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ΠΜΣ «Διοίκηση Εκπαιδευτικών Μονάδων»

ΕΡΕΥΝΗΤΙΚΗ ΜΕΤΑΠΤΥΧΙΑΚΗ ΕΡΓΑΣΙΑ

Τίτλος:**Educating Student Social – Emotional Aspect: Assessing Factors of Cooperative Learning Effectiveness**

Ονοματεπώνυμο Φοιτητή: Μολογούσης Παναγιώτης

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Πρόλογος

Το περιεχόμενο αυτής της διερευνητικής μελέτης αποτελεί μέρος του οράματος του γράφοντος για την παιδεία και εκπαιδευτική διαδικασία. Το όραμα αυτό σχετίζεται με την ολιστική παιδεία. Συγκεκριμένα, κατά την άποψη του συγγραφέα η παιδεία δεν είναι μία μονοδιάστατη έννοια, η οποία στοχεύει μόνο στη μετάδοση γνώσεων και πληροφοριών. Αντιθέτως, πρόκειται για μία πολυδιάστατη έννοια, η οποία συμπεριλαμβάνει την ηθική διαπαιδαγώγηση του μαθητή και την καλλιέργεια κοινωνικών και συναισθηματικών δεξιοτήτων, απαραίτητων για την πρόοδό του, τη διεκδίκηση της ισορροπίας και ευτυχίας στην προσωπική και επαγγελματική του ζωή. Δεδομένων των πολυποίκιλων απαιτήσεων της σύγχρονης πραγματικότητας - σε όλες τις εκφάνσεις του ανθρώπινου βίου - η διαμόρφωση μίας τέτοιας παιδείας κρίνεται επιτακτική για τη διάπλαση «υγιών» δημοκρατικών και βιώσιμων κοινωνιών, τοπικών και παγκόσμιων. Δεδομένης της αντίληψης της παιδείας όχι μόνο ως εθνικού, αλλά παγκοσμίου σημασίας ζητήματος, η γλώσσα της παρούσας διερευνητικής μελέτης είναι αγγλική.

Για την εκπόνηση της παρούσας διερευνητικής μελέτης συνέβαλε ένας κύκλος συναδέλφων και στενών φίλων. Η συμβολή αυτή σχετίζεται με την παροχή συναισθηματικής υποστήριξης και ενθάρρυνσης που κρίθηκαν πολύτιμες για την ολοκλήρωση αυτής της εργασίας. Σημαντική καθοδήγηση και ανατροφοδότηση παρείχε ο επιβλέπων καθηγητής της διπλωματικής εργασίας μέσω του συντονισμού αυτής, καθώς και σύσσωμο το τμήμα Διοίκησης Εκπαιδευτικών Μονάδων του Πανεπιστημίου Δυτικής Αττικής με την παροχή υποστήριξης όποτε αυτό κατέστη αναγκαίο. Ο γράφων ευχαριστεί θερμά τους παραπάνω για τη συμβολή τους, ενώ αφιερώνει την εργασία αυτή στην οικογένειά του.

Απρίλιος 2021

Μολογούσης Παναγιώτης

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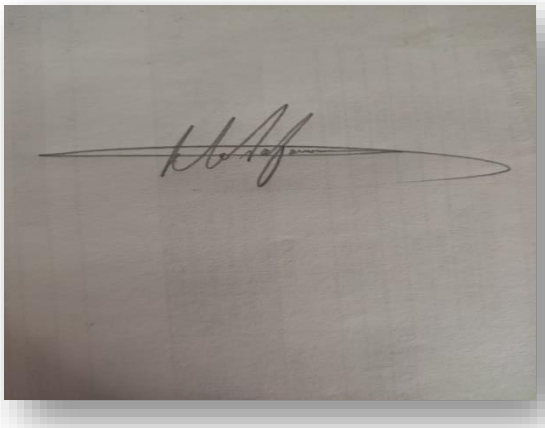
Ο/η κάτωθι υπογεγραμμένος **Μολογούσης Παναγιώτης του Ιωάννη**, με αριθμό μητρώου **dem1919** φοιτητής του Πανεπιστημίου Δυτικής Αττικής της Σχολής **Διοίκησης Επιχειρήσεων** του Τμήματος **Διοίκησης Εκπαιδευτικών Μονάδων**, δηλώνω υπεύθυνα ότι: «Είμαι συγγραφέας αυτής της πτυχιακής/διπλωματικής εργασίας και ότι κάθε βοήθεια την οποία είχα για την προετοιμασία της είναι πλήρως αναγνωρισμένη και αναφέρεται στην εργασία. Επίσης, οι όποιες πηγές από τις οποίες έκανα χρήση δεδομένων, ιδεών ή λέξεων, είτε ακριβώς είτε παραφρασμένες, αναφέρονται στο σύνολό τους, με πλήρη αναφορά στους συγγραφείς, τον εκδοτικό οίκο ή το περιοδικό, συμπεριλαμβανομένων και των πηγών που ενδεχομένως χρησιμοποιήθηκαν από το διαδίκτυο. Επίσης, βεβαιώνω ότι αυτή η εργασία έχει συγγραφεί από μένα αποκλειστικά και αποτελεί προϊόν πνευματικής ιδιοκτησίας τόσο δικής μου, όσο και του Ιδρύματος.

Παράβαση της ανωτέρω ακαδημαϊκής μου ευθύνης αποτελεί ουσιώδη λόγο για την ανάκληση του πτυχίου μου.

Ο Δηλών



Μέλη Επιτροπής Εξέτασης

Γιαννάς Πρόδρομος

Prodromos Giannas

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Σπυριδάκος Αθανάσιος

Πιερράκος Γεώργιος

1. Abstract

Η παρούσα διερευνητική μελέτη επιχειρεί να εξετάσει τη διδακτική πρακτική της συνεργατικής μάθησης (cooperative learning), υπό το πρίσμα της ολιστικής παιδείας (holistic education). Οι δύο έννοιες είναι άρρηκτα συνυφασμένες μεταξύ τους, καθώς η συνεργατική διδακτική προσέγγιση αποτελεί μία μορφή κοινωνικής – συναισθηματικής μάθησης (social – emotional learning). Παράλληλα η κοινωνική – συναισθηματική μάθηση αποτελεί μέρος της ολιστικής παιδείας. Οι παραπάνω όροι αναλύονται σε υποκεφάλαια της βιβλιογραφικής ανασκόπησης (literature review), προκειμένου ο αναγνώστης να κατανοήσει επαρκώς τόσο το περιεχόμενο όσο και τον τρόπο σύνδεσής των.

Ειδικότερα, η διερευνητική μελέτη εστιάζει σε παράγοντες οι οποίοι σύμφωνα με την υπάρχουσα βιβλιογραφία επηρεάζουν την αποτελεσματικότητα της συνεργατικής μάθησης. Αυτοί σχετίζονται με τη διαμόρφωση των ομάδων και την καθεαυτή εφαρμογή της διδακτικής πρακτικής. Αναλυτικότερα εξετάζεται η επίδραση των παραγόντων που σχετίζονται με: το μέγεθος της ομάδας (size), η ικανότητα των μαθητών (level of ability), το φύλο τους (gender), η ηλικία (age), η εθνικότητα (nationality), η προσωπικότητα (personality), οι κοινωνικές δεξιότητές του (social skills), καθώς επίσης και η ανάθεση ρόλων στα μέλη των ομάδων (role assignment), η διάρκεια (duration), η χρήση εξωτερικών αμοιβών (external rewards), η μορφή διδασκαλίας (form of instruction), η μέριμνα για τη διδασκαλία κοινωνικών δεξιοτήτων κατά τη συνεργατική μάθηση (teaching of social skills), το κλίμα της τάξης (classroom environment) και οι μέθοδοι αξιολόγησης (evaluation methods) που εφαρμόζουν οι εκπαιδευτικοί. Επιπλέον, ως διερευνητικός στόχος τίθεται η επίδραση της εκπαιδευτικής βαθμίδας (educational grade level) – γυμνασίου και λυκείου – και η κατηγορία του μαθήματος (Γλωσσικά μαθήματα, Μαθηματικά, Φυσικές Επιστήμες, Τέχνες και Κοινωνικές Επιστήμες, Γυμναστική) στην αποτελεσματικότητα της συνεργατικής μάθησης.

Οι τρεις διερευνητικοί στόχοι διατυπώνονται και αναλύονται μεθοδικά στο τρίτο κεφάλαιο της εργασίας (Methods). Για την εξέταση των διερευνητικών στόχων έχουν χρησιμοποιηθεί αποτελέσματα μαθητών διεθνούς σχολείου (international school), το οποίο υιοθετεί ως πρότυπο εκπαίδευσης, αυτό της ολιστικής παιδείας, ενώ παράλληλα οι εκπαιδευτικοί που ανήκουν στο δυναμικό του, εφαρμόζουν στο σύνολό τους την εξεταζόμενη διδακτική πρακτική. Η έρευνα αποτελεί μελέτη περίπτωσης (case study) και για το λόγο αυτό οποιεσδήποτε προτάσεις έχουν διατυπωθεί, αυτές βασίζονται στη βιβλιογραφική ανασκόπηση της εργασίας και στα δεδομένα, όπως αυτά παρουσιάζονται στο κεφάλαιο της ανάλυσης (Analysis). Ωστόσο, ο ερευνητής αποδεχόμενος τους περιορισμούς (limitations) της μελέτης περίπτωση συστήνει στην ερευνητική κοινότητα την επαλήθευση των προτάσεων μέσω της διεξαγωγής παρόμοιων ερευνών. Η ερευνητική μεθοδολογία που έχει χρησιμοποιηθεί για την εξέταση των διερευνητικών στόχων είναι η ποσοτική (quantitative) και συγκεκριμένα η περιγραφική στατιστική (descriptive statistics).

Στόχος της μελέτης είναι η ανάδυση καλών πρακτικών, οι οποίες με την εφαρμογή τους θα συντελέσουν στην ανάδειξη της συνεργατικής μάθησης με την παράλληλη επίτευξη υψηλών ακαδημαϊκών επιδόσεων. Η εφαρμογή μίας κοινωνικής – συναισθηματικής διδακτικής πρακτικής, όπως αυτή της συνεργατικής μάθησης αποτελεί έναν τρόπο ολιστικής διαπαιδαγώγησης των μαθητών. Αυτό συμβαίνει καθώς από τη μία μπορεί να συντελέσει στην καλλιέργεια κοινωνικών – συναισθηματικών δεξιοτήτων, όπως αυτή της συνεργασίας και της επίλυσης των συγκρούσεων, από την άλλη συνοδεύεται από υψηλά μαθησιακά αποτελέσματα. Αυτός ο τρόπος εκπαίδευσης

μπορεί να οδηγήσει στη διάπλαση μελλοντικών δημοκρατικών, ενεργών και υπεύθυνων πολιτών που θα συνυπάρχουν αρμονικά και ειρηνικά μέσω των κοινωνικών και συναισθηματικών δεξιοτήτων που θα έχουν κατακτήσει. Η αποτελεσματική λοιπόν συνεργατική μάθηση μπορεί να αποτελέσει ένας από τους πυλώνες προς την επίτευξη ενός τέτοιου σκοπού.

This research study attempts to investigate the teaching method of cooperative learning, under the scope of holistic education. The two notions are connected to each other, as cooperative learning is a part of social – emotional learning. Meanwhile, social – emotional learning is part of holistic education. The abovementioned notions are presented and analyzed in depth in the second chapter of the research study. The Literature Review focuses on providing the reader with the scientific background of their content, as well as proves how they are interconnected.

More specifically, this research project focuses on factors that impact cooperative learning effectiveness. These factors are related to the formation of the cooperative groups, and the implementation of cooperative learning. In particular, the investigative factors are: the size of the group, the level of student ability, gender, age, nationality, personality, social skills, as well as the assignment of roles to group members, the duration of the cooperative learning interventions, the use of extrinsic rewards by the educators, the form of instruction they implement, the teaching of social skills, the classroom environment they set and their evaluation methods. Additionally, the research study attempts to explore how the educational grade level – Middle School and High School – and course categories – Languages, Mathematics, Sciences, Arts & Social Studies, Physical Education – impact cooperative learning effectiveness.

The three research goals are presented and thoroughly analyzed in the third chapter of the study (Methods). For the investigation of the research goals, student grade point averages have been used. The investigative educational setting is an international school, which adopts the holistic education paradigm, and its educators implement cooperative learning. The research is considered as a case study. For this reason, the suggestions made in the last chapter, are based on the literature review and the data analysis, which are presented in the chapter of Analysis. Furthermore, the researcher includes the limitations of the case study and suggests that any findings should be investigated in other educational settings too in order to be validated. The research methodology is quantitative and specifically descriptive statistics have been used.

The case study strives to explore good practices that their implementation will contribute to the promotion of effective cooperative learning, in terms of facilitating high student academic achievement. The implementation of cooperative learning is an example of educating the students holistically. Cooperative learning not only leads to the cultivation of social – emotional skills, such as cooperation and conflict resolution, nut also is accompanied by high academic performance. This teaching methods result in the creation of future democratic, active and responsive citizens, which can co-exist harmonically and peacefully thanks to their developed social emotional attributes. Therefore, effective cooperative learning is considered as a pillar towards the attainment of this purpose.

Keywords: **Holistic Education, Social – Emotional Education, Social – Emotional Learning, Cooperative Learning.**

2. Literature Review

2.1 Introduction

The first chapter of this research project focuses on defining, as well as providing a scientific background of notions and concepts, necessary for the investigation of the research goals. In particular, the literature review included in this chapter is aligned with the purpose of the case study; to promote the importance of holistic education, and social emotional learning, through the investigation of cooperative learning as an effective social – emotional teaching practice, accompanied by high student academic performance. The sub – chapters below attempt to present and analyze the following concepts: holistic education, social – emotional education, as a part of the holistic education paradigm, social – emotional learning, as the foundation of social – emotional education, and social – emotional teaching practices, focusing on cooperative learning. Finally, the factors impacting cooperative learning effectiveness are included and thoroughly explored, as these are also investigated in the case study. The first sub – chapter focuses on the concept of holistic education.

2.2 Holistic Education

This sub-chapter presents and analyzes the concept of holistic education. Not only is this the educational paradigm adopted by the educational institution, in which the research is conducted, but also provides the general context, under which cooperative learning is developed and examined in this study as a social-emotional teaching practice. Specifically, this subchapter includes: the definition of holistic education, a brief historical retrospection of the term, its targets and ultimate goals, its main pillars and core principles. Holistic education pillars and principles are also summarized in **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.** and **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.**, respectively.

Holistic education paradigm was founded in North America in the 1980s in order to challenge the opposing field of mainstream education[1] (Mahmoudi, 2012). Its fundamental element is the philosophy of "wholeness"; the balanced engagement of all human aspects - intellectual, physical, spiritual, social, emotional, and aesthetic - into the learning process (Mahmoudi, 2012).

Holistic education is a paradigm, which has been shaped, and developed in the modern era. However, its content derives from ancient philosophies. In particular, delving deeper into the etymology of the word "holism", it derives from the Greek "holon" (=ὅλον) (Mahmoudi, 2012). Lee (1997) explains how the word "holon" was transformed into a concept by Ancient Greeks, according to which the universe consisted of integrated wholes that cannot be separated in parts (Mahmoudi, 2012). Miller (2007) further builds on the viewpoint of holism, by highlighting Socrates' famous quote "know thyself". He argues that by using this phrase, Socrates encouraged

[1] Mainstream Education: ""Mainstream education adopts a "mechanistic" or "Cartesian – Newtonian" worldview, attempting to provide and promote a specific predominant educational paradigm or approach"".

individuals to observe their life as a whole and grants him the role of holistic educator (Mahmoudi, 2012).

According to Ron Miller (1992), a leading figure of the movement, holistic education should be seen as a paradigm, presented and implemented into various forms. This wide range of forms facilitates the accomplishment of holistic education targets (Mahmoudi, 2012). Scott Forbes (2003) specifically, refers to the targets of holistic education, concluding that it attempts to educate students as a whole and perceive them as part of a whole (Mahmoudi, 2012). The common characteristic between the two targets is the philosophy of "wholeness". The term is referred to a holistic educational approach, which takes into consideration any societal and environmental factors that impact students' development, as well as promotes the development of all human capacities. The ultimate goal of this approach is the fulfilment of human potential (Mahmoudi, 2012). The uniqueness of student personality and human capacities justify the various forms, which holistic education adopts in order to successfully fulfil its targets.

"Holistic Education Pillars"

Holistic education consists of four main pillars: "learning to learn", "learning to do", "learning to leave together" and "learning to be" (Mahmoudi, 2012). Each of these pillars reflects a different view of holistic education. However, they must be approached collectively by the reader in order to understand the content of holistic education.

"Learning to learn"

This pillar is explained by the following concept: students should be educated in order to develop attributes enabling them to locate knowledge. In informal terms, students must understand where they need to search in order to find the proper answers to the respective questions. This could be achieved by the development of specific attributes such as focusing, listening, perceiving, curiosity and creativity (Mahmoudi, 2012).

"Learning to do"

This pillar refers to the ability of people to turn their knowledge into action. Specifically, the term "action" is associated with the profession that students – future adults – will choose to follow. Depending on how efficiently they will carry out this profession, they have the potential to impact the world around them. To develop efficiency in their profession, students must possess skills, such as adaptability, strategic thinking, and rational decision–making, as well as behavioral and interpersonal qualities (Mahmoudi, 2012). Thus, according to this pillar, students should be educated to effectively apply their knowledge with a self–improving mindset to positively impact the world.

"Learning to live together"

This pillar focuses on students' social–emotional (abbreviated S-E hereinafter) aspect, in terms of educating them to form and develop values, leading into harmonious coexistence with an emphasis on: respect, cooperation and empathy. Students as learners and future citizens will contribute in

"building" a peaceful community, provided that they embody such values in everyday life. Therefore, this pillar aims to shape communities where dogmatism, discrimination and authoritarianism are not to be included, as they are composed of citizens that firstly understand their own motives and behaviors and consequently respect individual uniqueness (Mahmoudi, 2012).

"Learning to be"

"Learning to be" challenges students to explore their true human nature, in terms of observing, and exploring their thoughts and emotions, approaching them not only as a whole essence, but also as part of the whole world. This is considered to be an important element of holistic education because such an achievement contributes to the creation of citizens, who consistently look for meaning behind their actions. This is achieved through educational approaches promoting "the acquisition of knowledge, skills and values conducive to personality development in its intellectual, moral, cultural and physical dimensions, such as imagination, creativity, reasoning, aesthetic sense, physical capacity, social skills, critical thinking, independent judgment and personal commitment and responsibility" (Mahmoudi, 2012).

Table 1: Holistic Education Pillars adapted by (Mahmoudi, 2012)

"Holistic Education Pillars"			
"Learning to learn"	"Learning to do"	"Learning to live together"	"Learning to be"

"Holistic Education Principles"

Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε. summarizes the holistic education principles. These are also presented and analyzed below.

"Educating for human development"

This principle highlights the focus of holistic education on promoting a type of learning that not only includes practical knowledge, but also facilitates the development of students as a whole. To meet this criterion, learning and education should guide students to rethink their self, through observing their relationship with others: their families, the local and global community and the physical environment. (Mahmoudi, 2012).

Honoring Students as Individuals

This principle capitalizes on the aspect of holistic education, according to which students should be viewed as unique learners. In the educational field, this is translated into implementing teaching approaches and designing policies respectful of student different needs and intended to create an environment appropriate for the fulfillment of their unique learning potential (Mahmoudi, 2012).

The central role of experience

Holistic education attaches importance to experiential learning[2]. During the learning process, students are encouraged to consistently interact and relate their knowledge to the world around them to be able to gain the necessary experiences for the achievement of a balanced growth (Mahmoudi, 2012).

"Holistic Education"

This principle offers the basic foundation for the understanding of holistic education paradigm. Education is holistic. Taking into account "holism"- as explained above - students should be educated to equally develop all their human aspects. Educational systems and institutions aspiring to achieve this goal should design and promote academic experiences, addressing a wide range of life phenomena (Mahmoudi, 2012).

"New Role of Educators"

The notion of the "holistic educator" differs from this of the "educator". This difference is identified in the relationship holistic educators develop with learning. Holistic educators are considered as facilitators of learning. As facilitators they perceive the learning process as natural rather than obligatory. This is also reflected during their teaching, as they design their instructional approach and material to be aligned with all their students' different needs. The result of this facilitation is that students willingly participate and are engaged into the learning process. The mandatory characteristic of learning does not exist (Mahmoudi, 2012).

"Freedom of Choice"

This principle of holistic education describes the process that learning occurs in the classroom. A holistic classroom environment is characterized by freedom. This freedom is reflected through students' behavior and rights during the learning process. They are viewed as learners who freely express their opinion, comfortably interact and form questions, and actively search for answers. Student freedom is also extended as they have the right to make suggestions regarding the content of the material they are exposed to, and express their opinion on the behavioral rules of the classroom. Holistic educators, undoubtedly, through their roles as "facilitators" should monitor the equal participation and representation of student rights and opinions, so that all their voices are heard (Mahmoudi, 2012).

"Educating for a Participatory Democracy"

Holistic education coexists with democracy, in regards to providing the educational foundation for the transformation of learners into active citizens. In this context, education and learning aims to

[2] Experiential learning: "Learning in which the learner is directly in touch with the realities being studied. It is contrasted with the learner who only reads about, hears about, talks about, or writes about these realities but never comes into contact with them as part of the learning process" (Kolb A. & Kolb D., 2017).

instill learners values that will help them contribute to the creation of a participatory democracy. These are citizens who promote social justice, care and act towards important local and global issues, and are actively involved into their communities, directly or indirectly, always positively impacting them (Mahmoudi, 2012).

"Educating for Global Citizenship"

This principle adds a new parameter to the concept of holistic education; globalism[3]. Holistic education cares for students obtaining Global Citizenship. This is feasible when learners are exposed to an environment where they recognize, accept and respect different cultures, traditions and embrace the uniqueness of human nature (Mahmoudi, 2012). As future adults, students are seen not only as citizens of a nation but also of the whole planet.

"Educating for Earth Literacy[4]"

This principle highlights the caring approach of holistic education for the protection of the natural environment. Holistic education, perceives learners in relation to the natural world surrounding them. Through education about Earth Literacy, students develop a respectful and responsible mindset for nature, and embrace the challenge to act for environmental issues that the planet is confronted with, contributing to the creation of a sustainable planet (Mahmoudi, 2012).

"Spirituality and Education"

This principle highlights the spiritual human aspect, which holistic education aims to also address. Specifically, spiritual development is connected to the pursuit of purpose in life, the realization of the concept of wholeness, and the perception of the interconnectedness of different human aspects. Through developing student spiritual aspect, holistic education aims to create future adults who live their life meaningfully, in terms of their career and contribution to society (Mahmoudi, 2012).

Table 2: Holistic Education Principles adapted by (Mahmoudi, 2012)

"Holistic Education Principles"
1. "Educating for Human Development"
2. "Honoring Students as Individuals"
3. "The Central Role of Experience"
4. "Holistic Education"

[3] Globalism: ""The idea of globalism emerged from an awareness of the significance of the glob as unitary whole made of interconnected diverse units and the recognition of the world's "oneness"""" (Rosenboim, 2017)

[4] Earth literacy: "The general awareness of the history of the Earth, life, and the great biodiversity of the planet" (King, 2010)

5. “The New Role of Educators”
6. “Freedom of Choice”
7. “Educating for a Participatory Democracy”
8. “Educating for Global Citizenship”
9. “Educating for Earth Literacy”
10. “Spirituality and Education”

It is inferred that holistic education targets the balanced development of all student human aspects. The following subchapter, in order to provide the necessary background for cooperative learning to emerge, focuses on presenting and analyzing one of the aspects of the multifaceted holistic education; S-E education.

2.3 Social Emotional Education

The previous subchapter concentrated on analyzing holistic education paradigm and its aim to provide students with educational experiences leading to the balanced development of all their human aspects (intellectual, physical, spiritual, social, emotional and aesthetic). This subchapter isolates and analyzes one of these aspects, the S-E aspect. This aspect is specifically addressed by S-E education. This field of education aims to develop student social–emotional characteristics that contribute to the formation of a participatory democracy. It also guides them to successfully pursue a balanced lifestyle, in terms of caring about their social–emotional well–being (Cohen, 2006). These characteristics that S.E. education addresses are summarized on Table 3. Specifically, this subchapter includes: scientific evidence justifying the importance of developing student social–emotional aspect, a brief presentation and analysis of the educational traditions impacting the formation of S-E education, as well as a historical retrospective of the field.

A great body of researchers has provided the literature with scientific evidence, regarding the importance of developing student S-E aspect in education. One of their main arguments which have been developed is that of the development of student S-E characteristics providing the foundation for the formation of their future well–being and happiness as adults. Specifically, the field of positive psychology[5], through the studies of Seligman, Steen, Park, & Peterson (2005) explains and supports the correlation between well–being and happiness with good health, success and social integration (Cohen, 2006). In this context, despite happiness not being teachable, there are pathways that facilitate its achievement. According to Seligman (2002) these pathways are: positive emotion

[5] Positive Psychology: “From the individual perspective the field of positive psychology includes the notions of love, courage, interpersonal skill, aesthetic sensibility, perseverance, forgiveness, originality, future mindedness, spirituality, high talent, and wisdom. At the group level, it concepts which motivate individuals to become better citizens: responsibility, altruism, moderation, tolerance, and work ethic” (Seligman & Csikszentmihalyi, 2000, p. 5) (Linley A. , Joseph S., Harrington S.,Wood A., 2006)

and pleasure, engagement and meaning in everyday activities (Cohen, 2006). The development of S-E skills facilitates the pursuit of these pathways (Cohen, 2006).

