the teacher, motivation and desire, and the amount of freedom associated with the learning process at the university.

Practitioners are urged to recognize that autonomous learning is not an all-or-nothing ability within students, and it is possible to develop it indirectly. The results of this study indicate that cooperation is associated with higher levels of perceived autonomous learning. Therefore, teachers should bear in mind that the use of cooperative learning can be used as a strategy for boosting students' beliefs regarding language learning autonomy; having shared learning and/or task goals may be incremental for learning given that students showcase adequate cooperation skills such as promotive interaction, positive interdependence, individual accountability, social skills, and group processing. It is also important to be aware of the indirect effect of social interdependence on the relationship between cooperation and autonomy. This

could be managed in the classroom by observing who is interdependent with whom during cooperative tasks. In a perfect world, and based on these observation, teachers should attempt to maintain cooperative base groups at least throughout the academic year, when they recognize the best grouping patterns that results in higher social interdependence. This study highlights that teacher- and peer-support can have an impact on students' sense of learner autonomy. This can increase their reactive autonomous learning perceptions to not only imitate high-achievers with higher learner-autonomy beliefs and practices, but also to eventually achieve an acceptable degree of proactive autonomy. However, on the balance of probabilities, and from a social-constructivist point of view, there is nothing wrong if proactive autonomy is not reached since learning is regarded as a social process. This would be problematic if, and only if, cooperation is not an option in subsequent learning situations. All in all, practitioners are ultimately recommended to take cooperative learning and social interdependence into account if they want to foster greater autonomy within undergraduate students.

Future Research Recommendations

First, the researcher strongly recommends the use of the instruments used in this study for future research that includes any of the variables of this study, bear in mind the model-to-data fit implications in the Algerian context discussed in the fourth chapter, and always check for newly-developed, refined, and validated instruments published in scientific journals. Moreover, it was mentioned at the beginning of this dissertation that one of the limitation of this study is the disuse of qualitative research methods due to overwhelming and methodological inconveniences. Hence, the researcher recommends the use of qualitative research methods in future research to evaluate students' subjective viewpoint concerning their perception of learner autonomy, cooperative learning, and social interdependence. It is also recommended for future researchers to expand on the sample of the study to include more educational institutions for the sake of unravelling the nature of learner centeredness and learner autonomy in Algeria. This descriptive-inferential study is considered as a first step towards unveiling another variable for the sake of fostering autonomous language learning. Therefore, an experimental paradigm is highly recommended to further prove the associations and the causality effect of cooperative learning on learner autonomy. Preferably, a longitudinal experimental study is most suitable to follow up on the actual effect of cooperation on autonomy. Differences can be studied between samples' autonomy when using different

cooperative learning structures; formal and informal cooperative groups, and cooperative base groups. There is, of course, yet to discover about the remainder of the unexplained variance in learner autonomy, and several other variables may be associated for future research in the context of Algeria such as academic achievement, the incorporation of tandem learning, the use of artificial intelligence applications, self-efficacy, and student burnout.

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Appendices

Appendix A: Teachers' Questionnaire

Dear teacher, you are kindly invited to respond to the Actual Use of Cooperative Learning Questionnaire for exploratory purposes. Please be aware that your participation is entirely anonymous, and that your data will remain completely confidential; access to data is bound only to the researcher and the supervisor of the study. Please note that, by accepting to respond to this questionnaire, you are giving the researcher consent to use your feedback in their research. Your participation is valuable, and will be for the betterment of scientific research.

Please specify the extent to which you agree on the following statements:

Strongly Disagree (1) Disagree (2) Neutral (3) Agree (4) Strongly Agree (5)

I arrange a group's chairs of desks close together.

I divide a task into individual parts, or ask a group to do this.

I maintain base groups.

I use think-pair-share before students answer a question.

I allow students to team study for a quiz or test.

I have students practice taking turns and other social skills.

I allow students time to think about how well the group is working.

I think there is less time to use cooperative learning than a few years ago.*

I see academic results using cooperative learning strategies.

*Reverse-scored item.

Appendix B: Students' Questionnaire

Dear student, I kindly invite you to respond to this brief questionnaire. Please be aware that your participation is entirely anonymous, and that your data will remain completely confidential; access to data is bound only to the researcher and the supervisor of the study. Please note that, by accepting to respond to this questionnaire, you are giving the researchers consent to use your feedback in their research. Your participation is valuable, and will be devoted for the betterment of scientific research.