How is this feasible? Through the development of S-E attributes, learners possess the ability to identify their interests and strengths, as well as opt for participating in activities that they are fully engaged in. Because they are aligned to their passions and interests, a sense of satisfaction is created. Identification of such activities by students and adults results in the volitional participation and high engagement in them, characterized by Csikszentmihalyi as "flow experience". "Flow experience" enables students and adults to explore the meaning and value of the activities they become engaged in both for themselves and the people around them (Cohen, 2006). Identifying meaning and purpose in everyday activities is also facilitated through the development of S-E skills, and specifically the ability to distinguish strengths and weaknesses. Self–awareness leads to the engagement in activities which one can make meaningful and honest contribution, as participates to fulfil a higher purpose. According to Seligman et al. (2005) this purpose is defined as participants serve something much larger than themselves, which presupposes an authentic sense of care, an emotional aspect. (Cohen, 2006).

Table 3: "Skills and Dispositions for Participation in Democracy" (Cohen, 2006)

Essential Skills	***Essential Dispositions***
Ability to listen to ourselves and others	Responsibility or inclination to respond to others in appropriate ways
Ability to be critical and reflective	Appreciation of our existence as social beings that need others to survive and thrive
Ability to be flexible problem-solvers and decision makers, including the ability to resolve conflict in creative and nonviolent ways	Appreciation and inclination to social justice
Communicative abilities, e.g., being able to participate in discussions and argue thoughtfully	Inclination to serve others and participate in acts of good will
Collaborative capacities, e.g., learning to compromise and work together toward a common goal	

If we take a closer look at Table 3, we observe that an essential skill for the creation of a participatory democracy, which also serves as a goal of S-E education, is the development of students' collaborative capacities. This is feasible in the educational field, through the teaching practice of cooperative learning, which is the main subject of this study and is further analyzed in the next subchapters. However, it is believed that understanding of S-E education context will benefit the readers to effectively realize the importance of cooperative learning. Thus, the reader

will find below a historical retrospective of S-E education, as well as a brief presentation and analysis of the educational traditions impacting its formation.

One can trace the roots of S-E education from the ancient times. Specifically, Nash (1968) and Padel (1992) argue that in the ancient societies of Greece, Egypt and India, education had a social orientation and socialization was one of the targets of teaching (Cohen, 2006). Snell (1982) refers to the emotional element of learning, which was also evident in education, during the ancient times. Specifically, he connects it to ""the concept of "know thyself", carved in the Oracle of Apollo at Delphi 2.500 years ago, and served as a fundamental aspect of Ancient Greek society"" (Cohen, 2006). While these ancient beliefs and concepts prove that S-E educational philosophy is not a modern paradigm, there is also much scientific evidence proving its contemporary existence and development. Initially, McClellan highlights the promotion of character education by America's Founding Fathers, with an emphasis on the cultivation of these values, necessary for the creation of a democratic governmental system: respect of individuals' rights and the law, care for the common good and active engagement in public affairs (Cohen, 2006).

As far as the formation of the current S-E practices in education is concerned, they have been shaped by two fields; the field of education and the field of mental health and school partnerships (Cohen, 2006).

Regarding the educational field, contemporary S-E practices emerged through pedagogic and assessment developments. In the context of pedagogy, Dewey (1916/2004) attempted to redefine the goal of education to empower learners to become responsible and active democratic citizens appreciative of human differences (Cohen, 2006). Building on this new educational concept and in an attempt to promote it, progressive educators[6] from Felix Adler to Deborah Meier, developed pedagogic methods that addressed not only the academic but also the S-E aspect of learning (Cohen, 2006). In terms of students' assessment, a considerable body of research supports the development of evaluation methods that apart from the academic standing, addresses other kinds of individuals' intelligence. From Thorndike (1920) to Gardner (1983) and Sternberg (1985), the concept of social intelligence[7] emerged. According to this concept, learners perceive information through their interpersonal, intrapersonal and practical intelligence (Cohen, 2006). Thus, evaluation of students should be designed in order to address not only their performance on standardized tests, but also measure the growth of their social intelligence. This new concept of evaluation gave ground for the

[6] Progressive Educators: "Teachers that embrace the beliefs of progressive education, a movement that took form in Europe and the United States during the late 19th century as a reaction to the alleged narrowness and formalism of traditional education. One of its main objectives was to educate the "whole child" – that is, to attend to physical and emotional, as well as intellectual, growth" (Britannica, 2020).

[7] Social Intelligence: ""The term was first used by Dewey (1909) and Lull (1911), but the modern concept has its origins in E. L. Thorndike's (1920) division of intelligence into three facets pertaining to the ability to understand and manage ideas (abstract intelligence), concrete objects (mechanical intelligence), and people (social intelligence). In Thorndike's classic formulation: "By social intelligence is meant the ability to understand and manage men and women, boys and girls - to act wisely in human relations" (p. 228)"" (Kihlstrom J. and Cantor N., 2011).

design of educational practices that aimed to develop student S-E aspects and their social intelligence.

The field of mental health and its collaborations with schools also impacted the formation of modern S-E practices in education. McReynolds (1997) explains how Lightner Witmer, who opened the first clinic Psychology in the United States, attempted to utilize psychological findings in order to help students (Cohen, 2006). Similarly, in Europe, Sigmund Freud followed this approach during the late nineteenth century. His goal was to use psychoanalytic findings to help educators and parents promote "children's healthy development and improve their ability to learn" (Cohen, 2006). Building on his work, his daughter, Anna Freud, a teacher and clinician herself, created collaborations between educators, parents and mental health experts, so they could explore how S-E aspects correlate with cognitive development (Cohen, 2006). Examples of such partnerships include: emergence of sex and drug education, inclusion of Health in school curricula and creation of school health centers. The common characteristic of these partnerships between the fields of mental health and education is to highlight the importance of student healthy development, as well as identify physical and mental health obstacles not only to learning but to S-E well–being too (Cohen, 2006). The positive results of these collaborations became evident through the prevention of serious mental health issues and the facilitation of students' learning ability. Addressing the S-E aspect of students determined how important such an educational intervention for their future as learners and adults is.

The fields of education and mental health impacted the emergence and development of S-E education in the modern era. However, contemporary S-E educational practices and teaching are grounded in two educational cultures[8]: character education and S-E learning. The content of these educational traditions is analyzed below to facilitate understanding of the S-E education concept and how it is associated with cooperative learning.

Character education aims to develop the ethical or moral aspect of learners. It is considered as an "umbrella" term, consisting of three main theories; "traditional character education", "the caring approach" and the "developmental approach" (Cohen, 2006). Traditional character education aims to cultivate moral and ethical values to learners. The caring approach according to Howard, Berkowitz, & Schaeffer (2004) underlines the significance of developing caring relationships and designing a curriculum, which includes S-E subjects for the attainment of such a goal (Cohen, 2006). Finally, the developmental approach focuses on developing students' abilities and values in order to transform students into future active citizens who will contribute to the creation of a moral community (Cohen, 2006).

Social-Emotional Learning as its own name denotes sets as its first goal to cultivate S-E skills to learners. This goal is promoted in schools through teaching, learning and continuous and systematic evaluation. Efforts for the development of S-E competences have led to the creation of social –

[8] Educational culture/tradition: The framework in which educational activities take place (Council of Europe Portal, 2020).

skills training programs, the design of targeted curricula and even school reform efforts with an emphasis to social – emotional learning (Cohen, 2006).

In conclusion, this subchapter focuses on the presentation and analysis of S-E education, viewed as a part of the holistic education paradigm. As already mentioned, the main concept of S-E education is that it attends and aims to develop the social–emotional aspect of students. The next subchapter of this research study is devoted to the analysis of one of the two foundations of S-E education, social–emotional learning. S-E learning and its teaching practices offer the necessary background and basis for the analysis of cooperative learning, being the main topic of the study.

2.3.1 Social - Emotional Learning

According to the previous subchapter, contemporary S-E educational practices derive from two educational traditions: character education and S-E learning. Since, the main topic this study investigates, cooperative learning is characterized as a S-E learning practice, this sub – chapter is dedicated to presenting and analyzing the concept of S-E learning. Specifically, this subchapter focuses on explaining the definition and content of S-E learning, presents and discusses the five core S-E competences that social–emotional learning addresses and the skills related to each, and provides scientific evidence regarding the importance of developing S-E learning in education.

Social-emotional learning could be defined as the learning approach that focuses on the development of social–emotional skills (Yoder, 2014). In order to understand the definition and thus, the content of S-E learning, one should search the meaning of the notion "social–emotional skills". According to the Collaborative for Academic, Social and Emotional Learning (abbreviated CASEL hereinafter) (CASEL, 2003) S-E skills are the attributes that facilitate individuals to make proper choices (Yoder, 2014). To this context, Payton (2000) supports that S-E learning includes learning activities that aim to develop S-E attributes to students, which result in the recognition and control of feelings, the "building" of relationships, the resolution of interpersonal issues and effective decision–making (Yoder, 2014). The development of such skills can help students seek for guidance, as well as improve their emotional control and problem–solving skills, Romasz, Kantor and Elias (2004) argue (Yoder, 2014).

Table 4 summarizes the five core S-E competences, whose possible development could facilitate student academic and future career success, as defined by CASEL (Yoder, 2014). The skills related to each core S-E competence are also found in the same table. The five core S-E competences, summarized in table 4, are presented in depth below. The importance of their development is also analyzed and explored in this subchapter from the perspective of the academic success of students.

The five core social–emotional competences according to table 4 are: "self-awareness, self-management, social awareness, relationship management and responsible decision making". Each competence is important for student success for a reason. Self–awareness, according to Zimmerman (2000) allows the identification of student strengths and weaknesses, and positively impact academic choices. (Yoder, 2014). Regarding self–management, Gross (2000) argues that emotions affect student memory and therefore its use on academic tasks (Yoder, 2014). In relation to social–awareness, empathetic and perspective–taking skills allow students to be more effective in

respective assignments and courses. For example, in classes such as Literature or History, the more socially aware students are the more thoroughly understand the motives and actions of the main characters, since they "step into their shoes" (Yoder, 2014). Relationship management skills can also contribute to academic success, as students who handle social pressures effectively and know how to resolve conflict, are more likely to seek academic advice provided that they are faced with a learning difficulty. Finally, through responsible decision–making, which is characterized by ethos, respect and a consideration of safety, students are in a position to identify academic or S-E problems and think appropriately in order to successfully resolve them (Yoder, 2014).

Table 4: "Skills related to Five Overarching Social - Emotional Competences" (Yoder, 2014)

Social – Emotional Competence	***Social – Emotional Skills Related to each competency***
1. Self – awareness	• Label and recognize own and others' emotions. • Identify what triggers own emotions. • Analyze emotions and how they affect others. • Accurately recognize own strengths and limitations. • Identify own needs and values. • Possess self – efficacy and self – esteem.
2. Self – management	• Set plans and work toward goals. • Overcome obstacles and create strategies for more long–term goals. • Monitor progress toward personal and academic short and long-term goals. • Regulate emotions such as impulses, aggression, and self – destructive behavior. • Manage personal and interpersonal stress. • Attention control (maintain optimal work performance). • Use feedback constructively. • Exhibit positive motivation, hope, and optimism. • Seek help when needed. • Display grit, determination, or perseverance.
3. Social awareness	• Identify social cues (verbal, physical) to determine how others feel. • Predict others' feelings and reactions. • Evaluate others' emotional reactions.

	• Respect others (e.g., listen carefully and accurately). • Understand other points of view and perspectives. • Appreciate diversity (recognize individual and group similarities and differences). • Identify and use resources of family, school, and community.
4. Relationship management	• Demonstrate capacity to make friends. • Exhibit cooperative learning and working toward group goals. • Evaluate own skills to communicate with others. • Manage and express emotions in relationships, respecting diverse viewpoints. • Communicate effectively. • Cultivate relationships with those who can be resources when help is needed. • Provide help to those who need it. • Demonstrate leadership skills when necessary, being assertive and persuasive. • Prevent interpersonal conflict but manage and resolve it when it does occur. • Resist inappropriate social pressures.
5. Responsible decision making	• Identify decisions one makes at schools. • Discuss strategies used to resist peer pressure. • Reflect on how current choices affect future. • Identify problems when making decisions and generate alternatives. • Implement problem solving skills when making decisions - when appropriate. • Become self-reflective and self-evaluative. • Make decisions based on moral, personal, and ethical standards. • Make responsible decisions that affect the individual, school, and community. • Negotiate fairly.

Why it is important these core S-E competences be taught to learners? It is because their possible development could lead to instant and future academic outcomes. Regarding the direct impact of S-

E competencies, it has been proved that they increase student capacity to learn. As far as the future ones, they facilitate the preparation of student successful transition from the secondary to the tertiary education. Finally, all of these competences are correlated with a promising and successful professional career (Yoder, 2014). Further explanation, as well as scientific evidence of these outcomes follows below.

Regarding the direct academic outcomes that are associated with the cultivation of the core S-E competences to students, it has been supported that they enhance the learning capacity of students. Zins, Weissberg, Wang and Walberg (2004) argue that their development improves student motivation to learning, behavior and commitment towards their academic obligations (Yoder, 2014). Another direct academic outcome which was supported by Osher et al (2008) is associated with the ability of collaboration. Specifically, the learning process is characterized by a continuous interactivity. Students co-exist, communicate with each other and their educators, cooperate, and assume different roles in a learning environment. Therefore, the more adept in S-E competencies they are, especially those connected to relationship management, effective communication and collaboration with others, the more effective they will be in cooperative academic tasks (Yoder, 2014).

Regarding the future academic outcomes, it was mentioned above that the cultivation of the core S-E competences facilitates the smooth transition from the secondary to the tertiary education. Specifically, while in the tertiary education, learners come across material and concepts that are considered more demanding compared to secondary education. According to McTigue & RimmKaufman (2011); Osher et al., (2008) in order for this new learning to be effectively acquired, it presupposes the existence of social-emotional competences (Yoder, 2014). Students might be overwhelmed, due to the complexity of the new content and the level of perseverance they will exhibit during this time determines their academic progress (Yoder, 2014). This is more evident in language classes. As course texts are becoming more complex in content, students with enhanced self–awareness are in a position to identify which chapters do understand and which not; students with developed self–management will seek guidance regarding the parts of the text which they find difficult; students with advanced communication skills will thrive in class discussions about the content and the characters. Finally, Brackett, Rivers, Reyes, & Salovey (2012) support that the new academic resources will not be utilized by tertiary education students, if they have not managed to master their emotional control during their secondary education years.

From the presentation and analysis of the core social–emotional competences in this subchapter, one concludes that S-E learning, which focuses on the development of the social–emotional aspect of students is correlated with positive academic outcomes, immediate and future. On the one hand, thanks to the cultivation of such competences, students can directly increase their learning capacity. On the other hand, academic outcomes are also identified with their transition to tertiary education. The next subchapter examines the teaching methods, which can be effective in cultivating S-E competencies, if they are implemented appropriately. One of these methods is cooperative learning, which is investigated extensively in this study.

2.3.2 Social - Emotional teaching practices[9]

The previous subchapter focused on providing scientific evidence regarding the significance of social–emotional learning, through the presentation and analysis of the five core S-E competences, as presented in Table 4. It was concluded that these are essential to be cultivated to students since they are associated with direct and future academic outcomes. Because the cultivation of the S-E aspect of students is important, this subchapter presents ten teaching practices that can facilitate students acquire the aforementioned competences. Table 5 summarizes the ten S-E teaching practices (Yoder, 2014). Each of these practices is further discussed and explained below, as analyzed by Nicholas Yoder in his research study "Teaching the Whole Child: Instructional Practices that Support Social–Emotional Learning in Three Teacher Evaluation Frameworks (Yoder, 2014).

Social–Emotional teaching practices

A review of research–based S-E educational programs (CASEL 2013) that focused on investigating the correlation between specific teaching practices, positive learning environments and student social emotional competencies, provide scientific evidence that there are teaching methods resulting in the cultivation of S-E competences to students (Yoder, 2014). These teaching practices, identified in this review, are mentioned in Table 5 of this subchapter. Analysis of each teaching practice is also included in this sub-chapter in order to provide scientific evidence on how they facilitate social–emotional outcomes.

Table 5: "Teaching Practices that enhance social - emotional competences" (Yoder, 2014)

"Social – Emotional Teaching Practices
"Student – Centered Discipline"
"Teacher Language"
"Responsibility and Choice"
"Warmth and Support"
"Cooperative Learning"
"Classroom Discussions"
"Self – Reflection and Self – Assessment"
"Balanced Instruction"

[9] Teaching practice: "The way in which educators perceive and implement instruction. Teaching practices generally reflect beliefs and ethics about teaching and the learning process" (IGI Global, 1998).

Competence Building – Modeling, Practicing, Feedback, Coaching

"Student – Centered Discipline"

When classroom behavioral management is characterized by a student–centered philosophy, then the social–emotional aspect of students is likely to develop. How is a student–centered discipline achieved though? This depends on educator efforts to create an appropriate classroom environment to motivate students to be self – directive. There are specific strategies for the successful completion of this goal. Firstly, classroom rules should be discussed, explored, and agreed upon between students and educators. Also, they should be aligned with student age. The language of the rules and the way that they are conveyed must be taken into consideration in order to be developmentally appropriate. Thus, the same rules cannot be presented and applied to the Elementary, Middle School, and High School, as students of different ages have different needs. If students fail to maintain the classroom agreements, it is suggested that consequences be logical – in relation to the broken rule – and not punitive, so that students understand their choices. Proactive mindset and consistency regarding the implementation of the rules must be considered as these help students not be confused with "right" and "wrong" behaviors. These also ensure equity in the classroom. It is concluded that a student–centered discipline, when established, helps students develop self–awareness, social–awareness, and responsible decision-making.

"Teacher Language"

The learning process is a continuous interaction between educators and students, and between students and their classmates. Educator language affects not only student academic efforts, but also impacts their behavioral standing. It has been proved that teachers adopting an encouraging language in regard to motivating their students to review, monitor and regulate their behavior have better chances of creating a harmonious learning environment. This is possible, as their effort to consistently observe their own behavior, leads to the development of a responsible mindset. Students with a responsible mindset, communicate respectfully, handle their emotions effectively, and are self–reflective and self–evaluative. Thus, educator language, when characterized by encouragement and motivation towards the adoption of a responsible and self–evaluative mindset from students in relation to their attitude, facilitates the cultivation of S-E competences: self–awareness, self–management, social–awareness, relationship management, and responsible decision making.

"Responsibility and Choice"

If we look at Table 4, we observe that responsible decision–making is a core social – emotional competence, which is cultivated through S-E learning. The question is how educators can help students develop this competence. This could materialize if they design their teaching so as to provide students with the opportunity to voice their opinion and make decisions about their learning. By creating "space" for students to make choices rather than impose mandatory work,

students are put in a position to also decide on a focus area. This decision–making to be effective and responsible must appeal to student needs. Therefore, when students are asked to make choices and decisions, they start the process of identifying their strengths and weaknesses, as well as interests and passions, through self–exploration. It is inferred that, when learning is not obligatory but democratic, it facilitates the development of self–awareness, self–management, and responsible decision-making. However, one parameter that needs to be pinpointed is that educator input is necessary so as to guide students make the right decision about their learning. Finally, the sense of responsibility is reflected through the accountability that students have when making specific choices. Examples of teaching methods that include choice and responsibility are: peer tutoring, cross–age tutoring, participation in service–learning projects, and community service.

"Warmth and Support"

The creation of a caring and supportive classroom environment has been found to be important for the cultivation of social–emotional competences to students. The two important characteristics of such an environment are: student freedom to ask questions, and the sense of inclusion and appreciation that they feel, despite their unique needs and differences. How can these characteristics blossom in the classroom? There are specific methods that facilitate the creation of a warm and supportive learning environment which includes morning classroom meetings and small moments between instructional time and projects intended to address student questions and needs. When educators implement such methods, students are encouraged to share their learning outcomes and given the opportunity to freely express their opinion. As a result, they develop S-E competences, such as self and social awareness, through identifying their weak areas, and listen to and understand needs of their classmates. What needs to be stressed is the way that educators follow–up student concerns and questions, in terms of language and sufficient explanation, feedback and guidance. This is crucial for the creation of a supportive learning environment.

"Cooperative Learning"

Cooperative learning is a teaching practice that educators use in order to promote the value of cooperation among the members of a classroom. During cooperative learning interventions students collaborate with their classmates in smaller or larger groups towards the successful completion of a collective goal. Cooperation is an important social–emotional element that leads to effective relationship management. While students are working on cooperative tasks, despite being teammates, disagreements arise. Students express different viewpoints for the same task and their goal as a team is to reach an agreement and resolute any conflicts between them, in order to successfully complete the tasks. Through conflict resolution, listening to each other attentively, helping and guiding academically weaker members to keep up with the pace, finally results in the promotion of cooperation among the classroom. Educators that use cooperative learning should ensure participation and contribution of all group members.

To be effectively implemented in the classroom, cooperative learning should meet the following criteria:

- Be characterized by positive interdependence[10] between the members of the group;
- Promote individual accountability[11];
- Ensure that all member accomplishments are showcased;
- Combine interpersonal and social skills;
- Integrate specific processing and monitoring mechanisms, used by the members of the group in order to measure their progress consistently;

The next subchapters are devoted to presenting and analyzing cooperative learning as a teaching method, as its detailed investigation is required for the successful completion of the research goals of this study.

"Classroom Discussions"

Classroom discussions are a social–teaching method that is related to the cultivation of communication and listening skills. Students have the opportunity to express their opinion, their voice is heard, and they also become active and respectful listeners under the guidance of the educators who coordinate the process. Mutual understanding between classmates can facilitate the development of social–awareness and relationship management. Students become aware of each other needs and this is how they develop self–awareness too. To be effectively implemented, classroom discussions must be student–driven. Specifically, the role of the educator is to pose open–ended questions, which trigger student critical thinking. Not only do classroom discussions benefit skills related to communication, but also facilitate students gradually become more attentive in terms of listening, respecting, and building upon the ideas of their classmates. Before initiating a classroom discussion regarding an academic topic, educators should ensure that students have enough knowledge in order to effectively participate, otherwise they might be discouraged and not feel the positive outcomes of the conversation. An oral reflection and conclusion of the discussion helps students focus on the key points, results and outcomes.

"Self – Reflection & Self – Assessment"

As stated in the previous chapter, self–awareness and self–management are two core social–emotional skills. On condition that self–reflection and self-assessment are implemented in the classroom as teaching practices, they can facilitate the development of such skills. How is this possible? Students that are engaged in self–reflection and self-assessment work painstakingly, identifying their strengths and weaknesses. Being able to understand themselves, they can also

[10] Positive Interdependence: "Positive interdependence (cooperation) results when students facilitate each other efforts to learn" (Johnson, Johnson, & Smith, 1998b) (Brewer S & Klein J., 2006).

[11] Individual Accountability: An evaluation method, focusing on the assessment of each individual student contribution in a cooperative group (Gillies, 2014)

adopt a self–improving mindset in terms of realizing when and how to seek academic support and search for the appropriate resources to facilitate their learning. Educator role is significant, in terms of implementing these teaching practices. In particular, educators should encourage students to assess rigorous work, rather than evaluating though cross–checking their answers, which might have been provided to them following an assessment. This type of assessment is intended to cultivate student critical thinking. Self–reflection and assessment also need to be aligned with specific learning goals. In this way, the students realize that they reflect on and evaluate their own work in order to achieve the successful completion of a particular learning goal. Consequently, students have the necessary guidance and motivation for self–improvement.

"Balanced Instruction"

A balanced, active and direct instruction is associated with the cultivation of social–emotional skills to students. Active instruction refers to facilitating student engagement in the academic tasks. This goal could be achieved through a variety of engaging methods including games related to the respective topic, plays, individual and cooperative projects. This is an active form of instruction, facilitating student engagement into the academic tasks also benefit the development of S-E skills, such as self–awareness and responsible decision–making. This is feasible, as students participate with all their senses in the learning process and their work as well as decisions coming from a conscious state of mind. On the other hand, direct instruction is the form of instruction in which the educators lecture during the learning process. In this form of instruction, a body of information related to the learning goal is presented and analyzed by the educator in the classroom. The word "balanced" is the key in this case. Students need a balance the two forms of instruction, active and direct. Direct instruction is still important since it provides students with knowledge and tools to apply during the active form of instruction. Therefore, one facilitates the development of the other, and they should coexist on equal terms for the cultivation of S-E skills to students.

What needs to be highlighted in order to promote the development of social – emotional skills is that active instruction should be aligned to S-E learning. For example, a project–based assignment should be dealt with collaboratively and include the stages of self–reflection and self–assessment in order to enhance student respective S-E competences. Thus, when implementing an active form of instruction, educators should plan according to the cultivation of specific S-E goals.

"Academic Press and Expectations"

These are two teaching practices, that if established in the classroom adequately they can facilitate the development of social – emotional skills to students. Academic press is related to the assignment of meaningful and challenging academic work to students. Academic expectations are the beliefs of the educators regarding student academic potential. As mentioned above, these practices, to be adequately applied in the classroom, should be accompanied by a sense of care. It is preferable for their successful implementation that the educators avoid a strict and demanding approach when they assess student academic potential. It is wise, prior to defining the academic expectations for their students, to pre–assess their academic and emotional status in order to avoid pressing them to set academic goals that cannot be met. In any case, the academic press and expectations depict the educator responsibility to educate students about the importance of

academics and provide them with meaningful and challenging work that enhances their learning and potential. Also, educators should be consistent in holding students accountable for accomplishing or not their academic goals. When academic press and expectations are made and communicated to students through the learning process, they become self–aware regarding their abilities and responsible decision-makers as far as the learning goals and academic plans they make for their future education and career.

"Competence Building – Modeling, Practicing, Feedback, Coaching"

Competence Building refers to the systematic effort of educators to integrate the teaching of social–emotional skills into their teaching practices. This process is feasible through the implementation of the instructional cycle: lesson goals, introduction to new material, group work and conclusion. Each of the processes of this cycle is correlated with a teaching practice, leading to the promotion of S-E skills. The learning goals consist of the core S-E skills that accompany the unit to be taught. Following this, as educators introduce the new topic, they model a S-E attribute connected to it. This, for example, could be relationship management. Later on, as the instructional cycle unfolds the students may be asked to collaborate, forming cooperative groups. During this time, they practice the S-E attribute of relationship management. As cooperative learning occurs, the educators create opportunities for students to reflect on how effectively they implement the S-E attribute. This is facilitated by educator feedback, during and at the end of the cooperative session. Thus, through the implementation of the instructional learning cycle the educators assume the role of a "coach", in relation to guiding their students to successfully acquire the respective S-E competence.

2.3.3 Cooperative Learning

The previous chapter included the presentation and analysis of specific social–emotional teaching practices. The implementation of these practices, as presented in a summary list in table 4 of the previous chapter, enables the cultivation of S-E skills to students. This sub-chapter focuses on a specific S-E teaching practice, namely cooperative learning. As mentioned above during cooperative learning interventions students collaborate with their classmates in smaller or larger groups towards the successful completion of a collective goal. Cooperative Learning, as its name implies primarily facilitates the cultivation of relationship management skills. This is feasible through the collaboration and communication developed among the cooperative group members.

The purpose of this sub-chapter, in particular, is to provide the reader with a background of the different cooperative learning methods, in order to facilitate the understanding of this S-E teaching practice. Table 6 of this sub-chapter showcases the modern methods of cooperative learning as they were classified chronologically by Johnson & Johnson in their meta–analysis of cooperative learning methods (D. Johnson,R. Johnson, and Stanne, 2000). Apart from its presentation, each of the cooperative learning methods is further explained in this sub-chapter. The presentation and analysis of the cooperative learning methods are considered significant for the successful approach and understanding of the research goals by the reader.

Table 6: "Modern methods of cooperative learning" (D. Johnson,R. Johnson, and Stanne, 2000)

Researcher – Developer	*Date*	*Method*
Johnson & Johnson	Mid 1960s	"Learning Together & Alone"
De Vries & Edwards	Early 1970s	"Teams – Games – Tournaments" (abbreviated TGT hereinafter)
Sharan & Sharan	Mid 1970s	"Group Investigation"
Johnson & Johnson	Mid 1970s	"Constructive Controversy"
Aronson & Associates	Late 1970s	"Jigsaw Procedure"
Slavin & Associates	Late 1970s	"Student Teams Achievement Divisions" (abbreviated STAD hereinafter)
Cohen	Early 1980s	"Complex Instruction"
Slavin & Associates	Early 1980s	"Team Accelerated Instruction" (abbreviated TAI hereinafter)
Kagan	Mid 1980s	"Cooperative Learning Structures"
Stevens, Slaving, & Associates	Late 1980s	"Cooperative Integrated Reading & Composition" (CIRC)

Cooperative Learning Methods researched and developed during the 1960s

"Learning Together and Alone"

As the title of this method insinuates, this cooperative learning method also consists of other forms of instruction: competitive and individualistic learning. Depending on the social interdependence developed among the students, the primary form of instruction can be identified (Johnson D. & Johnson R., 2002). More specifically, when positive social interdependence among students is observed, then the primary form of instruction in the classroom is cooperative. In this case, positive social interdependence refers to the collaboration of the students in order to achieve a common group goal. It is characterized as positive because the successful completion of the cooperative task presupposes the progress and contribution of each and every team member. As a consequence, learning together as a practice, promotes positive social interdependence and collaboration among the students.

Learning alone works reversely, as it presupposes negative interdependence between students. This is explained since the students believe that they will achieve their goals if their classmates will not do so. Thus, as opposed to the collaboration, learning alone promotes a high degree of competition. Both of these characteristics are linked to the academic progress.

There is finally a third scenario, called individualistic learning. This is observed in a classroom with limited or no interdependence. In these situations, learning goals are related neither positively nor

negatively to others. The learner is an individual and there is no need to either cooperate or antagonize others in order to progress academically.

It is worth mentioning that the type of interdependence developed between the students of a classroom - positive, negative or none - affects student academic efforts, relationships, and psychological health (Johnson D. & Johnson R., 2002).

Cooperative Learning Methods researched and developed during 1970s

"Teams – Games – Tournaments (TGT)"

Teams – Games – Tournaments (TGT) is a cooperative learning method which consists of two core characteristics that explain its function; teams and tournaments (Slavin R. , 1980). According to Slavin, the educators using this method form teams usually of four or five students. These teams are grouped in ways that are heterogeneous, in terms of student ability, gender and nationality. Following the formation of the teams, the educators plan their preparation and practice in order to participate in learning tournaments. During the preparation process, students cooperate with their teammates, through material related to the tournament learning content. The tournaments take place once a week and students are placed in three-person tables so that the competition is equal. How is equality ensured through the tables and seating plans? The three highest achieving students in the last tournament are put in the same table, the next three in another table together similarly and so forth. Each of the students seated in a table represents their respective team during each tournament, and they are of an equal learning level with the rest of the students, who are also in the same table. The structure of the tournament tables ensures that each of the teammate contribution to the team is equal, as the highest achieving student from each table receives the same number of points for the team. To ensure the equal contribution, the tables are adjusted after each tournament. However, the team structure remains the same.

"Group Investigation"

This cooperative method emphasizes two aspects: collaboration and investigation. The cooperative groups are shaped based on student common academic interests. According to Sharan Y & Sharan S. (Sharan Y. & Sharan S., 1989), the method consists of six stages. The first of the stages can be characterized as explorative. Its goal is for the educators to define the context of the investigative topic and shape the cooperative groups. A broad topic is suggested in order for students to identify common academic interests and form their groups accordingly. The second stage focuses on planning the investigations. Students now work as groups along with educator guidance to specify their investigative group topic and focus on their research questions and methods as well. Stage three is related to conducting their investigation. Initially, at the beginning of this stage, students collect information from different sources and then they carry out their analysis, which is followed by conclusions and suggestions. Following successful completion of their investigation, stage four is related to the preparation of the final group report. This includes the outcomes of the investigation and ways that these can be effectively and clearly communicated during the presentation, which serves as the fifth stage of the method. The final step of the method is the collaborative evaluation of the presentations. This is feasible, as each group suggests two evaluative

questions based on their investigative topic. A final exam is designed, including all the questions, suggested by all the groups. Students are expected to respond to all but the questions related to their investigative topic.

"Constructive Controversy"

This cooperative learning method facilitates students to embrace one another's opposing arguments on a topic through reaching an agreement. Johnson D. & Johnson R. (Johnson D. & Johnson R., 2002) described in depth how constructive controversy functions. Initially, small groups consisting of four students are formed. Then, they are divided into two pairs. The first pair of the group is assigned the "pro–position" of the topic and the second pair the "con–position". Then, each pair gathers information in regards to the viewpoints of the defending topic and prepares a presentation. The goal of the presentation is to support their arguments and prove the opposing position as inaccurate. The final step of constructive controversy is the reverse of perspectives between the pairs. During this process, the pairs present the best possible case for the opposing position. It is the reverse of perspectives that allows both pairs to cooperate, reach an agreement and produce a synthesis of the best arguments adopted for each position. The ability to collaborate and resolve conflicting arguments is accompanied with cognitive and social outcomes. The gap between student different opinions is reduced, and the ability to empathize and resolve conflict, prepares them to undertake the position of future democratic citizens.

"Jigsaw Approach"

The Jigsaw Approach is based on cooperation between different group members. Its name is associated with its function and is similar to a puzzle. The classroom is divided into groups, which are assigned a different assignment for the same learning unit. Each student in the group is assigned a specific "sub task" which is part of the bigger group assignment. The goal is for students to collaborate with each other to achieve their individual and group goals. The final assessment consists of questions related to the tasks distributed to all students (Aronson, 2002). Thus, each piece of the "jigsaw group" is equal and important, while all the perspectives from the jigsaw collaborators are necessary for the successful completion of the "puzzle" (Aronson, 2002). The "Jigsaw Approach" requires that the students prepare their sub-tasks for their "jigsaw" group. Therefore "expert" groups are formed consisting of students who have been assigned the same sub task. In this way, they have the opportunity to prepare themselves, share knowledge and develop self-esteem and confidence before their contribution to the larger group, which could be extremely helpful for student learning and behavior.

"Student Teams - Achievement Divisions (STAD)"

According to Slavin (Slavin R. , 1980) the process of this cooperative learning method is similar to the one described as Teams – Games - Tournaments. Teams are formed in the classroom and consist of four students. One criterion which should be considered for the formation of the teams is heterogeneity. The difference between this method and Teams – Games - Tournaments is the replacement of games and tournaments with quizzes. Before the quizzes take place, students study cooperatively with their teammates. The grading system, implemented for the evaluation of the

quizzes, is called “achievement divisions”. According to this system, the six highest achieving students from the past quizzes are compared. The top scorer earns eight points for the team, the second best earns 6 points and so forth. Then, a comparison of the next six highest achieving students from the past quiz follows. The same grading procedure is kept, regarding the allocation of the points each member collects. This system ensures equity as students are compared only to classmates of similar ability level, while the teams are heterogeneous with respect to student ability.

Cooperative Learning Methods researched and developed during 1980s

“Complex Instruction”

Cohen E., Lotan R., Scarloss B. & Arellano A. (Cohen E., Lotan R.,Scarloss B.& Arellano A., 1999) describe how Complex Instruction works in a classroom. Complex Instruction is a cooperative learning method, mostly used in classrooms characterized by high academic and linguistic heterogeneity. Its primary goal is to maximize student engagement and interaction, as well as equal participation, despite the different levels of learning ability among the classmates. During the implementation of this method, students collaborate, by working together in small groups, towards the completion of creative tasks. These tasks are certainly related to the unit, topic and the course in which the method is implemented. Since the tasks are mostly creative, so that students are enticed to engage into the learning process, the educator role is critical for the successful completion of the tasks, especially in classrooms with high heterogeneity. This role includes a proactive mindset, in terms of designing task materials, and utilizes creative resources that facilitate student participation and collaboration. In addition, educators monitor the progress of cooperation among the members in order to ensure equal contribution and initiative from all students. If this is not met, then they plan the respective interventions, aiming to encourage low participation students to be active, through assigning them meaningful work related to their learning ability. The evaluation process is also very important to assess the learning outcomes and measures interdependence among the members. Cooperative groups report and present their final products to the rest of the groups. During these presentations, all the members of the group should participate. Role assignment may be assigned for participation purposes. Following the presentation, the groups continue to cooperate with one another following the same structure and they take up the same activities alternatively. When all groups are engaged in all the learning activities, a final test is designed by the educators to assess the academic outcomes.

“Team Accelerated Instruction (TAI)”

This cooperative method is a combination of individualized instruction and team learning. According to Slavin (Slavin R. , 1991) the formation of the teams must meet the same heterogeneous philosophy as described above in TGT and STAD. Depending on their achievement in placement tests, students form teams and work with their teammates on individualized material. While working on individualized material to ensure that this will be challenging enough for the learning ability level, teammates also collaborate in preparation for a weekly test. This is feasible, as the teammates cross check one another’s work based on answer sheets. During the weekly test, educators assign to specific students the role of the “monitor”. Each team has its own student

monitor who keeps track of the points collected from accurate answers. Team scores are determined by the average number of points that each team accumulates weekly. During the process of preparation, educators provide their support to students that seek guidance. TAI fits more in heterogeneous Math classes, in which the answers can more easily be cross checked.

"Cooperative Learning Structures"

This method is considered as the "structural approach" to cooperative learning (Kagan, 1989/1990). Educators implement cooperative structures. The term "structure" is described as a process with specific steps, which can be used repeatedly by educators, irrespective of the teaching course, the grade level, and the learning goals (Kagan, 1989/1990). A difference between a cooperative activity and a cooperative structure is that the first is designed and implemented based on specific content, while the latter can be implemented in a wide range of academic content (Kagan, 1989/1990). Specifically, cooperative structures are based on educational philosophies and tend to be developed as educators use them (Kagan, 1989/1990). Kagan (1985) supports that depending on the roles of the group members, the way they cooperate and communicate with each other, the role of the teacher, and the evaluation methods, different types of structures are observed (Kagan, 1989/1990). Famous cooperative structures are Jigsaw, STAD, and Group Investigation, which are analyzed in this sub-chapter.

One could question why there is such a diversity of cooperative structures. The answer is that each has a unique function and serves different purposes and learning goals (Kagan, 1989/1990). A comparison between two cooperative structures further explains this argument. In the structure of Group Discussion students are asked to cooperate in order to reach a consensus, while in the structure of the "Three – Step Interview" the goal is the development of reading and listening skills. These differences indicate the importance for educators to learn how to implement many cooperative structures. The more structures educators know how to implement the more learning goals can set through their use. As cooperative learning structures "differ in their usefulness in the academic, cognitive, and social domains" educators can choose which one to learn and implement by exploring the following questions (Kagan, 1989/1990):

- What cognitive and academic goals do I want to set in my classroom?
- What kind of social interactions do I want to establish in my classroom?
- How the structure is aligned with my lesson plan?

Answers to this question facilitate educators to choose the most appropriate structure in order to address both the academic and social – emotional aspect of students.

"Cooperative Integrated Reading & Composition (CIRC)"

According to Slavin (Slavin R. , 1991), this cooperative learning method is designed to enhance student reading and writing skills. Teams are formed, consisting of pairs of students from two different reading groups. Educators could work closely with one reading group, while the rest of the groups, working in pairs, are engaged in a number of reading and writing tasks. The final products must be cooperatively agreed upon the pairs, as activities such as predictions about the ending of

stories, writing responses and summarizing require that students collaborate in order to identify the highlighting points of each task and successfully complete it.

The next sub – chapter of this research presents and analyzes the correlation between social – emotional learning and academic achievement. This is considered important as it provides the necessary background for the exploration of how specifically cooperative learning impacts student academic performance, and which factors impact its own effectiveness, which is the main inquiry of the research.

2.4 Social – Emotional Learning and Academic Achievement

This subchapter analyzes the effect of S-E learning on student achievement. As cooperative learning - the investigative topic of this research study - is a S-E teaching practice, this subchapter provides scientific evidence to explore the relationship between S-E learning and student performance. More specifically, this subchapter explains the social–emotional, as well as academic outcomes from implementing S-E learning strategies in schools. Additionally, it investigates how S-E learning is associated with student motivation to learn, and why it is considered as the "enabling component" of academic success. In addition, it provides scientific evidence, proving that S-E learning interventions designed and implemented by school administration have had positive effects on student performance and analyzes particular S-E learning practices associated with higher academic achievement. Finally, characteristics of effective social – emotional programming are included in this chapter. These can be found in

Table 7.

S-L learning has been proved to positively impact student human aspects. These are related to social–emotional characteristics, which are developed through the development of student S-E skills. These skills are presented in Table 4 of this research study. However, apart from its positive effect on student S-E aspect, social-emotional learning has also been associated with improved school performance and there is scientific evidence which supports that S-E learning provides individuals with the motivation to become lifelong learners (Zins et al , 2007). On this context, Elias et al (1997) support that through the inclusion of S-E learning strategies in their mission, schools can be more successful (Zins et al , 2007). But how can that be achieved?

If we think of the nature of the learning process, then the explanation of this concept seems to be logical. The educational processes, as well as the learning process are primarily social. Students co-exist in the same learning environment, in and out of the classroom setting, and collaborate with each other as well as with their educators (Zins et al , 2007). This co–existence is accompanied with social interactions, the development of relationships, and the consequent surface of emotions. These emotions can positively or negatively impact student motivation for learning. When schools address the emotional aspect of the students, they impel them to recognize these emotions and the positive or negative impact they have on their academic progress. This could function as a preventative strategy, against the development of factors associated with low academic achievement such as lack of commitment, alienation, and dropping out (Zins et al , 2007). This is attainable through the proactive identification of emotions, responsible for raising these barriers to learning, which can be

successfully achieved through implementing S-E learning strategies in schools that specifically attend student social–emotional aspect.

Adelman and Taylor (2000) provide more evidence supporting the above statement. According to them, schools should not only focus on the fields of instruction and school management[12] to facilitate academic success, but also suggest that they should consider strengthening the S-E aspect of students in order to help them identify and address barriers to learning (Zins et al , 2007). This is considered to be the "enabling component", an important factor of academic success. This component enables students to understand the S-E context of the school and provides a foundation for the creation of positive learning environments (Zins et al , 2007). By integrating this component into instruction and school management, schools provide their students with better chances of achieving higher academic results.

There is much scientific evidence supporting that the correlation between S-E learning and academic achievement is positive. A number of researchers, including Feshbach & Feshbach(1987), DiPerna & Elliott (1999), Pasi, (2001)Haynes, Ben-Avie, & Ensign, (2003) support the viewpoint that "prosocial behavior[13] in the classroom is connected to positive intellectual outcomes" (Zins et al , 2007). In addition, "Cobb (1972), Wentzel (1993), Welsh, Park, Widaman, & O'Neil (2001), and Malecki & Elliott (2002)" claim that S-E learning can predict performance on standardized achievement tests (Zins et al , 2007). Hawkins, Farrington, & Catalano (1998) also agree with this view, proving that anti-social behavior recurs with low academic achievement (Zins et al , 2007). The question arising is how this relationship between S-E learning and improved academic achievement is explained. CASEL (2003) provides the explanation. Initially, S-E learning helps students develop S-E skills, as these have been presented in Table 4. The result of this is the cultivation of supportive and caring learning environments, composed of learners with developed S-E skills. The cultivation of these skills in a positive learning environment is associated with greater attachment and engagement in academics, as well as enhanced achievement in school and success in future life (Zins et al , 2007).

Taking into consideration that social-emotional learning positively affects student performance, school administrations have made a greater effort in implementing S-E interventions. Research conducted has measured the academic outcomes of these S-E learning interventions (Zins et al , 2007). CASEL (2003) reviewed 80 U.S academic programs and found that 34% of them included S-E learning practices integrated into the curriculum or instruction (Zins et al , 2007). More specifically "83% of such programs produced academic gains and 12% reported a positive impact on academic achievement, with not even having targeted addressing it", which provided evidence that S-E learning positively impacts academic achievement. In addition, "Wilson and colleagues (2001) through their meta–analysis of 165 published studies, concerning the outcomes of school–

[12] School management: The term management includes the fields of planning and budgeting, organizing and staffing, in terms of the school organizational structure and resources allocation, and controlling and problem solving, through monitoring the consistency of achieved results with previous plans (Kolodziejczyk, 2015)

[13] Prosocial Behavior: Behavior intended to benefit another (The Social Neuroscience of Empathy, 2009)

based prevention programs[14] had a positive effect on reducing dropouts and improve attendance - two determining factors of academic success" (Zins et al , 2007). In the same context, "the U.S Department of Health and Human Services (2002) reported that school–based prevention programs resulted in the achievement of higher grades, test scores, graduation rates, grade point averages, and improved Reading, Math and Writing skills" (Zins et al , 2007).

Research has also explored specific S-E practices associated with higher academic achievement. According to Osher, Dwyer, & Jackson (2002) and CASEL (2003) one of these practices is the design and implementation of curricula, attending aspects such as substance abuse or bullying (Zins et al , 2007). To that context, the regular academic curriculum should be enriched with S-E skills so both co-exist and translated into competences to students (Zins et al , 2007). Specifically, S-E competences related to goal–setting and problem–solving, if cultivated effectively through the curricula, can improve student behaviors, ensure their academic motivation, even used in a wide variety of courses, leading to better academic achievement (Zins et al , 2007).

Another social – emotional practice with a positive impact on academic achievement discussed by Hawkins is the creation of caring learning environments. This term includes a classroom environment which is safe, academically challenging according to student needs and provides opportunities for improvement through reinforcement (Zins et al , 2007). Learning in such environments, students feel more engaged, comfortably ask for help and feedback, as well as increase their efforts to achieve higher results as per the expectations having been set by the educators. Caring learning environments also include a proactive behavioral management adopted by educators, an approach that fosters a more orderly atmosphere, appropriate for learning (Zins et al , 2007).

Social–emotional teaching practices are also interrelated with higher academic achievement. Johnson and Johnson support this through research on cooperative learning (Zins et al , 2007). More specifically, learning that occurs through this S-E teaching practice not only motivates students to be actively engaged in the learning practice, as they learn from one another, but also facilitates in the development of skills such as negotiation, conflict resolution and the promotion of a peer culture supportive to achieving the team goals and, therefore, enhances academic results (Zins et al , 2007).

Last but not least, engaging students in service – learning projects, carefully designed to be aligned with the regular academic curriculum and including meaningful community service can lead to improved school behaviors and the creation of a school climate conducive to learning (Zins et al , 2007) As mentioned above, a caring and orderly classroom environment is associated with higher academic achievement.

[14] Prevention Programs: "Prevention typically consists of methods or activities that seek to reduce or deter specific or predictable problems, protect the current state of well-being, or promote desired outcomes or behaviors" (U.S. Department of Health & Human Services & Administration for Children & Families).

Table 7summarizes specific characteristics of social–emotional learning programming considered to be effective. It is concluded that S-E learning can thrive only if it is well–organized, research-based and detailed–oriented, defined by a wide variety of interventions and practices. Additionally, it needs to be directly connected to academic outcomes, depending on the respective curricula learning goals, to address S-E dimensions of learning in order for students to develop both socially and emotionally. Parental involvement should also be taken into consideration for the design and implementation of effective S-E programs, to ensure alignment between the S-E skills promoted at home and learned at school. Finally, the evaluation system, which will be assessing the outcomes, is critical for continuous improvement to be taken place.

Table 7: "Effective Social – Emotional learning programming" (Zins et al , 2007)

Carefully Planned, Theory and Research Based
• Organized systematically to address identified local needs. • Based on sound theories of child development, learning prevention science, and empirically validated practices. • Implementation monitoring and program evaluation incorporated during planning process.
Teaches SEL Skills for Application to Daily Life
• Instruction in broad range of social–emotional skills, knowledge, and attitudes. • Personal and social applications encourage generalization to multiple problem areas and settings. • Helps develop positive, respectful, ethical attitudes and values about self, others, work, and citizenship. • Skills include recognizing and managing emotions, appreciating different perspectives, setting positive goals, making responsible decisions, and handling interpersonal interactions effectively.
Addresses Affective and Social Dimensions of Learning
• Builds attachment to school through caring, engaging, interacting, cooperative classroom, and school–wide practices. • Strengthens relationships among students, teachers, other school personnel, families, and community members. • Encourages and provides opportunities for participation. • Uses diverse, engaging teaching methods that motivate and involve students. • Promotes responsibility, cooperation and commitment to learning. • Nurture's sense of security, safety, support, and belonging. • Emphasizes cultural sensitivity and respect for diversity.
Leads to Coordinated, Integrated, and Unified Programming Linked to Academic Outcomes

- Offers unifying framework to promote and integrate social – emotional and academic development.
- Integral aspect of formal and informal academic curriculum and daily routines (e.g., lunch transitions, playground, extracurricular).
- Provided systematically to students over multiple years, prekindergarten through high school.
- Coordinated with student support services, efforts, including health, nutrition, service learning, physical education, psychology, counseling, and nursing.

Addresses Key Implementation Factors to Support Effective Social and Emotional Learning and Development

- Promotes a safe, caring, nurturing, cooperative, and challenging learning environment.
- Monitor's characteristics of the intervention, training and technical support, and environmental factors on an ongoing basis to ensure high – quality implementation.
- Provides leadership, opportunities for participation in planning, and adequate resources.
- Institutional policies aligned with and reflected SEL goals.
- Offers well–planned professional development, supervision, coaching, support, and constructive feedback.

Involves Family and Community Partnerships

- Encourages and coordinates efforts and involvement of students, peers, parents, educators, and community members.
- SEL – related skills and attitudes modeled and applied at school, home, and in the community.

Design Includes Continuous Improvement, Outcomes Evaluation and Dissemination Components

- Uses program evaluation results for continuous improvement to determine progress toward identified goals and needed changes.
- Multifaceted evaluation undertaken to examine implementation, process, and outcome criteria.
- Results shared with key stakeholders.

The next sub – chapter focuses on specifically explore how cooperative learning; a S-E teaching practice facilitates academic achievement. As cooperative learning effectiveness is the main investigative topic of the research, the following sub – chapter offers the scientific background supporting that cooperative learning impacts student academic achievement.

2.4.1 Cooperative Learning and Academic Achievement

The previous chapter included scientific evidence of effective social emotional programming. The purpose of this presentation and analysis was to showcase that social – emotional policy and learning, when designed appropriately they facilitate student academic achievement. This chapter focuses specifically on one social emotional teaching practice, which is the main investigative notion of the research, cooperative learning.

A great body of literature supports the scientific argument that cooperative learning positively impacts academic achievement (Slavin R. , Hurley E., Chamberlain A., 2003). Even though researchers have reached a general consensus regarding this viewpoint, they have not yet agreed on the reasons which explain why cooperative learning affects student achievement. This argument has been supported by four major theoretical perspectives. These are identified, presented and analyzed by Slavin (Slavin R. , Hurley E., Chamberlain A., 2003). Specifically the four perspectives that have been suggested by research and justify the positive effect of cooperative learning on academic achievement are: "the motivational perspective, the social–cohesion perspective, the cognitive perspective, and the cognitive elaboration perspective". This sub-chapter includes the presentation and analysis of each of these perspectives.