Background Information

Level:

☐ First year

☐ Second year

☐ Third year

Please specify the extent to which you agree on the following statements:

Strongly Disagree (1) Disagree (2) Neutral (3) Agree (4) Strongly Agree (5)

<u>Section One: Learner Autonomy Perceptions</u>

I reflect on what I learn and look for something important.

I plan how I learn English.

I set my goals in learning English.

I check to make sure I have understood what I need to learn.

I try to study English regularly even with limited time.

I carry out learning plans once they have been made.

I make my schedule so I would have enough time to study English.

I notice my mistakes and use that information to improve.

Before I do class work or homework, I analyse what is required.

I deal with things related to English but not necessarily related to English class.

After I get my English work back, I always read it again to correct my mistakes.

I put great effort into learning English.

I try to complete things I have decided to do.

I give myself a reward or treat when I do something well in English.

I make good use of materials and resources when studying English.

The teachers should set my learning goals.

The teachers should choose what materials to use to learn English in English class.

The teachers should correct all of my mistakes.

The teachers should ensure my progress in learning English.

I need a lot of guidance in learning English.

The teachers should decide how long to spend on each activity.

The teachers should decide the objectives of my English courses.

The teachers should explain everything to us.

I would like English to be used as much as possible in English class.

If English were not taught at my university, I would try to take English classes somewhere else.

I learn English because I find it very interesting.

I learn English because it will help me to be successful in my studies.

I would like to have friends from English-speaking countries.

I can go see my teachers about my English learning.

I have chances to ask the teachers questions when I do not understand something.

I have chances to make suggestions to the teachers.

I have chances to discuss learning issues with my classmates.

I have chances to do English self-study with friends.

We use a lot of English in the classroom at my university.

I have chances to work with my classmates on activities in the classroom.

I know my strengths and weaknesses in learning English.

I am responsible for the success of my English-language learning.

I understand my own personality.

To learn English well, it is important to know one's personality, motivation, personal needs, expectations, learning styles, my strengths, weaknesses, etc., in English.

There are a lot of opportunities to learn English in Algeria.

Section Two: Cooperative Learning Perceptions

Groupmates relate and interact during tasks.

Interaction between groupmates is necessary to do the task.

We relate to each other to do the activities.

We work directly with each other.

The help of my classmates is important to complete the tasks

We cannot finish an activity without the contributions of colleagues

It is important to share materials, information... to do homework

The better each member of the group does his task, the better the group gets

Each member of the group must participate in the tasks of the group

Each member of the group must make an effort in the activities of the group

Each member of the group should try to participate, even if she does not like the task

Each member of the group must do their share of the group's work to complete the task.

We work on dialogue, listening skills and/or debate at the university

We expose and defend ideas, knowledge and points of view before our classmates

We listen to the opinions and points of view of our classmates

We reach agreements in the face of different opinions or conflicts

We share ideas so that the whole group knows what is being done

We make decisions by agreement among the group mates

We discuss the ideas among the members of the group

We reflect individually and jointly within the group

Section Three: Social Interdependence Perceptions

I hope my learning group is superior to others.

When there are different opinions, I would like to coordinate them.

For me, it is important to maintain harmony within the group.

I incorporate the advice of others when preparing a study plan.

Group members should carefully summarize each other's arguments.

Discussions with other members who have different opinions will improve me.

I try to share my own thoughts and materials if they are useful to other students.

I have respect for the others with whom I interact.

It is a good idea to share the tasks for more efficient group work.

I can learn important things from other students.

It is a good idea for students to help one another in their studies.

We learn numerous important things from one another.

My peers rely on my information and advice.

My peers rely on my presence as well as my help and support.

I draw conclusions from information in group discussions.