The Motivational Perspective

The title of this perspective includes the key word for its content and meaning: "motivation". Specifically, the founders of this perspective – "the motivanionalists" - support the argument that for cooperative learning to be effective, resulting in academic achievement, students should be engaged in learning to achieve a group goal. However, the attainment of this common goal must be accompanied by the meaningful contribution of each and every member of the cooperative group. This way the members, in terms of completing their task, will not achieve any individual rewards if their group as a whole is unsuccessful. Striving to attain a group goal, along with equal engagement and contribution provides students with the required motivation to assume roles, including guide, support and encourage other members of the group, since their own individual goals are interrelated and affected by the effort and performance of the rest. This collaboration between the members, geared toward the achievement of the group goal, is the factor that allows student academic achievement, as teammates encourage, help and reinforce one another to maximize their own academic effort and results, since these are connected to the group's same goals.

The attainment of the group goals is considered to be a factor of a great importance, in regards to effective cooperative learning. Therefore, educators who establish the learning goals of the cooperative groups should take into account that these must address the learning needs of each and every member, in order to ensure that all learners are able to participate and contribute. Should this parameter be neglected, then it is highly possible that the group goal will not be met, and thus cooperative learning will not be accompanied with improved academic performance. The evaluation process that educators implement could be an effective way to assess the effect of cooperative learning on all member academic achievement. Creating an assessment, to be taken by group members individually, ensures proper collaboration, preparation and contribution among the group members. Again, how is this feasible? During their preparation as a group for the completion of this assessment, students are motivated to encourage and support the rest of the team members as their progress on the assessment affects performance collectively. On the contrary, when the assessment is focused on evaluating the final group product, the honest academic growth, performance, contribution, and learning of each member is not ensured.

The Social – Cohesion Perspective

Researchers supporting that the social–cohesion perspective is the reason of effective cooperative learning argue that group cohesion is the factor enabling student academic achievement. It is well understood that in a cooperative group, in which students have to collaborate with each other towards achieving a common goal, it is reasonable that they will be interacting with one another. Group cohesion largely depends on the quality of these interactions. The extent to which members help, guide, and encourage their teammates is the factor, which determines if cohesion is developed in the group. While, in the motivational perspective, these interactions derive from each member desire to succeed as an individual learner, in the social–cohesion perspective, members are motivated primarily by group progress rather than their own success. Therefore, in the social–cohesion perspective the academic achievement is facilitated by the sense of care and interest for the cooperative group progress, mainly because of the cohesion developed among the members.

Since cohesion among group members is essential to be developed in order for academic outcomes to accompany cooperative learning, researchers have suggested specific interventions towards achieving it. These interventions include but are not limited to: the implementation of team–building activities[15], group processing activities[16], and group self–evaluation before, during and after the completion of the cooperative tasks. Additionally, there are cooperative learning interventions, such as the jigsaw approach, which facilitates the development of cohesion between the members as the group goal is interdependent, and each member contribution is critical. Therefore members strive to help and guide each other, and a sense of care is developed for the progress of the group, as well as attainment of the common goal.

Cognitive - Developmental Perspective

Research supporting the cognitive–developmental perspective, suggest that the positive effect of cooperative learning on academic achievement is associated with the mental function of information processing. More specifically, following the formation of the cooperative groups, teammates approach learning and knowledge collaboratively, interacting with one another. These interactions are developed among students of the same proximal zone of development. Specifically, peer communication according to this perspective is the main reason enabling student academic achievement. Peer communication has been found to enhance cognitive processes[17] such as verification[18] (Slavin R. , Hurley E., Chamberlain A., 2003). In addition, it facilitates "discovery learning and creative thinking, while peer interaction introduces students to the process of generating ideas" (Slavin R. , Hurley E., Chamberlain A., 2003).

[15] Team building activities: "Activities that focus on improving the process and work of the team" (Hastings et al, 2018)

[16] Group processing activities: "Exercises supporting educators and students to develop group cohesion and engagement" (University of Michigan, 2021).

[17] Cognitive Processes: "Any mental function involved in the acquisition, storage, interpretation, manipulation, transformation and use of knowledge" (American Psychological Association, 2021)

[18] Verification: "The process of establishing the truth or accuracy. Specifically, the use of empirical data to test or support the truth of a statement" (American Psychological Association, 2021)

Furthermore, supporters of this perspective suggest that academic achievement is also facilitated through cognitive conflicts, which arise between the peers, as they discuss and provide reasoning to support their different viewpoints. Through successfully resolving their disagreements in an effort to achieve a common goal, learning of a higher quality occurs, because of the adequate explanation and reasoning each of the group members provides to support the respective arguments. Opportunities for students to present, support, approve, disapprove, justify and reach agreements with their peer teammates are the fundamental elements of effective cooperative learning, in regards to academic achievement according to the cognitive–developmental perspective.

Cognitive - Elaboration Perspective

Researchers supporting the cognitive–elaboration perspective suggest that cooperative learning is connected to academic achievement because of learner engagement in a cognitive restructure[19] or elaboration. This argument has been supported by the field of Cognitive Psychology and it is related to the way information is stored in our memory. Specifically, the process of elaboration during cooperative learning is developed, while team members provide one another with explanations, regarding their arguments and cooperative tasks. Depending on the nature of these explanations, the group members assume different roles. For example, those who provide the explanations assume the role of tutor whereas those who are given the explanation assume the role of the tutee. Irrespective of their roles, either as tutors or tutees, during cooperative learning the process of elaboration enables achievement benefits.

While the explanations are considered as a form of cognitive–elaboration, students can assume other roles that also engage them in a cognitive restructure. For instance, the roles of the "recaller" and the "listener" are also considered as forms of cognitive–elaboration, during cooperative learning. In a cooperative group, the main task of the "recaller" is to summarize the information related to the cooperative task, while the "listener" carefully monitors the process and thoroughly checks for any mistakes or omissions from the "recaller". Cognitive-elaboration also takes place, when students evaluate each other, providing and taking feedback for their work, inside their groups.

In the cognitive–elaboration perspective academic achievement of students can be maximized if the roles of the members are reversed in order for the learners to assume different roles, and achieve their cognitive restructure in many different ways and perspectives,

2.4.2 Factors impacting Cooperative Learning Effectiveness

The previous subchapters included scientific proof suggesting that social–emotional learning, as well as cooperative learning, which is part of it, have a positive effect on student academic achievement. Researchers have been reached a general consensus concerning this argument. However, research suggests that there are also specific factors that impact cooperative learning effectiveness. These factors are related to the formation of the groups, and the implementation of cooperative learning interventions. These factors are presented and analyzed in this subchapter. This is a critical subchapter for this research project, as the same factors are included in the questionnaire and are investigated in the chapter of "Analysis", "Discussion" and "Suggestions". This sub-chapter begins with the presentation and analysis of the different types of cooperative groups, in order to facilitate reader understanding of the factors impacting cooperative learning effectiveness, specifically associated with the formation of the cooperative groups.

[19]Cognitive Restructure or Elaboration: "Technique which is used in cognitive therapy intended to identify the client self-defeating beliefs or cognitive distortions, refute them, and then modify them so that they are adaptive and reasonable" (American Psychological Association, 2021).

"Cooperative Group Types"

Based on their characteristics, effects and implementation cooperative groups are classified into four types: "team learning, expert groups, collaborative task completion, and collaborative problem solving or investigation" (Nastasi B.and Clements D., 1991).

"Team Learning"

"Team Learning" is the group type in which students are organized and divided into different teams. As for the cooperative implementation process, teammates collaborate with each other, preparing themselves as a team for a later evaluation. Individual member performance is evaluated for the final group reward. Research studies have proved that this type of cooperative group can positively impact both student academic and social development because it is associated with improved motivation towards the learning tasks. Additionally, the evaluation method based on individual accountability results in attending "student minorities", in terms of their level of ability, since each of the teammate contribution is important for the success of the group. "Team Learning" groups are appropriate for Elementary, Middle School, and High School students. Cooperative learning methods, which were analyzed above and utilized "team learning" groups, are STAD, TGT, and TAI.

"Expert Group"

"Expert Group" is the group type, in which students aim to specify their knowledge, by researching a specific field, in order to present their outcomes to the rest of the classroom or another bigger group. The evaluation method of the "expert group" type includes all the aspects that each of the "expert groups" research. However, this group type does not evaluate student individual accountability exclusively, as the final group product could also be assessed at the educator discretion. The "expert group" type has been linked to academic achievement as well as social outcomes. It is appropriate to be implemented both in primary and secondary grade levels. One of the Cooperative learning methods, which were analyzed above and utilized the "expert group" type, is the "Jigsaw approach".

"Collaborative Task Completion"

"Collaborative Task Completion" is the group type, in which students following the formation of the groups are assigned a group task. Based on the final product of this group task, the members of the group are evaluated and rewarded. Thus, "Collaborative Task Completion" does not include individual accountability, and each student contribution is not assessed. Following the formation of the groups and the assignment of the task, students are responsible to decide on the method they will adopt in order to accomplish their goal. This group type has been also associated with academic and social outcomes, through increasing student learning motivation and improving relationships in the classroom respectively. "Collaborative Task Completion" is used primarily on primary rather than secondary grades. One of the Cooperative learning methods, which were analyzed above and utilized the "Collaborative Task Completion" type, is the "Learning together".

"Collaborative Problem Solving or Investigation"

"Collaborative Problem Solving or Investigation" is the group type, in which students cooperate in order to identify solutions to problems and investigate topics, either selected by them or assigned by the educators. A main characteristic of this group type is the great level of responsibility that learners assume for the completion of group tasks. According to research, this group type enables the development of student "higher–order skills, such as critical thinking". Thus, "Collaborative Problem Solving or Investigation" has been also associated with benefitting student academic achievement and their interpersonal relationships. Implementation of this group type is appropriate primarily in Social Studies courses, as well as Math and Computer Sessions in Primary and Secondary grade levels because these specific course categories allow room for problem solving tasks, as well as more detailed investigation and research of topics. One of the Cooperative learning methods, which were analyzed above and utilize this group type, is "Group Investigation".

The common characteristic among the four types of cooperative groups is collaboration among their members in order for them to reach the respective learning goals. These are certainly different every time depending on the cooperative methods used by educators. However, apart from deciding which cooperative learning method will be applied educators are also called upon to decide on factors related to the formation of the cooperative groups as well as the implementation of cooperative learning. Concerning the factors related to the formation of the groups, these include: the size, the level of student ability, gender, nationality, age, personality, and level of social skills. Concerning the factors related to the implementation of cooperative learning, these include: the assignment of roles to the group members, the duration of the cooperative sessions, the use of extrinsic rewards, and the form of instruction, the teaching of social skills, classroom environment, and the evaluation methods that educators apply. This subchapter includes the presentation and analysis of each of these factors.

Group Formation Factors

Size

While the educators form their cooperative groups, they have to decide on their size, which according to research is a factor that impacts cooperative learning effectiveness. In the presentation and analysis of the cooperative learning methods, one notices that the size of the cooperative groups varies, depending on the cooperative intervention implemented by the educators. There are groups organized in pairs, while others are smaller groups, ranging from four (4) to five (5) students. Slavin (1986), Yackel et al, in press suggest that smaller groups positively impact academic achievement (Nastasi B.and Clements D., 1991). Johnson D. et al (1981) support the same argument. His meta–analysis, in which groups ranging from two (2) to six members (6) are compared, proves that cooperation was greater with smaller group size (Nastasi B.and Clements D., 1991). The conclusion from these findings is that the smaller the group the greater the academic achievement is. In such groups, student participation and contribution is increased. Researchers suggest that when the size of the groups is investigated as a factor of cooperative learning effectiveness, the student level of ability must also be taken into account. Peterson et al (1981) argues that small groups – up to four (4) students benefited high and low ability level students and large groups – up to twenty (20)

students – were more effective to medium – ability level students (Nastasi B.and Clements D., 1991).

Level of Ability

Before educators form their cooperative groups, they have to decide whether they will shape homogenous or heterogeneous groups, in terms of student level of ability. Research on cooperative learning has not yet provided a definite suggestion regarding this factor, in regards to its impact on cooperative learning effectiveness. Despite this, a great body of the literature suggests that heterogeneous groups, in terms of level of ability, have been found to be more effective for low, medium, and high level ability students. (Nastasi B.and Clements D., 1991). Johnson D., Johnson R., Pierson, & Lyons, (1985) found that high ability level students included in heterogeneous groups with medium – and – lower level ability students still produced high academic achievement (Nastasi B.and Clements D., 1991). This is explained, through the active role they assume in the group, through explaining concepts to lower ability level students. At the same time, low ability level students also benefit from heterogeneous groups, through their interactions with higher ability level students due to the feedback, guidance, and clarifications they receive from them. Nijof & Kommers (1985) argue that the reason heterogeneous groups, in terms of student level of ability facilitate their member academic achievement is that they are forced to expose themselves to a wider range of perspectives and arguments, through the processes of communication, explanation and reasoning (Nastasi B.and Clements D., 1991).

On the other hand, researchers argue that heterogeneous groups, specifically medium ability level students, did not academically fare. This is easily explained, as they struggle to find their role and contribute to a group of low and high ability level students, whose roles are clearer. Webb, (in press) provides further explanation on this matter. According to his research, high and low ability level students that coexist in heterogeneous groups assume the roles of the teacher and student respectively. As a result, medium ability level students are unable to identify their role, and their interactions with the rest of the members are limited (Nastasi B.and Clements D., 1991). From this argument, it can be concluded that heterogeneous groups are more effective when they are composed of low and high ability level students (Nastasi B.and Clements D., 1991).

Gender

A classroom environment consists of male and female students. While educators form their cooperative groups, they have to decide whether these will be homogenous or heterogeneous in terms of student gender. Additionally, another parameter to be taken into account when mixed gender groups are formed is the equal representation of each gender in the group. This factor has been found to impact cooperative learning effectiveness. Webb (in press) supports that balanced groups, in terms of the number of male and female members led to higher academic achievement than unbalanced (Nastasi B.and Clements D., 1991). He claims that in unbalanced mixed gender groups, male students tend to receive more help than female and their performance was also higher due to this factor (Nastasi B.and Clements D., 1991). In addition, single gender groups, consisting either only by male or female students have been found discouraging for student competition and conflicting on cooperative tasks. These factors impact cognitive growth negatively in this case, and

thus do not facilitate academic achievement (Nastasi B.and Clements D., 1991). Apart from the academic outcomes, Slavin (1985) also supports the argument that mixed gender groups positively impact relationships between male and female students, as it has been found to result in improved behaviors (Nastasi B.and Clements D., 1991). Should heterogeneous gender groups be formed, educators need to monitor member interactions carefully, especially when representation of each gender is not equal to ensure effective collaboration and appropriate behaviors.

Age

It is a common phenomenon student of different ages to coexist in the same learning environment. There is scientific evidence that multi – age cooperative groups facilitate student academic performance. Specifically, according to "D. W. Johnson, R. T. Johnson, Pierson, & Lyons (1985)" such groups have been associated with increased efficacy and motivation for leaning (Nastasi B.and Clements D., 1991). Additionally, another argument that support this view and it has been supported by Nijof & Kommers (1985) is that multi – age cooperative groups offer the opportunity for a greater diversity of arguments and knowledge to be expressed and this can result in better communication as student will provide explanations and reason to support their perspectives (Nastasi B.and Clements D., 1991). Therefore, based on scientific proof cooperative groups, consisting of students of different ages are associated with improved academic achievement.

Nationality

As people have the ability to relocate in other counties easily nowadays, it is a frequent phenomenon, students of different nationalities to coexist in the same classroom. In classes with students from different racial and ethnic backgrounds, cooperative learning is associated with academic gains, according to Slavin & Oickle (1981) (Nastasi B.and Clements D., 1991). Researchers support the argument that groups consisting of students of different nationalities are more effective, in terms of facilitating student academic achievement, rather than those which consist of students of the same nationality. Although their academic outcomes have been highlighted by the researchers, they have been also found to be effective in the social field. Specifically, this kind of groups facilitates the cultivation of respectful relationships between students coming from different cultural backgrounds. This could be considered as a critical factor for the creation of a classroom environment conducive to learning. The social outcomes of the groups consisting of students of different nationalities have been supported in various research studies including Johnson's D. & Johnson's R. (1985b), Slavin (1985a), Slavin & Hansell, (1983) (Nastasi B.and Clements D., 1991).

Personality

Educators, while forming the cooperative groups also have to take into consideration the personality aspect of students in order for them to be able to collaborate harmoniously and effectively. Student personality is considered a group formation factor, which impacts cooperative learning effectiveness. Specifically, Webb (in press) argues that students with more extroverted personality characteristics might receive more help than those who are more introverts. This is explained, as extroverts have the ability to express themselves more comfortably and seek for guidance when

they need it from other members of their group (Nastasi B.and Clements D., 1991). Kurth (1988) also explains that students, who could be characterized as assertive, in terms of the way they communicate and collaborate with others, tend to assume leadership roles in the group, and, as a result, dominate group interactions (Nastasi B.and Clements D., 1991). On the contrary, introverts might find it difficult to participate and engage into group interactions because of this personality characteristic. Educators must be aware of monitoring the roles they assign in the groups, as well as encourage and guide members to actively participate and equally contribute to the cooperative group tasks.

Level of Social Skills

Students depending on their age possess specific social skills. Social skills are considered as the abilities that allow students to collaborate, help, share, guide, and assume different roles into a group, which consist of different personalities. The consideration of student social skills level, for the formation of the cooperative groups, is a factor which influences cooperative learning effectiveness (Nastasi B.and Clements D., 1991).

Implementation Factors

Role Assignment

The assignment of roles to group members is a method that educators use in order to ensure student individual accountability for the final group product. Individual accountability is the key practice to assess each of the member equal participation and contribution to the group. The roles assigned to students should be interdependent, meaning that all individual contributions must be essential for the attainment of the group goal. Interdependent roles, facilitating student individual accountability for the group task have been found to benefit cooperative learning effectiveness (Nastasi B.and Clements D., 1991)

Duration

The duration of cooperative learning interventions impact their effectiveness. Duration varies as there are a number of factors that affect educator decisions regarding this matter. Specifically, these factors are: the rigorousness of the learning material, student ability level, and the necessary amount of practice to assess the cognitive growth[20] of the group members (Nastasi B.and Clements D., 1991). Depending on these factors, the duration of the cooperative interventions which have a positive effect on academic achievement varies. In that context, Johnson D. & Johnson R. (1985b) suggests that academic gains were produced from sessions lasting between fifteen to ninety minutes and cooperative methods from a day to nine months.

Extrinsic Rewards

[20] Cognitive growth: The development of “thought process”, including “remembering, problem solving, and decision – making (Encyclopedia of Chlidren's Health, 2021)

Educators often use extrinsic rewards to increase student motivation to learning. Extrinsic rewards, such as grades, prizes, certifications have been investigated by research studies as a factor impacting cooperative learning effectiveness. The findings of the research have been conflicting. A body of studies suggests that extrinsic rewards are required for improved learning and performance. This argument is supported by Slavin (1986) and by a number of studies conducted in classrooms, adopting traditional teaching methods such as competitive and individualistic (Nastasi B.and Clements D., 1991). However, there are also studies conducted in classrooms, in which educators adopt the cooperative teaching methods as a primary form of instruction. In these classrooms, according to the findings, academic gains come from student interactions and conflicting viewpoints. Therefore, they support that the use of extrinsic rewards is not required for cooperative learning methods to be effective when the primary form of instruction is cooperative (Nastasi B.and Clements D., 1991).

Form of instruction

The educators may choose to implement either an individualistic, or competitive, or cooperative teaching approach. Others might use mixed methods. There has been controversy regarding the use of the cooperative form of instruction as a primary form, in terms of facilitating academic achievement. Cooperative instruction as a term refers to a collaborative instructional approach, which is mostly expressed through the use of cooperative groups. A collaborative orientation reduces the role of educators as didactic instructors (Nastasi B.and Clements D., 1991). However, a body of research suggests a combination between cooperative, competitive and individualized teaching approaches. Peterson & Fennema (1985) support this argument due to the wide range of student types one can find in a classroom (Nastasi B.and Clements D., 1991). Indeed, student population includes students with different levels of ability, nationality, personality, age, and gender. Thus, it cannot be ensured that all students will welcome an exclusive cooperative instructional approach. Therefore, the effectiveness of cooperative learning methods might be questioned when cooperative instruction completely disregards the competitive and individualistic ones, especially in highly heterogeneous classrooms. Johnson D. and Johnson R. (1983) support this argument, suggesting that the combination of the three structures ensure the attainment of all student needs (Nastasi B.and Clements D., 1991).

Teaching of Social Skills

While educators implement cooperative learning interventions, the need of teaching social skills to the group members might arise, depending of the level of the social skills the students possess. A body of researchers including “Johnson D. et al (1983), Lew, Mesch, Johnson D. & Johnson R. (1986)” supports that social skills should be taught as part of the cooperative learning interventions (Nastasi B.and Clements D., 1991). Thus, they argue that this process should be included in the process of planning the respective cooperative intervention.

On the contrary, Yackel et al (in press) argue that social skills should be developed only if need be (Nastasi B.and Clements D., 1991), especially during group discussions and investigations. The need of teaching social skills is required when students are asked to solve conflicting problems through analyzing their perspectives**.** Finally, Yager, Johnson R., Johnson D., & Sinder (1986)

suggest that the decision or not to integrate the teaching of social skills in the cooperative learning interventions must be made by educators taking into account the cooperative groups dynamics (Nastasi B.and Clements D., 1991). Therefore, when the level of social skills of each group member, as well as of the group as a whole is assessed prior to their formation, the teaching of social skills during cooperative learning interventions has been found to lead to improved academic achievement. Educators need to take into consideration the level of their students in terms of social skills before the grouping occurs; otherwise, the need for teaching social skills will come up along the implementation of the respective cooperative learning method.

Classroom Environment

Depending on their form of instruction, educators create a learning environment. Specifically, educators who use a collaborative approach act as facilitators of learning and promote a collaborative classroom environment, in which students should approach learning experiences with a cooperative mindset through mutual constructed experience. Additionally, educators should encourage students to actively engage in the learning process, introduce topics and initiate "action". According to "Clements (1990), Emihovich & Miller (1988), and Yackel et al (in press)" through their active participation and engagement student higher–order cognitive processes[21] are developed, while educators provide them with the necessary guidance to build new knowledge cooperatively. Educators that design and implement cooperative learning in their classrooms are not directors of learning, but mediators and facilitators (Nastasi B.and Clements D., 1991).

Evaluation Methods

The evaluation system that educators implement to assess the learning outcomes of the group members, as well as the completion of the group goal is considered as a factor impacting cooperative learning effectiveness. Slavin (1986) supports that individual accountability is an essential aspect of effective cooperative learning (Nastasi B.and Clements D., 1991). Assessing the individual accountability of each group member has been proved to result in higher academic performance rather than the assessment of the final group product (Nastasi B.and Clements D., 1991). Additionally, when cooperative groups are heterogeneous in terms of student ability level, the evaluation system should be based on measuring each student's improvement rather than focus on the grade itself. An evaluation based only on the standardize test grade might prevent higher ability level students participate, as they might feel that their grades will be negatively affected by the poor performance of lower ability students (Nastasi B.and Clements D., 1991).

2.5 Reflections

It is concluded that cooperative learning is a social - emotional teaching practice, which leads to social, as well as academic outcomes. Educational Systems, which intend to promote holistic education, can utilize cooperative learning, as it has been proved to be effective, in respect of

[21] High-Order Cognition: A complex area of thinking which refers to the mental processes of reasoning, decision making, creativity, problem - solving, learning, and thinking creatively (IGI Global, 1998).

facilitating student academic achievement. As there are different cooperative learning interventions and specific factors that impact its effectiveness, these are explored in the next chapters in an educational setting, which adopts the holistic education paradigm, and implements social – emotional teaching practices and programs. The purpose is to identify these factors, that when addressed cooperative learning can maximize student academic achievement.

3. Methodology

3.1 Introduction

This chapter includes a presentation and analysis of the research goals of the project, as well as the methodology that has been applied for their investigation. The sub – chapter "Methods" allows for explanation and justification regarding the applied methodological approach, and how this serves the investigation of the research goals. As this research project is a case study, its advantages and disadvantages are also analyzed. Further, this chapter also includes information about the instrument, used for data collection. Finally, characteristics of the sample are presented and analyzed in the respective sub – chapter.

3.2 Research Goals

The research goals of this study were the determining factors for the selection of the applied methodology, which is analyzed in the next sub – chapter. Table 8, offers a synopsis of the research goals, including their research focus, which facilitated their investigation, as well as the methods used for their analysis. It is observed from this table, that this study focuses on three goals, which are related to cooperative learning effectiveness. In this sub - chapter, these goals are further analyzed, in an attempt to provide more information about the reasons they were investigated, and the selection of the respective methods, which supported their investigation.

Research Goal 1

The first goal of this research is to present and analyze data associated to students' grade point averages in specific educational grade levels, as well as teaching course categories. The common practice between each course category is the implementation of cooperative learning by all educators the data was collected. Since, the examined educational institution is consisting of educators that all integrate cooperative learning methods in their instructional approach the purpose of the first research goal is to identify factors impacting cooperative learning effectiveness, connected to the educational grade level which educators teach, and their course category. Specifically, the two educational grades examined are; Middle School and High School, and the course categories: Languages, Mathematics, Sciences, Arts and Social Sciences, and Physical Education Classes. The purpose is to identify in which educational grade level and course category cooperative learning is implemented more effectively, in terms of benefiting students' academic achievement. The method used for the investigation of the first research goal is descriptive statistics, and the purpose is to explore if there is indication that the abovementioned educational grade levels and course categories impact cooperative learning effectiveness.

What is the significance of such information and analysis in this study? As the purpose of the study is to investigate factors that impact cooperative learning effectiveness, in terms of students' academic achievement such data is important in identifying how the educational grade levels – Middle School and High School - and course categories – Languages, Mathematics, Sciences, Arts & Social Sciences, Physical Education Courses, impact cooperative learning effectiveness. A detailed statistical analysis of the grade point averages of the students for the first quarter of the 2020 – 2021 academic year, serves as a feedback for educators, and principals in order to improve

and promote the practice of cooperative learning in the school, not only as a a social – emotional instructional method, but also as an effective teaching practice, in terms of facilitating students' academic achievement.

Research Goal 1 Focus

As stated above, there are two factors that will be assessed in order for this research goal to be investigated; two educational grade levels –Middle School and High School, as well as five course categories: Languages, Mathematics, Sciences, Arts & Social Sciences, and Physical Educational Courses. Depending on the findings of the research in these two areas, it will be determined if there is indication that are factors that impact cooperative learning effectiveness. Both factors are presented and analyzed below.

Educational Grade Level

What does data "say", regarding the impact of the educational grade levels of Middle School and High School on cooperative learning effectiveness? Does cooperative learning facilitates the academic achievement of middle school or high school students more? Is there an indication that this is a factor that impacts cooperative learning effectiveness? Presentation and analysis of the data, concerning the grade point averages of Middle School and High School students in the first quarter of 2020 – 2021 academic year attempt to explore these questions.

Course Category

What does data "say", regarding the impact of the course categories of Languages, Mathematics, Sciences, Arts and Social Sciences, and Physical Education Courses, on cooperative learning effectiveness? Is there an indication that a specific course category from the abovementioned enables students' academic achievement more? Presentation and analysis of the data, concerning the grade point averages of Middle School and High School students in the first quarter of 2020 - 2021 these course categories attempt to explore these questions.

Research Goal 2

The second goal of this research is to present and analyze data which depict specific educators' selections - teaching in Middle School and High School - regarding cooperative group formation factors, which impact cooperative learning effectiveness. Since, the examined educational institution is consisting of educators that all integrate cooperative learning methods in their instructional approach, this research goal attempts to explore how their selections on specific group formation factors impact the academic achievement of their students. The presentation and analysis of their students' grade point averages is included in order to serve this purpose. Specifically, the group formation factors investigated are; the size of the group, students' level of ability, gender, age, nationality, personality, and social skills.

What is the significance of such information and analysis in this study? As the purpose of the study is to investigate factors that impact cooperative learning effectiveness, in terms of students' academic achievement such data could be important in determining which group formation factors

facilitate students' achievement. As it has already been stated in the literature review of this study, researchers acknowledge that cooperative group formation factors impact students' academic achievement. Therefore, investigation of these factors in an educational setting, in which all the educators implement cooperative learning methods provides useful information on their effectiveness and impact on students' performance. School's administration, through thorough assessment of this data can offer the appropriate guidance to faculty in re-evaluating their existing selections on cooperative group formation factors, re-thinking their cooperative teaching practices and re-consider their selections, in order to facilitate students' learning and academic achievement.

Research Goal 2 Focus

For the investigation of this research goal, educators' selections on specific cooperative group formation factors, including the size of the group, students' level of ability, gender, age, nationality, personality, social skills are assessed. Depending on the findings of the investigation in each of the factors, it will be determined if there is indication that there are specific selections regarding group formation factors that benefit cooperative learning effectiveness. The abovementioned factors are presented and analyzed below.

Size

What does data "say", for the size of the cooperative learning groups? Is it more beneficial for students' academic achievement to collaborate in pairs or in small groups? Presentation and analysis of data, concerning educators' selections regarding groups' size, along with their students' grade point averages attempt to explore these questions.

Level of Ability

What does data "say", regarding students' level of ability, as a cooperative group formation factor and its impact on students' academic achievement? Is it more effective for students to be assigned in homogeneous or heterogeneous cooperative groups, in terms of the level of the group members' ability, to achieve higher performance? Presentation and analysis of the data, concerning educators' selections to form homogeneous or heterogeneous groups, considering the factor of each of the members' ability, along with their students' grade point averages attempt to explore these questions.

Gender

What does data "say", for students' gender, as a cooperative group formation factor and its impact on students' academic achievement? Is it more effective for students to be assigned in homogeneous or heterogeneous cooperative groups, in terms of their gender, to achieve higher performance? In the case of heterogeneous – mixed gender groups, does equal representation of each gender facilitates students' performance? Presentation and analysis of the data, concerning educators' selections to form homogenous or heterogeneous groups, in terms of the members' gender, as well as the consideration of the parameter of equal representation, along with their students' grade averages attempt to explore these questions.

Age

What does the data "say", for students' age, as a cooperative group formation factor and its impact on students' academic achievement? Is it more effective for students to be assigned into homogeneous or heterogeneous cooperative groups, to achieve higher performance? This is an important factor, especially since the examined educational setting, is consisting of mixed classes, in terms of students' age. Presentation and analysis of the data, concerning educators' selections to form homogenous or heterogeneous groups, in terms of students' age, along with their grade point averages attempt to explore these questions.

Nationality

What does the data "say", regarding students' nationality, as a cooperative group factor and its impact on students' academic achievement? Is it more effective for students to be assigned into homogeneous or heterogeneous cooperative groups, to achieve higher performance? This is a significant factor, especially since the investigative educational setting is an international school, consisting of students of different nationalities. Presentation and analysis of the data, concerning educators' selections to form homogenous or heterogeneous groups, in terms of students' nationality along with their grade point averages attempt to explore these questions.

Personality

What does the data "say", regarding the consideration of students' personality for the formation of the cooperative groups? Does this factor facilitate students' learning and academic achievement when it is taken into account for the formation of the groups? Presentation and analysis of the data, concerning educators' consideration of their students' personality for the formation of the cooperative groups along with students' grade point averages attempt to explore these questions.

Level of Social Skills

What does the data "say", regarding the consideration of students' level of social skills for the formation of the cooperative groups? Does this factor facilitate students' learning and performance, when it is taken into account for the formation of the groups? Presentation and analysis of the data, concerning educators' consideration of their students' level of social skills for the formation of the cooperative groups along with students' grade point averages attempt to explore these questions.

Research Goal 3

The third goal of this research is to present and analyze data that depict specific educators' selections – teaching in Middle School and High School, regarding cooperative learning implementation factors, which impact its effectiveness. Since, the examined educational institution is consisting of educators that all integrate cooperative learning methods in their instructional approach, this research goal attempts to explore how their selections on specific cooperative learning implementation factors impact the academic achievement of their students. The presentation and analysis of their students' grade point averages is included in order to serve this purpose. Specifically, the cooperative learning implementations factors investigated are; the assignment of roles to group members, the duration of the cooperative learning interventions, the

use of extrinsic rewards by educators, if they integrate or not the teaching of social skills in their cooperative learning interventions, the primary form of their instruction, their classroom environment and evaluation methods.

Why this is would be meaningful to be explored in this study? As, the purpose of the study is to investigate the effectiveness of cooperative learning and how it impacts academic achievement such data could be important in determining which cooperative learning implementation factors facilitate students' achievement. As it has already been stated in the literature review of this study, researchers acknowledge that cooperative learning implementation factors impact students' academic achievement. Therefore, investigation of these factors in an educational setting, in which all the educators implement cooperative learning methods provides useful information on their effectiveness and impact on students' performance. A detailed statistical analysis on these factors in an educational setting embracing cooperative learning will facilitate] the school's administration and educators efforts to strengthen the already existing social – emotional instructional approach, through re-assessing their selections in regards to implementing cooperative learning in the classroom. Such constructive feedback, will allow for amendments and additions in the already established cooperative learning interventions, in terms of its implementation, in order for this to benefit students' academic achievement.

Research Goal 3 Focus

For the investigation of this research goal, educators' selections on specific cooperative learning implementation factors, including the assignment of roles to group members, the duration of the cooperative learning interventions, the use of extrinsic rewards by educators, if they integrate or not the teaching of social skills in their cooperative learning interventions the primary form of their instruction, their classroom environment and evaluation methods are assessed. Depending on the findings of the investigation in each of the factors, it will be determined if there is indication that there are specific selections regarding cooperative learning implementation factors that benefit cooperative learning effectiveness. The abovementioned factors are presented and analyzed below.

Role Assignment

What does data "say", for assigning specific roles to the group members while implementing cooperative learning? Is it more effective, in terms of facilitating students' academic achievement for? Presentation and analysis of the data, concerning educators' decisions on assigning roles into group members along with their students' grade point averages attempt to explore these questions.

Duration

What does the data "say", regarding the duration of the cooperative learning interventions? Is there a specific time frame that educators need to consider while designing their cooperative learning interventions in order to facilitate their students' academic achievement? Presentation and analysis of the data, concerning educators' decision of the duration of cooperative learning interventions along with their students' grade point averages attempt to explore these questions.

Extrinsic Rewards

What does data "say", for educators' selections to integrate extrinsic rewards into their cooperative learning interventions? The term "extrinsic rewards" refers to grades, certificates and prizes that educators use in order to reward the group members. Is it more beneficial, in terms of student performance or not to motivate students through the use extrinsic rewards? Presentation and analysis of the data, concerning educators' decisions to use or not extrinsic rewards along with their students' class grade point averages attempt to explore these questions.

Form of Instruction

What does data "say", about the form of instruction that educators implement in their classroom? Is the cooperative form of instruction the most effective approach, in regards of facilitating students' academic achievement? How do other form of instructions, such as competitive, individualistic, or even mixed methods impact students' academic achievement? What is the impact of cooperative learning to students' academic achievement when it is used as a primary of instruction? Presentation and analysis of the data, concerning educators' decisions on the form of instruction which they implement along with their students' grade point averages attempt to explore these questions.

Teaching of social skills

What does the data "say", for educators' decision to integrate the teaching of social skills into their cooperative learning interventions? Is this a beneficial practice, in terms of facilitating students' academic performance? Presentation and analysis of the data, concerning educators' selection to include the teaching of social skills during their cooperative learning interventions along with their students' grade point averages attempt to explore these questions.

Classroom environment

What does data "say", for the environment that educators create in their classroom? Does a cooperative learning environment, in which educators act as mediators and facilitators of learning benefit the effectiveness of cooperative learning, in terms of an improved students' academic achievement? Presentation and analysis of the data, concerning educators' classroom environment and role along with their students' grade point averages attempt to explore these questions.

Evaluation Methods

What does the data "say", regarding how educators' evaluation system? Do they consider assessing group members' contribution and participation based on individual accountability or focusing on the final group product? Presentation and analysis of the data, concerning the educators' decisions on their evaluation system along with their students' grade point averages attempt to explore these questions.

Table 8: Research Goals

Research Goal	*Research Goal Focus*
1. Cooperative learning effectiveness based on the Educational Grade Level and Course Category	1.1 Educational Grade Level 1.2 Course Category
2. Cooperative Learning Effectiveness based on Group Formation factors	2.1 Size 2.2 Level of Ability 2.3 Gender 2.4 Age 2.5 Nationality 2.6 Personality 2.7 Social Skills
3. Cooperative Learning Effectiveness based on Implementation Factors	3.1 Role assignment 3.2 Duration 3.3 Extrinsic Rewards 3.4 Form of instruction 3.5 Teaching of social skills 3.6 Classroom environment 3.7 Evaluation Methods

3.3 Methods

The previous sub - chapter, included the presentation and analysis of the research goals. A summary of the research goals can also be found in Table 8. This sub - chapter focuses on the methods which applied for the investigation of the research goals. While these methods are presented in a summary format in Table 9, this sub - chapter further analyzes them in an effort to justify their selection how they serve the purpose of this study. This sub – chapter also includes information about the type of research, characterized as “case study”, as this project is such an example. Specifically, the advantages of the methodological approach used, as well as the “case study” as a type of research will be explored in this sub – chapter, while their disadvantages, will be analyzed in the next sub - chapter.

Before the analysis of the methods, which were selected to investigate the research goals, it is important to highlight that this research is a case study. According to "Nisbet and Watt (1984) a case study is a specific instance that is frequently designed to illustrate a more general principle", while Adelman et al. (1980) describes it as "an instance in action" (Cohen L. , Manion L. & Morrison K., 2007). The "instance" in this research is an international educational institution based in Athens, Greece, which embraces the holistic education paradigm and promotes the development of students' social – emotional aspect, through its curriculum design and content, as well as its educators' teaching practices.

The purpose of this case study is to enable readers and researchers to "understand how ideas and abstract principles can fit together", as Nisbet and Watt (1984) argued that case studies can do (Cohen L. , Manion L. & Morrison K., 2007). Of course, this case study does not intend to make suggestions for a direct application of the exact same principles that it contains, in the Greek or other educational systems, but rather serves as an example of how cooperative learning impacts students' academic achievement and why it is important for such social – emotional practices to be further explored by the Greek educational authorities, as well as other educational systems. Additionally, the investigative educational setting has not been randomly selected, as it embraces the holistic education paradigm. Therefore the data of this case study is derived from a context, which supports and promotes social – emotional learning, and specifically cooperative learning. This is important, as the same research goals is not feasible to be investigated a Greek School, as the use of cooperative learning as a teaching practice there is not widespread. Even if one could locate educators implementing cooperative learning in Greek Schools, which could be possible, the context would not be the same, as there is not a consistent vision or practices to promote holistic education, social – emotional learning, and cooperative learning in Greek schools. Therefore, the data that this project presents and analyzes are meaningful because of the educational context, its vision and policies to promote holistic education social – emotional learning, and cooperative learning.

As every type of research, a case study has its advantages and disadvantages. The strengths of this case study will be analyzed in this sub - chapter, while the weaknesses will be discussed in the sub - chapter "Limitations".

As Nisbet and Watt (1984) support, case studies are strong on reality (Cohen L. , Manion L. & Morrison K., 2007). How does this apply to this study? The data which are collected, presented and, analyzed are derived from an educational setting that supports the holistic education paradigm, social – emotional learning, and cooperative learning. Therefore, there is an existing foundation in which this case study lies upon, which makes any suggestions from the data analysis stronger rather than the same research goals were investigated in school settings that do not embrace the same values. One would make the case that since this case study takes into consideration a specific foundation and is conducted in an educational setting with a specific educational paradigm adopted; it could not be utilized in other educational settings with different orientations. However, as Adelman et al (1980) suggest, it is an advantage of a case study that it can serve as a "product" that is open for subsequent reinterpretation (Cohen L. , Manion L. & Morrison K., 2007). Considering the variety of educational purposes and environments having an archive with data, as such

presented in this study, could be meaningful for researchers and policy makers, whose purposes may be different from these of this case study (Cohen L. , Manion L. & Morrison K., 2007). Finally, this and every case study are a step to action (Cohen L. , Manion L. & Morrison K., 2007). Since they start and conducted in a real context they can directly add to it, through the insights that data offers. Data can be put into use for the participants' self-improvement, for providing constructive feedback to higher administrators in order to organize new policies, as well as set goals, for formative evaluation and educational policy making, all in regards to promoting holistic education, social – emotional learning and cooperative learning.

As far as the method having been used in this study for the investigation of the research goals, this is classified into the quantitative methodological approach. Specifically, as per Table 9, all the research goals are through the use of descriptive statistics. Why this method was selected and why it is determined to best serve the investigation of the research goals will be also explored in this sub - chapter, while their weaknesses will be discussed in the next sub - chapter.

The quantitative methodological approach selected for the investigation of the research goals belongs to the positivistic field. In his study of the history of the philosophy and methodology of science, Oldroyd (1986) states regarding positivism: "For social phenomena were to be viewed in the light of physiological (or biological) laws and theories are investigated empirically, just like physical phenomena" (Cohen L. , Manion L. & Morrison K., 2007). This is explained by what Duncan (1968) describes that "natural science is the paradigm of human knowledge", and it is connected to the following deductions made by Giddens (1975) (Cohen L. , Manion L. & Morrison K., 2007):

- "The methodological procedures of natural science may be directly applied to social sciences and the social scientist is an observer of the social reality".
- "The end – product of investigations by social scientists can be formulated in terms parallel to those of natural science and the social scientist becomes an analyst or interpreter of its subject".
- "Science provides us with the clearest possible ideal of knowledge".

Therefore, since this research follows the positivistic methodological approach, certain assumptions related to the scientific faith have been held. (Cohen L. , Manion L. & Morrison K., 2007) Specifically, the assumption of empiricism and the approach of quantification are associated to the research goals. Empiricism holds that reliable knowledge depends on "the nature of the empirical evidence for its support" (Cohen L. , Manion L. & Morrison K., 2007). The empirical evidence in this research is derived from an educational setting that promotes holistic education and social – emotional learning, as well as the sample investigated uses cooperative learning in all educational grade levels to support and develop students' social – emotional aspect and facilitate their academic achievement. Thus, the analysis of the data by mathematical means, which is attempted through the quantification method are sufficient enough to explore how different factors connected to the educational grade level, the course category, factors associated with the formation of cooperative groups, as well as implementation factors impact academic performance.

As stated above the next sub – chapter includes the disadvantages of a “case study”, as well as these of the quantitative methods used for the investigation of the research goals.

Table 9: Research Goals & Methods

Research Goal	*Research Goal Focus*	*Method*
1. Cooperative Learning Effectiveness based on Educational Grade Level and Course Category	1.1 Educational Grade Level 1.2 Course Category	1.3 Descriptive Statistics
2. Cooperative Learning Effectiveness based on Group Formation Factors	2.1 Size 2.2 Level of Ability 2.3 Gender 2.4 Age 2.5 Nationality 2.6 Personality 2.7 Social Skills	2.8 Descriptive Statistics
3. Cooperative Learning Effectiveness based on Implementation Factors	3.1 Role assignment 3.2 Duration 3.3 Extrinsic Rewards 3.4 Form of instruction 3.5 Teaching of social skills 3.6 Classroom environment 3.7 Evaluation Methods	3.8 Descriptive Statistics

3.3.1 Limitations

As stated, into the previous sub chapter, this sub - chapter presents and analyzes the limitations of this research project, in terms of the methods that are used to investigate the research goals. Specifically, the limitations, which are presented and analyzed in this sub - chapter are: the impact of the positivistic approach when it is applied to observe and investigate the human behavior, the consideration of students’ perspective, as well as limitations related to the application of the

positivistic approach into a case study, in regards to the formation of conclusions. Finally, the parameter of the lockdown, which imposed in Greece due to the pandemic of Covid – 19 is also discussed as a limitation.

Positivism & Human Behavior

It should be noted that this study is conducted into an educational institution. This means that any data collected and analyzed are related to the educational process, which includes the context of the classroom, as well as interactions developed between students and educators. It is well understood that the positivistic approach and the quantitative methods applied in this study, do not allow the researcher to directly observe the human behavior, where "the complexity of human nature, and the elusive and intangible quality of social phenomena contrast strikingly with the order and regularity of the natural world" (Cohen L. , Manion L. & Morrison K., 2007). Therefore, the quantitative methods applied for the investigation of the research goals may provide useful and sufficient data for the use and effectiveness of cooperative learning; however they do not provide opportunities for further observation and discussion, in terms of human and social interactions and how intention, individualism and freedom affect the educational process. Direct observation of the classroom setting during cooperative learning implementation combined to the quantitative methods used in this study would allow for the human perspective to be taken into consideration too.

Student Perspective

When teaching methods, such as cooperative learning, are investigated, of course educators' decisions and selections play a critical role and must be taken into consideration from the researcher. Educators are responsible for the preparation, application, and evaluation of the respective teaching practice investigated. Therefore, their contributions are important for the implementation of any teaching practice. However, successful implementation and effectiveness of cooperative learning, as well as any other teaching practice does not exclusively depend on educators, especially in student – centered educational settings. Students' beliefs about cooperative learning as well as their behavior and response during its implementation o are also important. While, this study includes part of the students' perspective, by presenting and analyzing data, connected to their academic achievement, it does not include their beliefs and behavior during the implementation of cooperative learning. A questionnaire for investigating students' beliefs and behavior, as well as direct observation of their stance, while their educators apply cooperative learning would allow for the consideration of the students' perspective in the investigation of the research goals.

Generality & Approximation of the truth

As mentioned in the previous sub – chapter this research is a case study. When the positivistic approach is applied in a case study, a limitation emerges, and it is connected to the formation of the conclusions. The assumption of generality and the approximation of the truth are connected to the conclusions and suggestions made following the analysis and discussion of the data. Taking into account that this research is a case study, it begins with observations of the particular with a focus on explaining the data presented and analyzed. The positivistic approach and its methods - used in

this study - imply that the findings of a study should be generalized to the world at large. However, considering that this is a case study conducted in one educational institution it attempts a gradual approximation of the truth through its findings. Possible investigation of the same research goals into more educational institutions envisioning to promote holistic education, social – emotional and cooperative learning would facilitate in generalizing the findings of this study, since sufficient verification would be provided. Therefore, the suggestions of this research project could be characterized more as indications and their further investigation is proposed in order to validate their generality.

Covid – 19 pandemic measures & Lockdown

At the beginning of 2021 academic year the Greek Governmental Authorities established safety protocols to prevent the spread of Covid – 19, which has caused a global pandemic. This parameter is included and explained as a limitation in this research study. Among others these measures included specific distance between students and the mandatory use of masks in the classrooms from educators and students. As it is understood these circumstances can discourage educators from using cooperative learning in the classroom. Mostly, it must have affect those who have been used cooperative learning as a primary form of instruction, as this was not feasible anymore due to the safety protocols. Of course, students continued working in small groups or pairs, utilizing their electronic devices and the use of internet. However, it is evident that the described circumstances affected the use of cooperative learning and the selections of the educators regarding the formation of cooperative groups, as well as the implementation factors investigated in the second and third research goal.

Later on the year, during November 2020, the Greek Ministry of Education announced the temporary closure of Middle Schools and High Schools due to the pandemic. Even though, the investigative educational setting continued its regular schedule virtually through online classes and cooperative learning still existed, we cannot disagree that online cooperative learning differs from the actual classroom experience. Students were still working cooperatively through the use digital platforms and tools. However, the lack of physical presence, which is important both for the formation of the cooperative groups, as well as the implementation of cooperative learning, must affected choices, in terms of cooperative group formation and implementation factors of this instructional method.

This sub – chapter, included the limitation of this research project, taking into account its nature, as a case study, the quantitative methodological approach used for the investigation of the research goals, as well as the impact of the pandemic of Covid – 19 on cooperative learning. The next sub – chapter, is focused on the process of creating the instrument, used for the collection of the data.

3.3.2 Instrument

This sub - chapter includes information about the instrument of the research project, and specifically the questionnaire, which was used for the collection of the data, necessary for the investigation of the research goals. Specifically, the process of creating the questionnaire, and its

initial testing, as well as its structure and how it facilitates the investigation of the research goals are analyzed below.

Formation

The questionnaire was formed and structured by the researcher so it can be aligned to the exploration of the research goals. This, does not mean that it is not based on the literature, as the primary source used for the creation of the survey was the article of Nastasi B & Clements D. " Research on Cooperative Learning: Implications for Practice" (Nastasi B.and Clements D., 1991). This article addresses each and every of the factors that impact cooperative learning effectiveness, in terms of the formation of the cooperative groups and the implementation of the method. The same factors are also discussed in this study in the sub – chapter of the literature review: "Factors impacting cooperative learning effectiveness". The fact that the questionnaire that was used for the collection of the data is based on scientific evidence, adds validity to the analysis, discussion, and suggestions of the research study.

Structure

The questionnaire was structured in a way, so it is aligned with the three research goals. For this reason it is divided into three parts. The first part of the questionnaire, called "General Information" includes questions, regarding the educators' educational grade level. This data is required for the investigation of the first research goal. The second part, called "Group Formation Factors" includes questions regarding educators' decisions on cooperative group formation factors. The third part of the questionnaire, called "Cooperative Learning Implementation Factors" includes questions regarding educators' decisions on cooperative learning implementation. This specific structure was selected in order not only to facilitate with the investigation of the research goals, but also to provide other researchers, interested in exploring the same factors, with core questions, which serve this purpose. Of course, this presupposes that they will be using this, applying a quantitative methodology so it is more effectively utilized.

Testing

The process of testing took place following the formation of the questionnaire and before it was shared with the entire sample for completion. As the questionnaire was created by the researcher, and it was not tested before it was shared with a small sample in order to identify possible difficulties regarding the verbiage of the questions and the terminology. The number of educators tested the questionnaire was fifteen (15), five (5) from each educational level: Elementary School, Middle School, and High School. As the questionnaire was shared electronically, the educators were also asked to give descriptive feedback regarding questions that found challenging and misleading. Finally, upon filling out the questionnaire, the data collected was also tested, in order to verify that they allow for the investigation of the research goals.

The process of testing the questionnaire was determined as an important step for the investigation of the research goals and the validity of the analysis, discussion, and suggestions following the

collection of the data. Also, along with its structure it provides other researchers that intend to use it with evidence of its practicality and credibility.

3.3.3 Sample Characteristics

This sub – chapter includes information regarding the characteristics of the sample. Specifically, details of the educators, who responded the questionnaire, their courses and the grade point averages of their students are presented and presented and analyzed below.

Educators & Teaching Courses

The questionnaire was responded by fifty one (51) educators. These educators teach in two educational grade levels, Middle School and High School. All the educators who responded the questionnaire integrate cooperative learning interventions into their classrooms. The teaching experience of the educators varied from 0 – 5 years to 12 or more. Most of the educators can be characterized as experienced, as they are teaching 12 or more years. The teaching courses of the educators who responded the questionnaire are divided into the five categories: Languages Courses, Mathematics, Sciences, Arts and Social Sciences Courses, and Physical Education Courses. As many of the educators teach more than one courses, they were asked to respond the questionnaire based on this course, in which they implement cooperative learning in a higher rate. The name of the course was stated, in order for the grade point averages to be tracked and estimated.

Grade Point Averages

The grade point averages used in the analysis have been generated by the investigative school's software. The grade of each student from the respective class roster was estimated for the grade point average of each teaching course. These are the first quarter Middle School and High School student grades of the 2021 academic year.