Appendix C: Cross Loadings of the LAPQ Items

Items	MS	BTR	M&D	F	MK
MS1	**.814**	.334	.290	.019	.212
MS2	**.749**	.234	.169	.213	.369
MS3	**.742**	.110	.179	.322	.194
MS4	**.798**	.014	.129	.415	.258
MS5	**.773**	.106	.012	.267	.173
MS6	**.825**	.099	.472	.106	.432
MS7	**.807**	.166	.243	.088	.184
MS8	**.834**	.242	.188	.145	.129
MS9	**.762**	.323	.366	.236	.397
MS10	**.882**	.254	.245	.401	.344
MS11	**.785**	.214	.364	.350	.281
MS12	**.801**	.182	.102	.256	.265
MS13	**.788**	.312	.111	.222	.091
MS14	**.873**	.198	.431	.195	.224
MS15	**.904**	.203	.339	.102	.269
BTR1	.234	**.832**	.134	.334	.032
BTR2	.124	**.801**	.399	.471	.455
BTR3	.452	**.787**	.098	.231	.185
BTR4	.301	**.842**	.159	.121	.339
BTR5	.021	**.750**	.184	.285	.416
BTR6	.290	**.813**	.386	.346	.124
BTR7	.113	**.865**	.283	.247	.250
BTR8	.098	**.831**	.176	.200	.118
M&D1	.024	.420	**.790**	.124	.281
M&D2	.154	.313	**.601**	.279	.394
M&D3	.078	.289	**.778**	.357	.241
M&D4	.321	.370	**.792**	.079	133
M&D5	.266	.179	**.784**	.167	.422
F1	.412	.108	.452	**.831**	.366
F2	.234	.166	.354	**.854**	.152
F3	.312	.147	.289	**.882**	.362
F4	.112	.285	.348	**.753**	.271
F5	.234	.325	.287	**.793**	.180
F6	.222	.021	.457	**.728**	.319
F7	.009	.217	.025	**.665**	.409
MK1	.404	.297	.364	.333	**.801**
MK2	.423	.231	.172	.256	**.797**
MK3	.394	.168	.381	.244	**.835**
MK4	.281	.247	.258	.183	**.864**
MK5	.413	.382	.347	.367	**.824**

Appendix D: Cross loadings of the CLQ Items

Items	PI	PID	IA	SS	GP
PI1	**.832**	.211	.105	.241	.230
PI2	**.804**	.389	.264	.441	.431
PI3	**.865**	.257	.336	.212	.171
PI4	**.797**	.249	.485	.386	.192
PID1	.312	**.762**	.228	.269	.331
PID2	.255	**.613**	.198	.114	.450
PID3	.156	**.740**	.236	.124	.213
PID4	.387	**.861**	.276	.388	.139
IA1	.471	.236	**.832**	.412	.254
IA2	.298	.109	**.854**	.225	.188
IA3	.165	.155	**.771**	.336	.336
IA4	.266	.244	**.765**	.409	.219
SS1	.154	.361	.247	**.755**	.451
SS2	.277	.470	.145	**.791**	.123
SS3	.211	.466	.222	**.695**	.281
SS4	.087	.231	.398	**.822**	.398
GP1	.358	.227	.214	.152	**.804**
GP2	.188	.209	.455	.361	**.903**
GP3	.367	.110	.366	.277	**.779**
GP4	.211	.096	.143	.194	**.794**

Appendix E: Cross Loadings of the SOCS Items

Items	BID	OID	MID
BID1	**.771**	.214	.264
BID2	**.795**	.406	.322
BID3	**.792**	.129	.138
BID4	**.812**	.277	.179
BID5	**.825**	.159	.421
BID6	**.595**	.385	.389
BID7	**.739**	.275	.350
BID8	**.843**	.236	.274
BID9	**.848**	.124	.426
OID1	.325	**.780**	.202
OID2	.246	**.784**	.371
OID3	.108	**.851**	.480
MID1	.337	.254	**.615**
MID2	.289	.433	**.642**
MID3	.049	.287	**.833**