3.4 Reflections

This chapter focuses on the presentation and analysis of the research goals, which are investigated in this cases study, along with the applied methodological approach. To conclude, this case study, attempts to investigate factors that impact cooperative learning effectiveness, associated to the educational grade level, the course category, as well as group formation and implementation factors including the size, the level of students' ability, the gender, the age, the nationality, the personality, the level of social skills, the assignment of roles to group members, the duration, the use of extrinsic rewards, the teaching of social skills, the form of instruction, the classroom environment, and the evaluation methods. These are explored through the use of descriptive statistics, which was feasible through data collection following the creation of a questionnaire, which is based on scientific evidence and the use of grade point averages of students from the investigative school's software. The limitations of the methodological approach, as well as the type of the research have been taken into consideration for the chapters of analysis, discussion, and suggestions which follow.

4. Analysis

4.1 Introduction

This chapter focuses on the analysis of the data, collected from the questionnaire, as well as these generated from the software system of the investigative educational setting. Each sub – chapter specifically includes graphs, which depict the students' grade point averages, which are compared depending on the research goal focus explored. The table is accompanied by tables which include the respective descriptive statistics; the total number of the educators, the students' grade point average, their minimum, first quartile, median, third quartile, and the maximum. Each sub – chapter is finally accompanied by a written description, referred to the graphs, as well as the statistics, in the tables.

4.2 Research Goal 1

The first research goal focuses on exploring how the educational grade levels of Middle School and High School, as well as the course categories of Languages, Mathematics, Sciences, Arts & Social Sciences, and Physical education impacts cooperative learning effectiveness. The purpose of this exploration is to identify if there is indication that cooperative learning effectiveness is impacted by these two factors. For the investigation of the first research goal, descriptive statistics have been used.

Educational Grade Level

In the questionnaire educators were asked to state the educational grade level that they are currently teaching in. The examined educational setting is consisting of educators teaching both in Middle School and High School. Thus, it was clarified in the questionnaire that the educators should chose to respond according to the course they are teaching the most hours. As far as the responses are concerned, thirty-five (35) educators replied that they are teaching most hours in High School and sixteen (16) of them in Middle School. The courses that the fifty-one (51) educators responded that they are currently teaching were identified, and their students' grade point averages were generated through the school's software. The purpose was to examine in which school the implementation of cooperative learning leads to higher academic performance. The results presented in Figure 1 show that Middle School students achieved higher academic achievement than those in High School one. Further reflection regarding the results, is included in the chapter "Discussion".

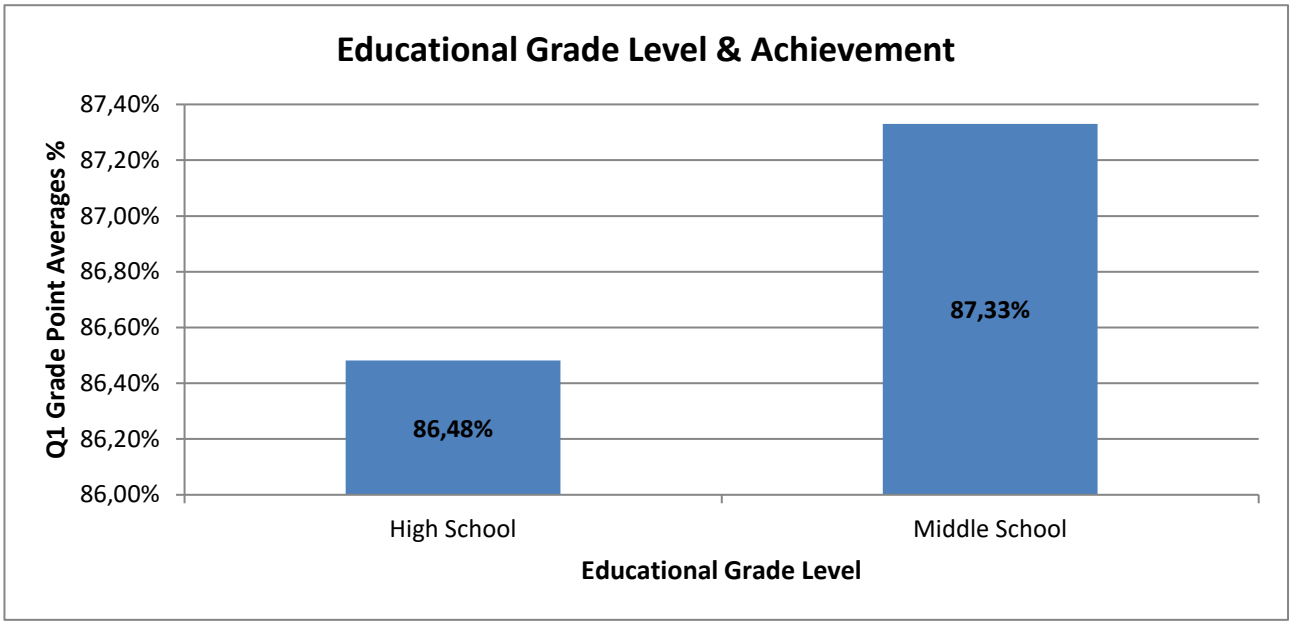

Figure 1: Educational Grade Level

Table 10: Educational Grade Level

Statistics	*High School*	*Middle School*
Total	35	16
Average	86,48%	87,33%
Standard Deviation	6,52%	5,00%
Minimum	67,22%	78,38%
Q1	81,47%	83,29%
Median	88,58%	87,15%
Q3	91,41%	91,40%
Maximum	96,87%	95,43%

Course Category

As stated above, the educators were asked to respond the questionnaire taking into account only one of their teaching courses. For this purpose, a separate question was created for them to answer, referring to their teaching course. During the analysis, each of teaching courses was classified into one of the following five categories: Languages, Mathematics, Sciences, Arts & Social Sciences, and Physical Education Courses. The purpose of this classification, was to identify in which of the abovementioned categories, cooperative learning was implemented more effectively, in terms of facilitating students' academic achievement. Eighteen (18) courses were classified into "Languages", seven (7) courses to "Mathematics", ten (10) courses to "Sciences", twelve (12) to "Arts & Social Sciences", and four (4) to "Physical Education". According to the grade point

averages, the highest (88.22 %) was observed in the "Languages", while the lowest (82.95%), in "Mathematics". Parameters that also need to be taken into account in this analysis are the rigorousness of each category, the assessments given by the educators in each one, and the age of the students, as in each category both Middle School and High School courses are included. Further reflection regarding the results, is included in the chapter "Discussion".

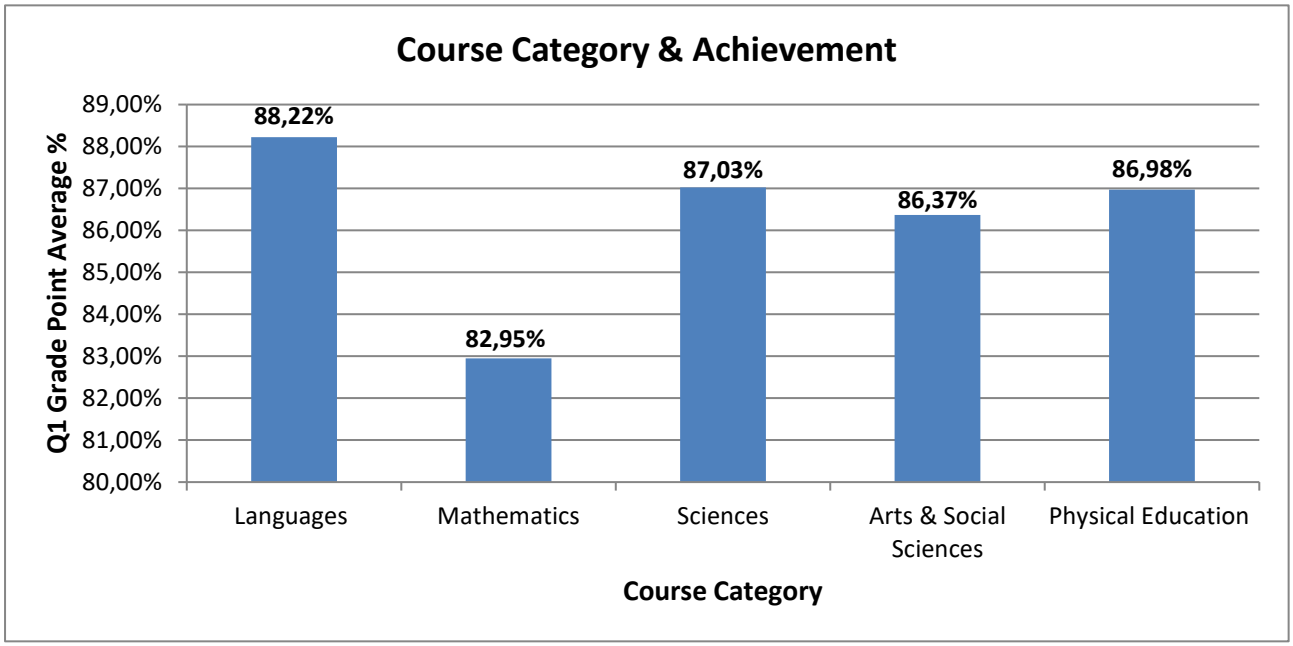

Figure 2: Course Category

Table 11: Course Category

Statistics	*Languages*	*Mathematics*	*Sciences*	*Arts & Social Sciences*	*Physical Education*
Total	18	7	10	12	4
Average	88,22%	82,95%	87,03%	86,37%	86,98%
Standard Deviation	5,92%	2,58%	3,65%	7,80%	8,88%
Minimum	76,72%	79,51%	80,40%	67,22%	76,54%
Q1	82,91%	81,35%	85,22%	83,21%	81,21%
Median	89,70%	82,39%	87,21%	89,83%	87,97%
Q3	92,53%	84,76%	89,71%	91,49%	93,74%
Maximum	96,87%	86,54%	91,68%	93,59%	95,43%

4.3 Research Goal 2

The second research goal focuses on exploring how cooperative group formation factors including the size of the group, the students' level of ability, their gender, age, nationality, personality, level of social skills impact cooperative learning effectiveness. The purpose of this exploration is to identify if there is indication that cooperative learning effectiveness is impacted by these factors. For the investigation of the second research goal, descriptive statistics have been used.

Size

Fifty-one (51) educators, who implement cooperative learning in their classroom, were asked about the size of their groups. Their possible choices in this question were three: pairs, or small groups, or both of them. In the questionnaire, it was clarified that "small groups", were consisting of four to five (4-5) students. The respondents were able to select only one of the choices. Twenty eight educators (28) responded that they organize their cooperative groups both in pairs and small groups. Eighteen educators (18) responded that they organize their groups in small groups. Finally, only five (5) of them responded that they organize their groups in pairs.

Figure 3 summarizes students' grade point averages. Educators, who organize their cooperative groups in pairs, facilitated their students to achieve higher academic achievement (86.09%), compared to those who organize them in small groups (84.77%). The educators, who organize their groups both in pairs and smaller teams consisting of four (4) to five (5) students, facilitated their students' to achieve the highest academic performance (88.14%). Further reflection regarding the results, is included in the chapter "Discussion".

Figure 3: Group Size & Achievement

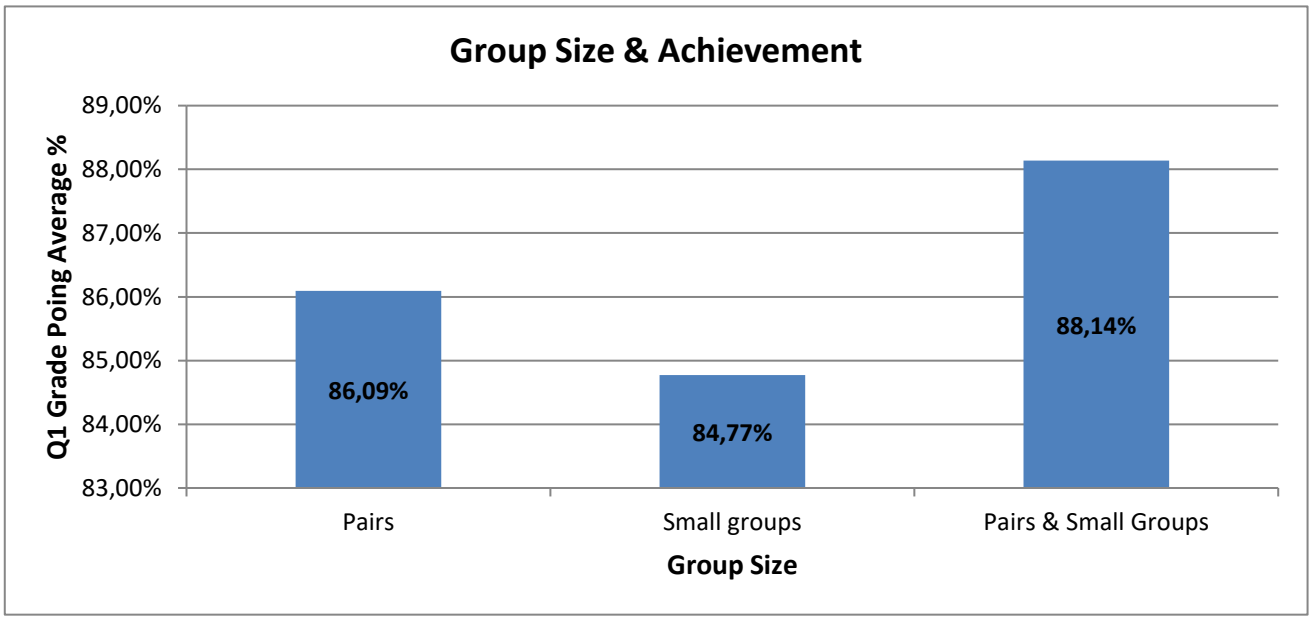

Table 12: Group Size & Achievement

Statistics	*Pairs*	*Small Groups*	*Pairs & Small Groups*
Total	5	18	28
Average	86,09%	84,77%	88,14%
Standard Deviation	6,18%	6,82%	5,29%
Minimum	76,72%	67,22%	78,28%
Q1	84,03%	80,61%	83,29%
Median	86,54%	85,37%	89,12%
Q3	91,30%	90,15%	92,04%
Maximum	91,88%	93,56%	96,87%

Level of Ability

The educators were asked if they form homogenous or heterogeneous cooperative groups, in regards to the level of their students' ability. From the fifty one (51) educators, only seven (7) of them form homogenous groups, thus including members of the same ability. The rest of the respondents (44) form heterogeneous groups, consisting of students with different levels of ability. As it is concluded from **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.**, educators who form heterogeneous cooperative groups facilitated their students to achieve slightly better performance (86.95%) rather that those, who form homogenous groups (85.46%). Further reflection regarding the results, is included in the chapter "Discussion".

Figure 4: Level of Ability

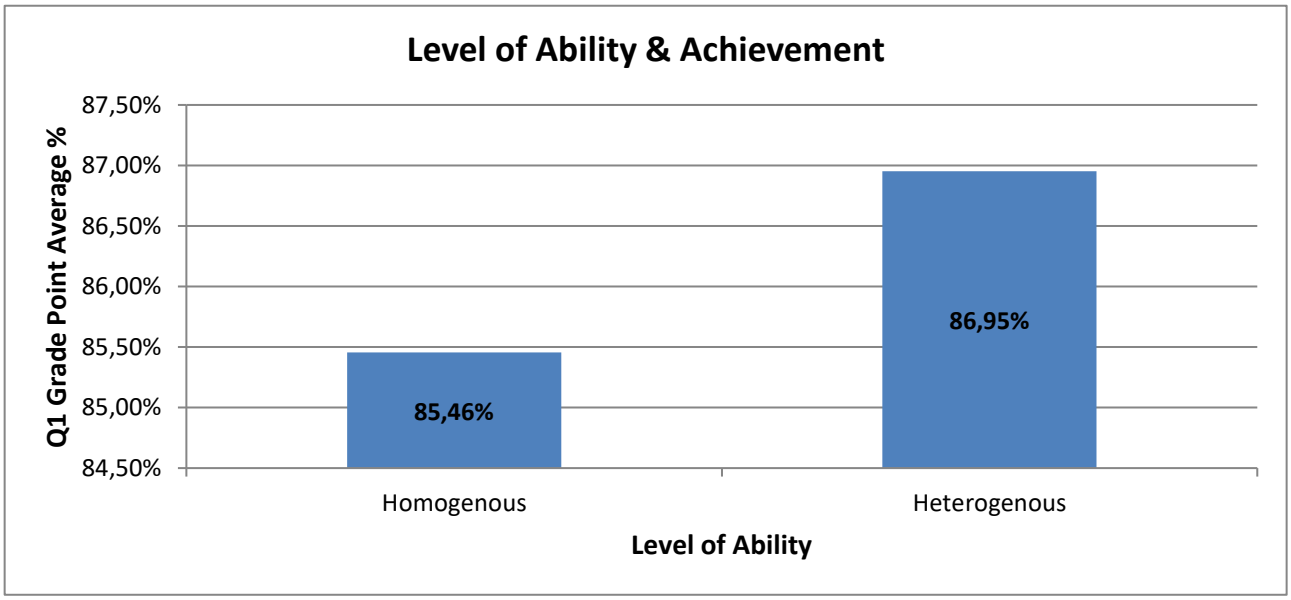

Table 13: Level of Ability

Statistics	*Homogenous*	*Heterogenous*
Total	7	44
Average	85,46%	86,95%
Standard Deviation	5,33%	6,18%
Minimum	81,24%	67,22%
Q1	82,58%	82,50%
Median	83,46%	88,88%
Q3	85,74%	91,43%
Maximum	96,87%	95,69%

Gender

Educators' were asked if they form groups, consisting of students of the same gender – homogenous groups, or mixed gender - heterogeneous. The majority of the educators - all but two - responded that they form heterogeneous groups, in regards to their students' gender. As only two (2) educators responded that they form homogenous cooperative groups in terms of the criterion of gender, this justifies their students' higher grade point average (91.71%), compared to those who form mixed gender groups (86.55%). The comparison between the two types of groups is highly unequal. Another, factor that was also explored is the equal representation of the genders in a cooperative group. Educators were asked how often they consider this as a parameter for the formation of their groups. Twenty seven (27) educators responded that they often or more often (4, 5) take into account equal representation of genders for the formation of the groups, and these facilitated their students' academic achievement more (87.52%) than those who rarely or sometimes (1, 2,3) consider it (85,28%). Further reflection regarding the results, is included in the chapter "Discussion".

Figure 5: Student Gender & Achievement

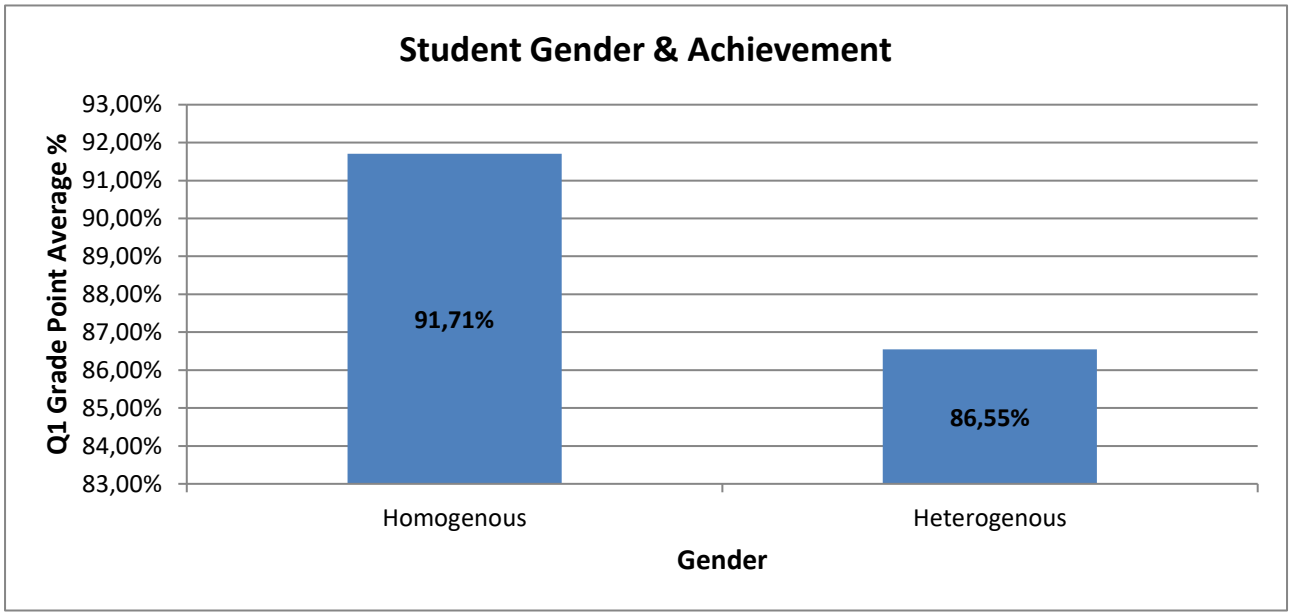

Table 14: Gender & Achievement

Statistics	*Homogeneous*	*Heterogeneous*
Total	2	49
Average	91,71%	86,55%
Standard Deviation	7,30%	5,99%
Minimum	86,54%	67,22%
Q1	89,12%	82,39%
Median	91,71%	88,00%
Q3	94,29%	91,39%
Maximum	96,87%	95,69%

Figure 6: Gender Representation & Achievement

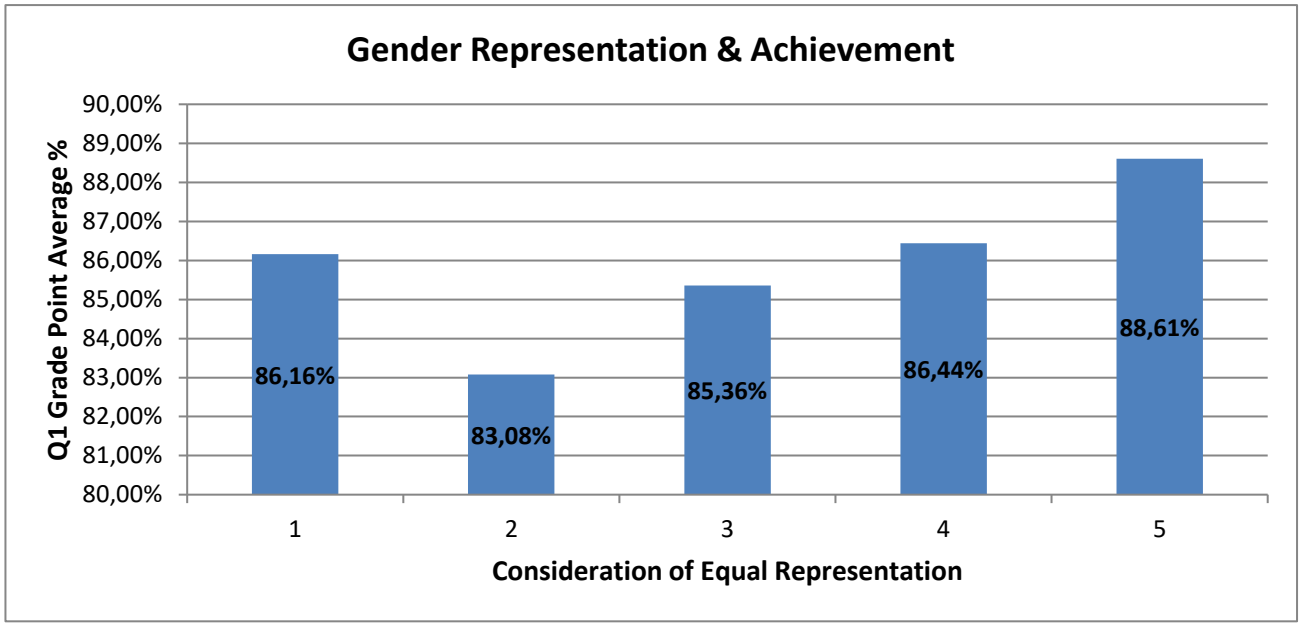

Table 15: Gender Representation & Achievement

Statistics	*1*	*2*	*3*	*4*	*5*
Total	9	4	11	12	15
Average	87,39%	83,08%	85,36%	86,44%	88,61%
Standard Deviation	6,30%	4,35%	7,70%	4,56%	5,98%
Minimum	76,72%	78,28%	67,22%	78,90%	76,54%
Q1	83,46%	81,36%	82,75%	84,01%	82,65%
Median	89,71%	82,59%	86,08%	87,15%	91,30%
Q3	89,99%	84,30%	91,55%	89,57%	93,24%
Maximum	96,87%	88,84%	93,59%	93,11%	95,69%

Age

The age parameter was also examined, in order to assess how it impacts cooperative learning effectiveness. The educators, were asked if they form or not cooperative groups, consisting of students of different grades. Thirty two (32) of them responded that they form homogenous groups, in terms of students' grades, consisting of students of the same grade. The rest of the educators (19) responded that they form heterogeneous groups, consisting of students of different grades. The students that were assigned in groups to cooperate with their classmates of the same grade achieved slightly better performance (87, 77%), rather than those, who were assigned in mixed age groups (85.02%). Further reflection regarding the results, is included in the chapter "Discussion".

Figure 7: Student Age & Achievement

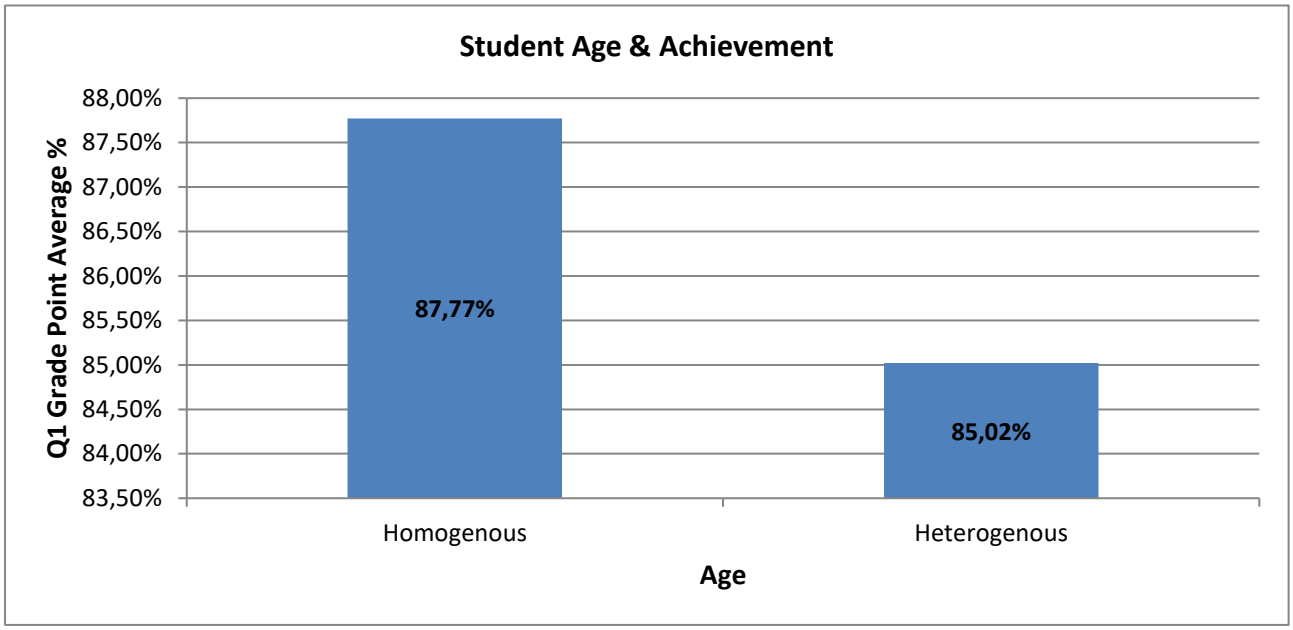

Table 16: Student Age & Achievement

Statistics	*Homogenous*	*Heterogeneous*
Total	32	19
Average	87,77%	89,12%
Standard Deviation	5,69%	4,49%
Minimum	67,22%	80,40%
Q1	84,50%	85,60%
Median	88,75%	89,99%
Q3	91,52%	92,50%
Maximum	96,87%	96,87%

Nationality

The educators, were asked if they form or not cooperative groups, consisting of students of different nationality. Taking into account, that the research is conducted in an international educational setting, most of the classes include students of different nationalities. This was reflected into the responses. Specifically, forty seven (47) out of fifty one (51) educators form heterogeneous groups, in terms of students' nationality with a grade point average of 86.24%. Only five (4) of them, form homogenous groups, consisting of members of the same nationality. As the number of educators forming homogenous groups, in terms to nationality, it is considerably low it is reasonable that the grade point average (90, 71%) of their students' is higher than those who form heterogeneous groups. This unequal comparison will be further analyzed in the "Discussion" chapter.

Figure 8: Student Nationality & Achievement

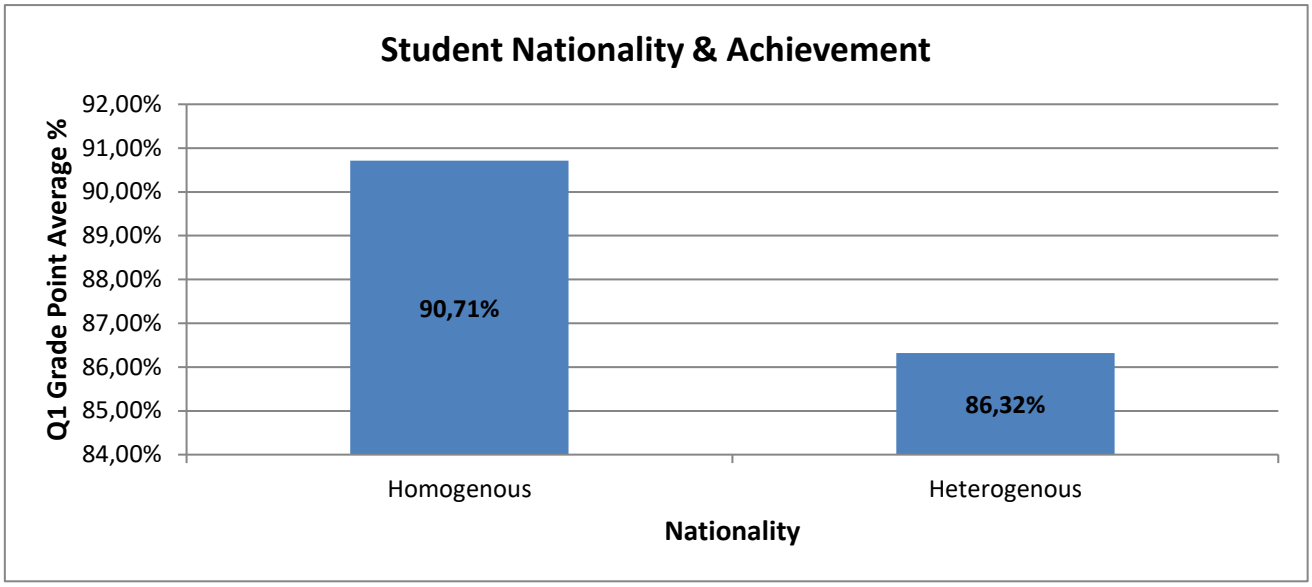

Table 17: Student Nationality& Achievement

Statistics	*Homogeneous*	*Heterogeneous*
Total	5	46
Average	90,71%	86,32%
Standard Deviation	5,32%	6,01%
Minimum	82,39%	67,22%
Q1	89,95%	82,43%
Median	91,47%	87,21%
Q3	92,88%	91,18%
Maximum	96,87%	95,69%

Personality

The questionnaire also examined students' personality as a group formation factor, in order to explore its impact on cooperative learning effectiveness. Specifically, the educators were asked to choose from a range from one (1), which was represented the answer "rarely" to five (5), which represented the answer "very often". The question was related to the consideration of students' personality, as a factor for the formation of the cooperative groups. Most of the educators responded with a four (4) and five (5). Combined, forty (40) of them often and very often consider the personality of their students when forming cooperative groups. Only eleven educators responded with a two (2) and (3) combined. If we estimate the respective grade point averages, these educators who responded with fours (4) to fives (5) facilitated their students' academic achievement (86.65%) more than those who responded with twos (2) and threes (3) (86.24%). Further reflection regarding the results, is included in the chapter "Discussion".

Figure 9: Student Personality& Achievement

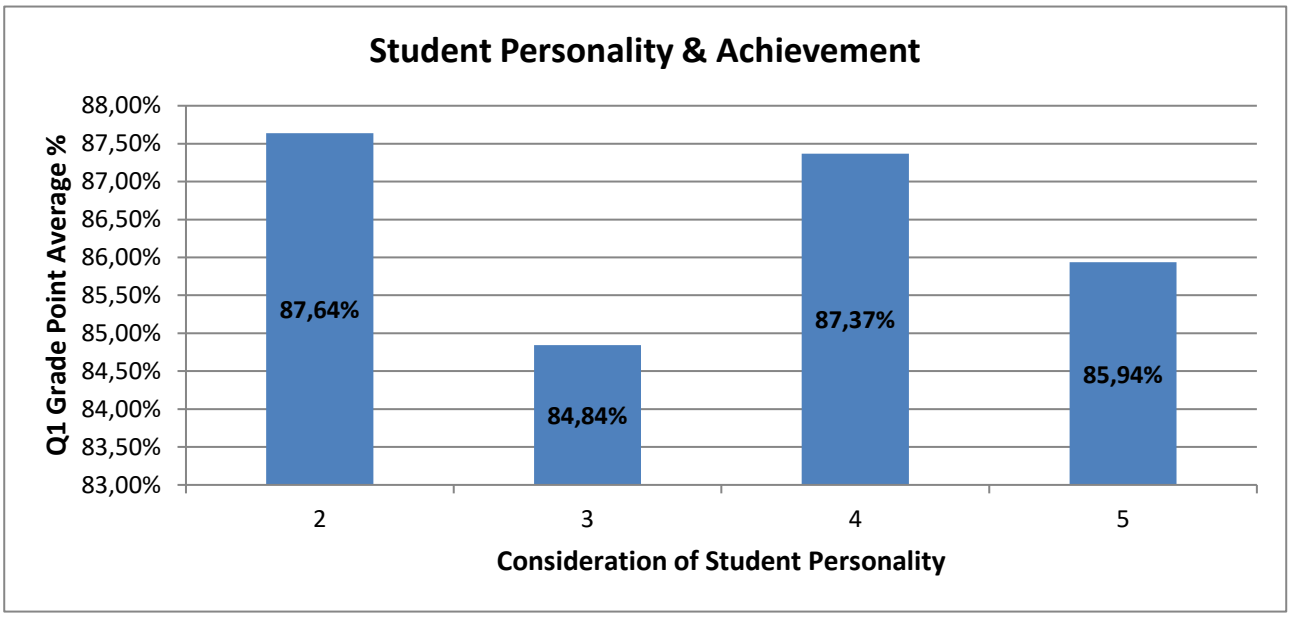

Table 18: Student Personality & Achievement

Statistics	*2*	*3*	*4*	*5*
Total	3	8	24	16
Average	87,64%	84,84%	87,37%	85,94%
Standard Deviation	1%	4,80%	6,95%	5,63%
Minimum	86,08%	78,38%	67,22%	78,28%
Q1	0,8704	82,44%	84,01%	82,39%
Median	88,00%	83,41%	89,56%	84,06%
Q3	0,8842	87,03%	91,49%	90,44%
Maximum	88,84%	93,31%	96,87%	95,69%

Level of Social Skills

Students' level of social skills was examined as a group formation factor, in order to assess its impact on cooperative learning effectiveness. Similarly to the investigation of the personality factor, the answers varied from one (1) – rarely – to five (5) –very often, and educators could choose only one of them. Thirty nine (39) educators responded either with a four (4), or a five (5). Therefore, most of them do consider often or very often their students' level of social skills to form cooperative groups. The rest (12) responded, from one (1) to three (3). Only one (1) of these twelve (12) educators rarely takes into account the level of social skills as a factor in order to form groups. Regarding the students' grade point averages, it can be observed that the results also vary. However, if we estimate the grade point average, for educators' students who responded with fours (4) and fives (5) (86.71%) it is observed that they achieved higher performance than those, who responded

with twos (2) and threes (3) (85.83%). Further reflection regarding the results, is included in the chapter “Discussion”.

Figure 10: Level of Social Skills & Achievement

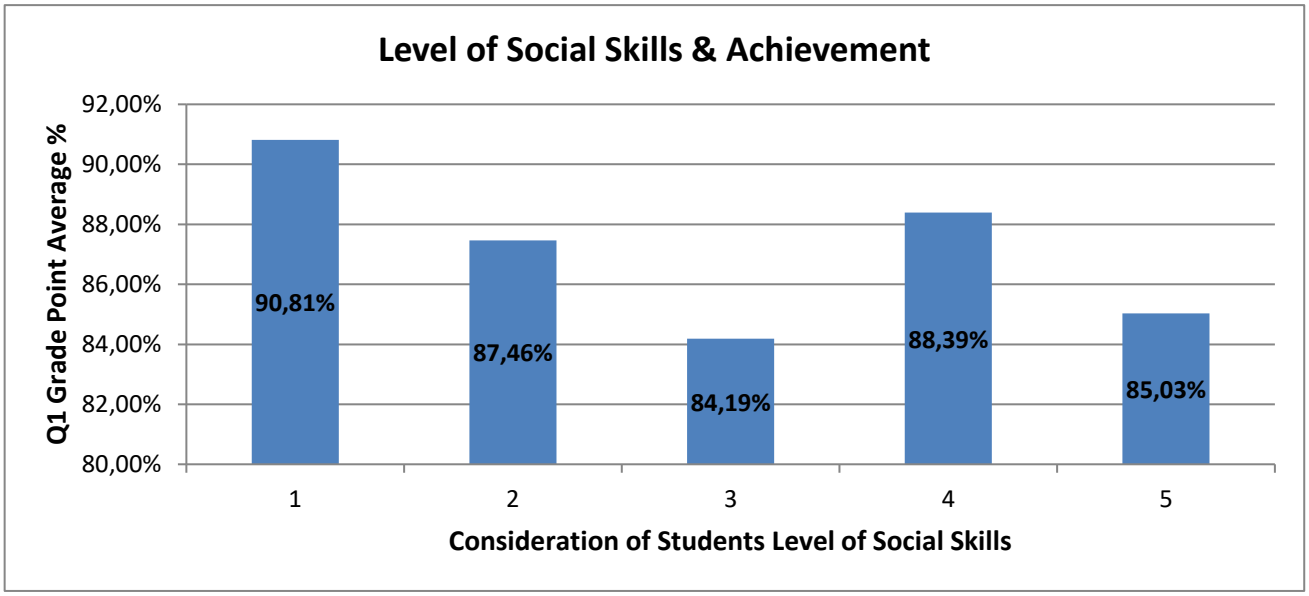

Table 19: Level of Social Skills & Achievement

Statistics	*1*	*2*	*3*	*4*	*5*
Total	1	2	9	22	17
Average	90,81%	87,46%	84,19%	88,39%	85,03%
Standard Deviation	0,00%	1,95%	7,97%	5,19%	5,81%
Minimum	90,81%	86,08%	67,22%	76,54%	76,72%
Q1	90,81%	86,77%	82,76%	91,61%	81,23%
Median	90,81%	87,46%	84,03%	89,56%	83,46%
Q3	90,81%	88,15%	89,95%	91,61%	90,09%
Maximum	90,81%	88,84%	93,31%	96,87%	95,69%

4.4 Research Goal 3

The third research goal focuses on exploring how cooperative learning implementation factors including the assignment of roles to the group members the duration of cooperative learning interventions, the use of extrinsic rewards by educators, their form of instruction, the teaching of social skills during cooperative learning interventions, the classroom environment that the educators and create and their evaluation methods impact cooperative learning effectiveness. The purpose of this exploration is to identify if there is indication that cooperative learning effectiveness is impacted by these factors. For the investigation of the third research goal, descriptive statistics have been used.

Role assignment

The questionnaire examined the factor of assigning specific roles to each of the cooperative group members. The purpose was to explore if this is an effective factor, which can ensure group members' individual accountability. Specifically, the educators could respond from a range to one (1) – rarely – to five (5) – very often – in regards to role assignment. Nineteen (19) educators responded with a "three" (3), and sixteen of them (16) graded the question with a four (4). Therefore, thirty five (35) out of fifty one (51) educators assign specific roles to their group members, either sometimes or often. Regarding their students' grade point average, if we estimate the students' grade point averages who are assigned roles from rarely to sometimes their achievement was higher (87,89%), from those, who are assigned roles often or more often (85,13%). Further reflection regarding the results, is included in the chapter "Discussion".

Figure 11: Member Roles & Achievement

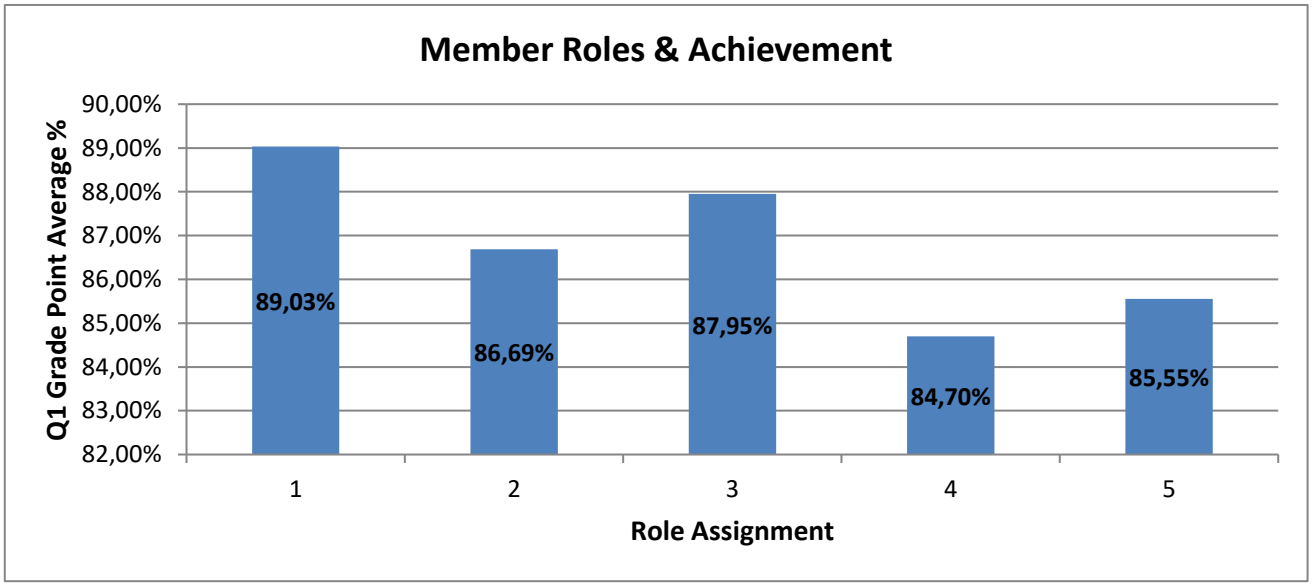

Table 20: Member Roles & Achievement

Statistics	*1*	*2*	*3*	*4*	*5*
Total	5	6	19	16	5
Average	89,03%	86,69%	87,95%	84,70%	85,55%
st.dev	4,32%	6,50%	5,72%	6,96%	4,10%
Min	82,79%	76,72%	78,28%	67,22%	82,39%
Q1	86,54%	82,62%	83,00%	81,24%	82,54%
Med	90,81%	88,69%	88,84%	86,05%	82,76%
Q3	91,47%	91,59%	92,50%	89,16%	89,99%
Max	90,81%	92,88%	96,87%	95,69%	90,09%

Duration

The duration of the cooperative learning interventions, was also examined as a factor that impact cooperative learning effectiveness. The educators were asked to choose one of the following, in regards to the duration of their cooperative learning interventions: fifteen minutes or less, sixteen to thirty minutes, and thirty minutes or more. Finally, there was a choice, reflecting their decision not to take the duration factor as a parameter for the implementation of their cooperative learning interventions. Twenty two (22) educators, responded that their interventions last from sixteen (16) to thirty minutes (30), while fifteen (15) of them stated that they do not take into consideration the duration as a parameter. Only five (5) of them, design their cooperative learning method to last more than thirty (30) minutes, but at the same time their students achieved the highest academic performance (90.58%). The educators, who do not consider the duration as a factor, during the implementation of their cooperative learning interventions, achieved the lowest grade point average (85.42%). Further reflection regarding the results, is included in the chapter "Discussion".

Figure 12: Duration & Achievement

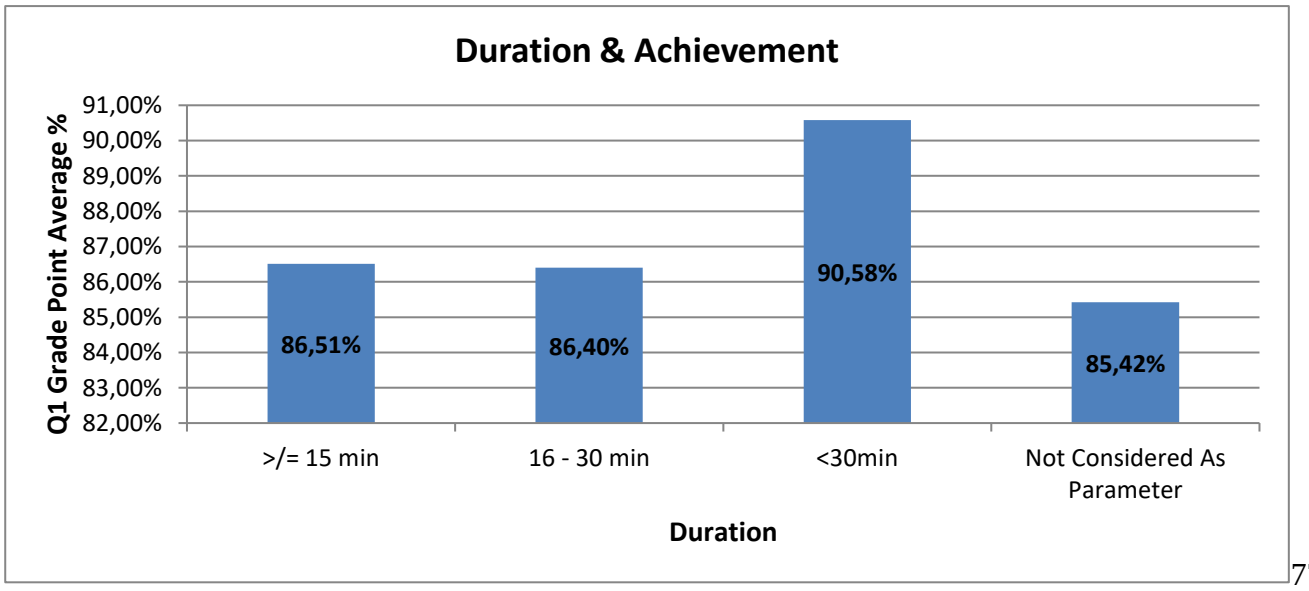

Table 21: Duration & Achievement

Statistics	*>/= 15 min*	*16 - 30 min*	*<30min*	*Not Considered As Parameter*
Total	9	22	5	15
Average	86,51%	86,40%	90,58%	85,42%
Standard Deviation	5,96%	6,93%	2,50%	5,24%
Minimum	79,51%	67,22%	86,54%	76,54%
Q1	81,24%	82,48%	90,09%	82,54%
Median	86,42%	88,42%	91,47%	84,03%
Q3	91,30%	90,60%	91,68%	90,15%
Maximum	95,43%	96,87%	93,11%	93,56%

Extrinsic Rewards

The use of extrinsic rewards was explored as a cooperative learning implementation factor. The educators were provided with specific examples of extrinsic rewards, in order to ensure that they will understand the meaning of the term. These examples, included: grades, certificates, and prizes. Most of the educators (30), responded that they do not use extrinsic rewards while implementing their cooperative learning interventions. However, their students' grade point averages (86%) were lower than those (87.31%), who used extrinsic rewards during the cooperative learning interventions. Further reflection regarding the results, is included in the chapter "Discussion".

Figure 13: Extrinsic Rewards & Achievement

Table 22: Extrinsic Rewards & Achievement

Statistics	*Yes*	*No*
Total	21	30
Average	87,31%	86,00%
Standard Deviation	5,72%	6,24%
Minimum	76,72%	67,22%
Q1	82,54%	81,79%
Median	86,42%	88,58%
Q3	91,88%	90,63%
Maximum	96,87%	95,43%

Form of instruction

The factor of adopting cooperative learning, as the primary form of instruction was examined as a factor that impacts cooperative learning effectiveness. Most of the educators (28), responded that they use cooperative learning as a primary form of instruction. However, their students' grade point average (85.58%) was lower than those, who do not use cooperative learning as a primary form of instruction (87.70%).

Figure 14: Cooperative Instruction & Achievement

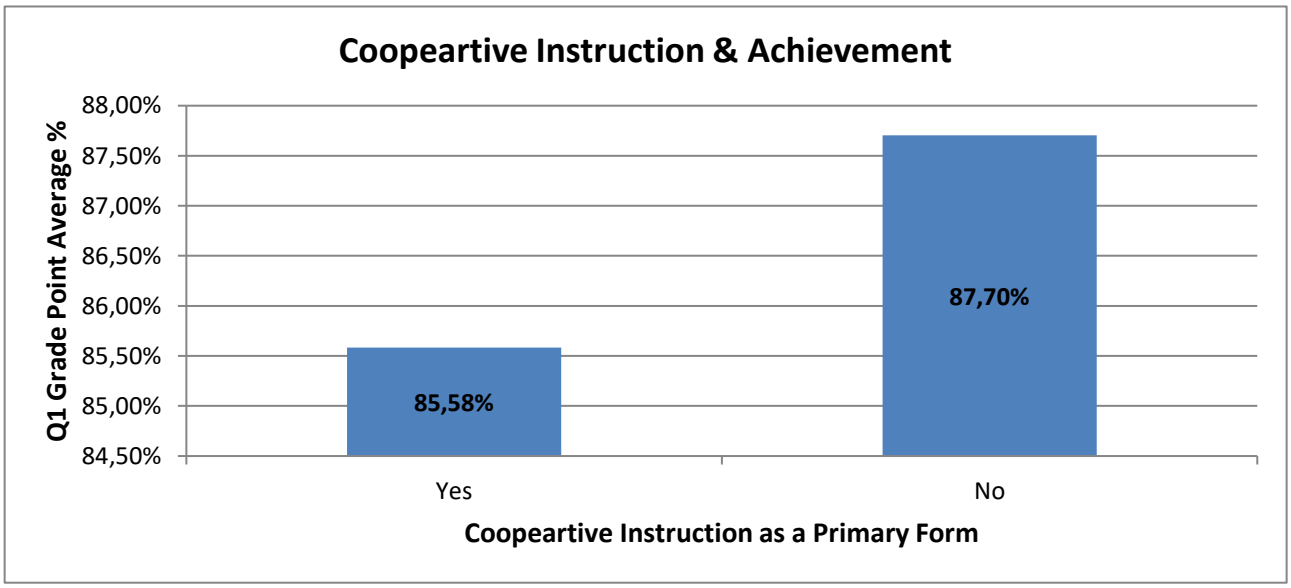

Table 23: Cooperative Instruction & Achievement

Statistics	*Yes*	*No*
Total	28	23

Average	85,58%	87,70%
Standard Deviation	6,68%	4,96%
Minimum	67,22%	78,38%
Q1	82,16%	83,13%
Median	85,68%	88,92%
Q3	91,52%	90,56%
Maximum	95,69%	96,87%

Teaching of social skills

The factor of including or not, teaching of social skills during the implementation of cooperative learning was explored as a factor of cooperative learning effectiveness. All, but three (3) educators do integrate the teaching of social skills in their cooperative learning interventions. This was also accompanied by higher grade point averages by their students (86.70%), compared to those, who do not include it during their cooperative learning interventions (83.92%). Further reflection regarding the results, is included in the chapter "Discussion".