الملخص

تسعى الدراسة الحالية إلى توسيع نطاق الدراسات الحالية حول استقلالية المتعلم من خلال دراسة تأثير التعلم التعاوني والاعتماد المتبادل الاجتماعي على مستوى التعلم المستقل في اللغة الإنجليزية كلغة أجنبية، وتقترح نموذجين ينضمون إلى المتغيرات الثلاثة. في دراسة وصفية استنتاجية باستخدام طرق البحث الكمي، تم اختيار طلاب الليسانس من قسم اللغة الإنجليزية في المركز الجامعي سي الحواس – بريكة (العدد = 261) من خلال أخذ العينات الملائمة للرد على استبيان مدركات استقلالية المتعلم، استبيان التعلم التعاوني و مقياس الترابط الاجتماعي في التعلم التعاوني, حيث تم تشغيل الإحصائيات الوصفية والاستنتاجية باستخدام الإصدار 26 من الحزمة الإحصائية للعلوم الاجتماعية (SPSS) ، وبرنامج تحليل الهياكل اللحظية (AMOS) وهذا يشمل استخدام المعدلات و والانحرافات المعيارية و وتحليلات التباين و وارتباطات بيرسون و والانحدار الخطي المتعدد و ونمذجة المعادلات الهيكلية, حيث أظهرت نتائج تحليل العامل التأكيدي أن المقاييس الثلاثة للدراسة كانت معقولة لنماذج مقبولة ، وهي وحدات قياس معيارية صالحة في سياق التعليم العالي الجزائري. علاوة على ذلك، كان لدى طلاب اللغة الإنجليزية اتجاهات إدراكية محايدة نحو استقلالية المتعلم والتعلم التعاوني والترابط الاجتماعي. أظهرت تحليلات التباين وجود فروق ذات دلالة تدريجية بين معدلات الطلاب من حيث مستواهم (طلاب السنة الأولى والثانية والثالثة) في جميع مقاييس الدراسة، وأشارت ارتباطات بيرسون إلى أن تصورات التعلم المستقل كانت مرتبطة بشكل دلالي وإيجابي بالتعلم التعاوني وتصورات الترابط الاجتماعي. كما وجد أن التعلم التعاوني مرتبط بشكل كبير وإيجابي بالترابط الاجتماعي، بالإضافة إلى ذلك، أظهرت تحليلات الانحدار الخطي المتعدد ونمذجة المعادلات الهيكلية أن التعلم التعاوني والترابط الاجتماعي هما متنبئات إيجابية دلالية لاستقلالية المتعلم، وأعان الباحث على اقتراح النماذج التي تضم المتغيرات الثلاثة للدراسة، وأبرزت نمذجة المعادلات الهيكلية أيضًا أن الترابط الاجتماعي توسط جزئيًا في الربط التنبئي للتعلم التعاوني واستقلالية المتعلم. أظهرت مؤشرات جودة الملائمة للنموذجين المقترحين أن الاعتماد الاجتماعي المتبادل من الأفضل ان يعتبر كوسيط بين التعلم التعاوني واستقلالية المتعلم.

Résumé

La présente étude vise à développer la littérature existante sur l'autonomie de l'apprenant en examinant l'impact de l'apprentissage coopératif et de l'interdépendance sociale sur le niveau d'apprentissage autonome perçu chez les étudiants en anglais comme langue étrangère (EFL), et propose deux modèles joignant les trois variables. Dans une étude descriptive-inférentielle utilisant des méthodes de recherche quantitatives, des étudiants de premier cycle du département d'anglais du Centre universitaire de Si-Lahoues - Barika (N = 261) ont été sélectionnés par échantillonnage de commodité pour répondre au questionnaire sur les perceptions de l'autonomie de l'apprenant, le questionnaire d'apprentissage coopératif et l'échelle d'interdépendance sociale dans l'apprentissage collaboratif. Des statistiques descriptives et inférentielles ont été exécutées à l'aide de la 26$^{\text{ème}}$ version du progiciel statistique pour les sciences sociales (SPSS) et du logiciel d'analyse des structures de moment (AMOS). Cela comprend l'utilisation des moyennes, des écarts-types, des analyses de variance, des corrélations de Pearson, de la régression linéaire multiple et de la modélisation par équation structurelle. Les résultats de l'analyse factorielle confirmatoire ont montré que les trois mesures de l'étude avaient des ajustements de modèle raisonnables à acceptables et sont des unités de mesure standardisées valides dans le contexte de l'enseignement supérieur algérien. De plus, les étudiants en anglais avaient des tendances de perception neutres envers l'autonomie de l'apprenant, l'apprentissage coopératif et l'interdépendance sociale. Les analyses de variance ont cependant révélé l'existence de différences significatives progressives entre les moyennes des étudiants en fonction de leur niveau (étudiants de première, deuxième et troisième années) sur toutes les échelles de l'étude. Les corrélations de Pearson ont indiqué que les perceptions d'apprentissage autonome étaient significativement et positivement corrélées avec l'apprentissage coopératif et les perceptions d'interdépendance sociale. L'apprentissage coopératif s'est également avéré être significativement et positivement corrélé à l'interdépendance sociale. De plus, l'analyse de régression linéaire multiple et de la modélisation par équation structurelle ont montré que l'apprentissage coopératif et l'interdépendance sociale sont des prédicteurs positifs significatifs de l'autonomie de l'apprenant, et ont aidé le chercheur à proposer les modèles de la modélisation par équation structurelle joignant les trois variables de l'étude. La modélisation par équation structurelle a également souligné que l'interdépendance sociale modifiait en partie le lien prédictif entre l'apprentissage coopératif et l'autonomie de l'apprenant. Les indices de qualité d'ajustement des deux modèles proposés ont montré que l'interdépendance sociale est mieux considérée comme un médiateur entre l'apprentissage coopératif et l'autonomie de l'apprenant.