Figure 15: Teaching of Social Skills & Achievement

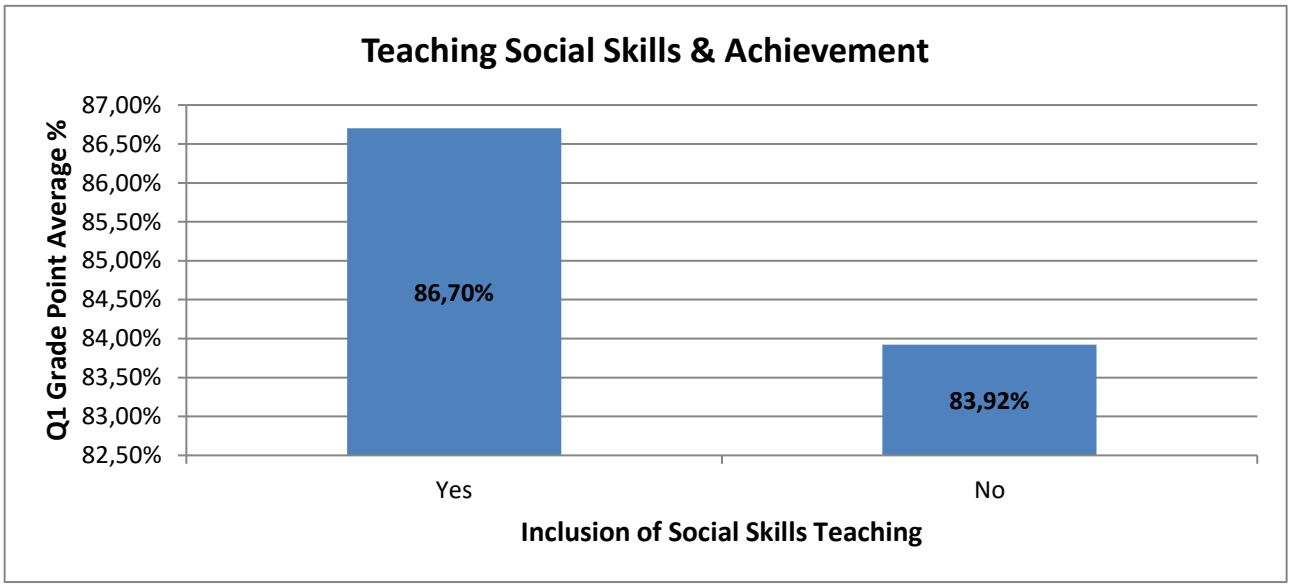

Table 24: Teaching of Social Skills & Achievement

Statistics	***Yes***	***No***
Total	48	3
Average	86,70%	83,92%
Standard Deviation	6,09%	4,21%

Minimum	67,22%	80,40%
Q1	82,50%	81,60%
Median	87,94%	82,79%
Q3	91,40%	85,69%
Maximum	96,87%	88,58%

Classroom environment

The factors of creating a classroom environment, appropriate for the implementation of cooperative learning, was examined through the questionnaire. Specifically, the educators were asked to choose from a scale one (1) – rarely – to five (5) – very often – to respond to this question. Most of them responded that they often (4) or very often (5) create a cooperative classroom environment (41). The rest (10) of them responded either with a two (2) – only one (1) educator – or three (3). If we estimate, the grade point average of the educators, who responded with a four (4) or five (5) – 86.19% - this is higher than those, who responded with two (2) and three (3) – 85.95%. Therefore, educators who create a cooperative classroom environment more often facilitated their students to achieve higher grade point averages rather than those who did but rarely or sometimes. Further reflection regarding the results, is included in the chapter "Discussion".

Figure 16: Cooperative Classroom & Achievement

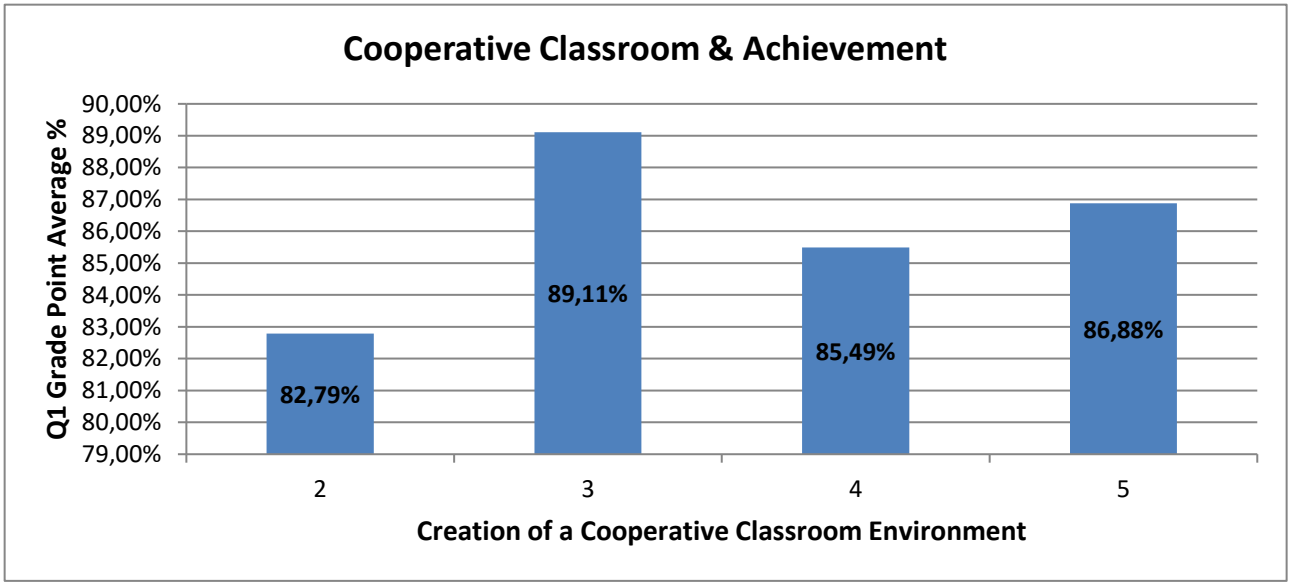

Table 25: Cooperative Classroom & Achievement

Statistics	***2***	***3***	***4***	***5(Very Often)***
Total	1	9	24	17
Average	82,79%	89,11%	85,49%	86,88%

Standard Deviation	0,00%	4,86%	6,90%	5,10%
Minimum	82,79%	80,40%	67,22%	78,28%
Q1	82,79%	87,87%	81,24%	82,54%
Median	82,79%	89,40%	86,25%	88,00%
Q3	82,79%	91,30%	90,96%	91,42%
Maximum	82,79%	96,87%	95,69%	93,59%

Evaluation Methods

The questionnaire, assessed if the educators of the investigative educational setting evaluated their cooperative learning interventions based on individual accountability or not. The purpose was to identify if assessments based on group members' individual accountability, in terms of understanding, contribution, engagement and participation, lead to higher academic achievement. Most of the educators, responded that they assess their cooperative groups, through individual accountability (45). Their students' academic performance was higher (87.19%) than those (81.39%) who did not evaluate, using individual accountability, but rather focused on assessing the final group product. Further reflection regarding the results, is included in the chapter "Discussion".

Figure 17: Evaluation Methods & Achievement

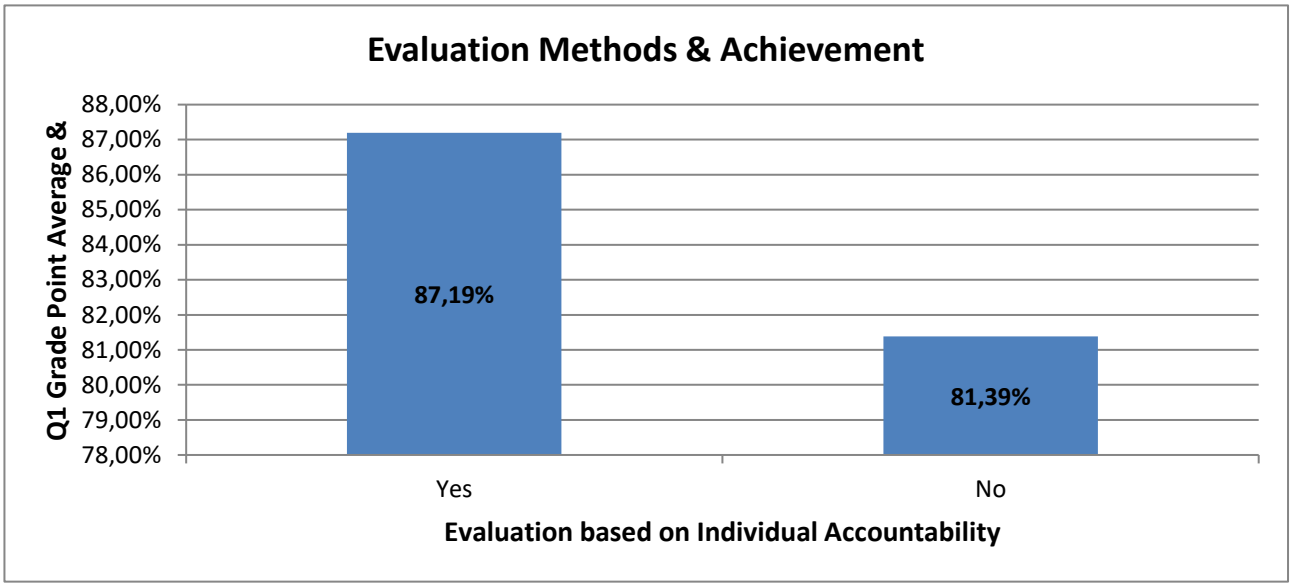

Table 26: Evaluation Methods & Achievement

Statistics	***Yes***	***No***
Total	45	6
Average	87,19%	81,39%
st.dev	5,29%	8,69%
Min	76,54%	67,22%

Q1	91,39%	78,59%
Med	88,00%	81,15%
Q3	91,39%	87,33%
Max	96,87%	91,68%

4.5 Reflections

The analysis chapter provides the necessary foundation for the next chapters of this research project – "Discussion", and "Suggestions". The descriptive statistics, presented and explored in this chapter serve as evidence and indication that cooperative learning effectiveness, explored in this case study from the scope of students' academic achievement is impacted by different factors. These are associated to the educational grade level, the course category, but also connected to the formation of the groups and the implementation of the cooperative learning interventions by the educators. The next chapter is discussing how this analysis is connected to the existing literature, validate and further expands its arguments regarding cooperative learning effectiveness.

5. Discussion

5.1 Introduction

This chapter offers further reflection based on the findings of this study, which were presented in the analysis chapter. Specifically, the findings are analyzed based on the scientific evidence, which has already been explored in the chapter of the literature review. The purpose of this chapter is to prove how the findings of the research validate and further extend the existing literature, regarding the factors impacting cooperative learning effectiveness.

5.2 Research Goal 1

The first research goal attempts to investigate the effectiveness of cooperative learning, in different educational grade levels – Middle School and High School – as well different course categories, including these of: Languages, Mathematics, Sciences, Arts & Sciences, and Physical Education Courses. The purpose of this investigation is to identify factors that impact cooperative learning effectiveness, specifically associated to the educational grade level that educators teach and their teaching course category. Possible identification of such factors can enable educators and principals to design and implement policies in order to strengthen the implementation of effective cooperative learning. This way, they will facilitate not only the development of students' social emotional aspect, but also their academic achievement.

Educational Grade Level

As shown in **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.** the implementation of cooperative learning in Middle School leads to higher academic achievement than in High School. This indicates that cooperative learning might be a more effective teaching practice, in terms of enhancing academic achievement in middle school ages. However, the difference in the grade point averages is significantly small. Additionally, the implementation of cooperative learning in High School was also associated with high academic achievement, taking into consideration that High School courses were more in number than those in Middle School, as shown in **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.**. Also, a factor that must be taken into account is that High School courses are more rigorous than Middle School courses. This explains the small difference between the two educational grade levels. Additionally, High School consists of four (4) grades (9-12), compared to Middle School, which has one grade less (6-8).

Even though, there is a small difference between Middle School and High School students what can be concluded from this comparison is that cooperative learning leads to high academic achievement, irrespective of the educational grade level that it is implemented. This is an encouraging conclusion, for more educational settings and educational policy makers, who plan to utilize social – emotional teaching practices, such as cooperative learning, since it indicates that these are also benefit students' academic achievement.

Course Category

The differences between the grade point average of the four categories, in which the teaching courses of the respondents were divided, could be an indication that cooperative learning effectiveness is related with the content of the course. Even though, most of the teaching courses were classified into the languages category, this was at the same time the one with the highest academic achievement, as shown in **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.** and **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.**. Additionally, this might be associated to the educational background which the educators received in the tertiary educators, depending on the different filed they focused on, as linguistic courses provide more opportunities for cooperative projects and training, due to their theoretical nature.

Another impressive observation according to **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.** and **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.** is that each course category has a percentage higher than eighty (80%), while the differences between them are insignificant. This conclusion leads to the argument that cooperative learning implementation in the investigative school was effective, in terms of students' performance in every course category. The differences, between one another can be attributed to various factors, such as the content, the learning goals, the evaluation methods, and the level of rigorousness. Finally, a parameter which should not be neglected for the explanation of the differences is that each category is consisting of both Middle School and High School courses.

5.3 Research Goal 2

The second research goal attempts to investigate specific factors, related to the cooperative groups' formation, as they were responded by the educators, along with their students' grade point averages. The purpose of this research goal is to examine the impact that these factors may have on cooperative learning effectiveness, in terms of facilitating students' academic performance. The formation factors examined through the questionnaire were: the groups' size, group members' level of ability, their gender, age, nationality, personality, and social skills. Possible identification of how specific educators' decisions regarding these factors, facilitating students' academic performance can promote effective cooperative learning practices among educators and principals, as well as positively impact the use of cooperative learning. Further, the investigation of this research goal might initiate further exploration of these factors, in order to validate their impact cooperative learning effectiveness.

Size

Concerning cooperative groups' size, as show in **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.** most of the educators (28) responded that they organize their groups both in pairs and small groups. This decision, would be an indication that the sample, decide on their groups' size so as it is aligned with their learning goals and it might not be a primary factor for them, when it comes to design their cooperative learning interventions. However, the results of the analysis, validate the viewpoint expressed in the literature review which suggests that cooperation and participation are greater with smaller group size and the smaller the cooperative group is the more positive effect on student achievement might has (Nastasi B.and Clements D., 1991). This is evident in the investigative educational setting, as the data in **Σφάλμα! Το αρχείο προέλευσης της**

αναφοράς δεν βρέθηκε. show that educators, who organize their groups in pairs, facilitated the academic achievement of their students more (86.09%) than those, who organized them in small groups (84.77%). However, it needs to be mentioned, that the number of the educators, organizing their groups in pairs was smaller (5), than those, who organized them in small groups (18). While, there is an indication that smaller cooperative groups facilitate students' academic performance, this factor should be treated carefully by educators who use cooperative learning in their classes, in order for them to be able to enable their students' ability to achieve higher academic achievement, through forming the best possible group size.

Level of Ability

Before implementing their cooperative learning methods, educators have to decide on if they will form homogenous or heterogeneous cooperative groups, in terms of students' ability. The responses of the educators in the examined educational setting were in favor of heterogeneous groups (44), compared to homogenous (7), as shown in **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.**.The grade point averages also validate the argument suggested by research, which supports that heterogeneous groups are more beneficial, in terms of facilitating students' academic achievement rather than (Nastasi B.and Clements D., 1991) homogenous. As shown in **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.**, educators who form heterogeneous groups, in regards to their members' level of ability, enabled their students' to achieve higher academic performance (86.95%), rather than those who formed homogenous (85.46%). This is scientifically attributed to students' exposure to a wide diversity of perspectives and knowledge, through the process of communication, explanation and reasoning in heterogeneous groups (Nastasi B.and Clements D., 1991). However, one parameter that should still be considered by educators who form heterogeneous groups is that medium level students might struggle to identify their role in them, as it is usual that high ability level members assume the role of the "teacher" and low level members the role of the "student" (Nastasi B.and Clements D., 1991). Thus, educators should balance their heterogeneous groups, considering ways of engagement of their medium level students too.

Gender

All but two (2) educators responded that they form heterogeneous cooperative groups, in terms of students' gender, as shown in **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.**. Thus, their cooperative groups consist of both male and female students. Due to this fact, a comparison between homogenous and heterogeneous groups could not lead to reliable conclusions, regarding students' academic performance. One parameter, that it was also examined is the representation of male and female group members. According to Webb, groups that were balanced, consisting of the same number of male and female members produced higher academic achievement, compared to unbalanced groups (Nastasi B.and Clements D., 1991). This finding was also validated through the results of this research study, as **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.** shows. Educators, who took this parameter into consideration more often, facilitate their students' achievement more (87.52%) than those who do not (84.57%). Therefore, this is an indication that in heterogeneous groups, in terms of students' gender, equal representation of both male and female

members leads to higher academic achievement and should be taken into account for the formation of the groups.

Age

The findings of this research study are not consistent with the argument, which has been scientifically supported in terms of cooperative groups consisting of members of different age groups. Specifically, according to D. W. Johnson, R. T. Johnson, Pierson, & Lyons (1985), students participating in mixed – age groups are more likely to enhance their motivation for learning (Nastasi B.and Clements D., 1991). Thus, this could be a factor leading to higher academic achievement. On the contrary, the present study proves that educators who formed homogenous groups, in terms of students' age enabled their students to achieve higher academic performance (87.77%) than those who formed heterogeneous (85.02%), as **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.** shows. This is an indication that groups, consisting of members of the same age, can also lead to high academic achievement. This could be attributed to other factors, not related to students' motivation to learn. Homogenous age groups might offer a higher level of cohesion, more effective communication, and appropriate cooperative climate for the students rather than, heterogeneous groups. These factors provide sufficient explanation for the reason that this finding is not consistent with the existing body of literature. Further exploration of the factor of students' age is suggested in other educational settings that implement cooperative learning, in order to validate this argument.

Nationality

Even though the factor of group members' nationality was examined in this research study, it needs to be mentioned that the investigative educational setting is an international school, consisting of students from many different countries. As students with different nationalities coexist in most of the classrooms, the educators implementing cooperative learning methods cannot take this parameter into consideration for the formation of the groups. This is feasible only in a small number of class rosters, which are composed of students of the same nationality, such as Greek classes, which are mandatory to be attended mostly from students with a Greek nationality. This issue is also depicted to Table 17, as all but five (5) educators form heterogeneous cooperative groups, in terms of students' nationality. Therefore, the comparison between the grade point averages, which shows that students placed in homogenous groups, in terms of nationality achieved higher academic performance (90.71%) rather than those who placed in heterogeneous (86.24%) could not lead to reliable conclusions, on how each type of group impacts student achievement, as shown in

. Even though this comparison is not safe the grade point average of students, who were placed into heterogeneous cooperative groups is still significantly high (86.24%) to validate the viewpoint, which suggests that mixed nationality groups produce high academic achievement (Nastasi B.and Clements D., 1991).

Personality

This study proved that attending the factor of students' personality, for the formation of cooperative groups, is important for cooperative learning effectiveness. Specifically, as analyzed in the literature review, depending on if their personality is more introverted or extroverted, students tend to assume different roles in a group, as well as they can differ from a behavioral perspective. While extroverts, seek help more comfortably, and actively engage into the tasks, introverts do not (Nastasi B.and Clements D., 1991). The present study shows that educators who consider the personality factor for the formation of their groups more often, facilitated higher academic achievement (86.65%) rather than those who did so, but more rarely (86.24%), as shown in **Σφάλμα! Το αρχείο προέλευσης της αναφοράς δεν βρέθηκε.**. This slight difference could be an indication that the more this factor is taken into consideration the more the chances for a greater achievement are increased.

Level of Social Skills

The last group formation factor assessed is the level of students' social skills. Specifically, the educators were asked how often they take this parameter into consideration for the formation of their cooperative groups. Not only, most of them did consider this factor often (39) – as shown in Table 19 - but also their results are higher (86.71%) than those (85.83%) who did (11) but more rarely, as Figure 10 indicates. The level of social skills, impacts students' ability to cooperate, seeks guidance, give help, and effectively assuming different roles into the cooperative group (Nastasi B.and Clements D., 1991). Thus, when the groups are homogenous, in terms of the level of students' social skills, then there is higher possibility this to be accompanied with enhanced academic achievement.

5.4 Research Goal 3

The third research goal attempts to investigate, specific educators' selections on factors related to the implementation of cooperative learning, in order to explore how these impact its effectiveness. Specifically, the implementation factors explored are: the assignment of roles to group members, the duration of cooperative learning interventions, the use of extrinsic rewards, and cooperative instruction as a primary form instruction, the teaching of social skills, the classroom environment, and the evaluation methods. The purpose of this research goal is to identify practices that facilitating the effectiveness of cooperative learning, in terms of enhancing students' academic achievement. Educators and principals who embrace the use of cooperative learning can improve its implementation in order for their school to achieve academic excellence, through a social – emotional teaching practice.

Role Assignment

Educators assign specific roles to group members, in order to ensure their individual accountability and equal participation, while implementing cooperative learning methods (Nastasi B.and Clements D., 1991). This practice was assessed in this study, in order to identify its impact on cooperative learning effectiveness. While Slavin supports that individual accountability is essential for the effectiveness of cooperative learning (Nastasi B.and Clements D., 1991), the findings of this study prove that role assignment might not be the best practice to ensure individual accountability, and therefore facilitate students' academic performance. Specifically, as shown in Figure educators

who rarely or sometimes consider assigning specific roles to the group members, enable their students' to achieve higher academic performance (87.89%) rather than those who did more often (85.13%). This result, does not necessarily means that individual accountability do not lead to higher academic performance, but one could conclude that specific role assignment is not the most effective practice, which can lead to individual accountability and produce higher academic results.

Duration

The duration of cooperative learning varies, as educators decide on this factor based on the teaching course, the learning goals, and the ability level of their students (Nastasi B.and Clements D., 1991). According to Johnson D. & Johnson R. (1985b) cooperative learning interventions that last from fifteen to ninety minutes are associated with academic gains (Nastasi B.and Clements D., 1991). The findings of this research study, which are depicted in

Figure validate this argument, as cooperative learning interventions who lasted more than thirty minutes, produced the highest academic results (90.58%), compared to the interventions lasted up to fifteen minutes (86.51%), and sixteen to thirty minutes (86.40%). This result is an indication that cooperative learning interventions should be planned to be implemented for a significant part of the classroom time in order to be effective, in terms of facilitating students' academic achievement.

Extrinsic Rewards

The use of extrinsic rewards has been found beneficial in terms of facilitating students' academic achievement. Rewards such as prizes, certificates, and grades can lead to improved learning and performance (Nastasi B.and Clements D., 1991). The findings of this research study validate this argument. Twenty one (21) educators, who use extrinsic rewards during their cooperative learning interventions, facilitated their students to achieve higher academic performance (87.31%), rather than those thirty (30) who did not (86%), as shown in Figure and Table 22. This result is an indication that extrinsic rewards could function as a stimulus, in regards to academic performance. However, it needs to be highlighted that a number of research studies support the argument that effective cooperative learning derives from students' interactions and conflicting viewpoints. These studies, do not take into account the importance of extrinsic rewards, for the effectiveness of cooperative learning (Nastasi B.and Clements D., 1991). Further exploration of this finding is suggested.

Form of instruction

It has been a research debate, whether or not the implementation of the cooperative form of instruction - primarily and exclusively in the classroom - leads to higher academic achievement. Specifically, this means that other forms of instructions such as the individualistic and competitive form are not used either at all or limited. Researchers suggest that a combination between the three forms is ideal, due to the wide range of student types one can find in a classroom. Especially, in highly heterogeneous classrooms, this approach is suggested in order for the unique learning needs of students to be covered more effectively (Nastasi B.and Clements D., 1991). This factor was assessed in this research study, as educators responded to the question whether or not cooperative

learning is their primary form of instruction, in terms of organizing their students' in groups for every class. The results prove that the educators who did not use cooperative learning as a primary form of instruction facilitated their students to achieve higher academic results (87.70%) rather than those who did (85.58%), as

Figure indicates.

Additionally, as observed from

Table 23 twenty eight (28) educators out of fifty one (51) use cooperative learning as a primary form of instruction. This is important, as it proves that the investigative educational setting not only implements cooperative learning in a wide range, but also it is accompanied by high academic results (85.58%). This finding serves as an indication that the use of cooperative learning leads to high academic achievement.

Teaching Social Skills

When they implement their cooperative learning interventions, educators might decide to integrate the teaching of social skills to the group members. A number of researchers, such as Yager, Johnson R., Johnson D., & Sinder (1986) suggest that such integrations have been proved as a factor for enhanced academic achievement (Nastasi B.and Clements D., 1991). This argument is validated by the findings of this research study. Educators, who integrate interventions, focused on teaching social skills, while implementing cooperative learning, facilitated their students to achieve higher academic performance (86.70%), rather than those who did not (83.92%), as

Figure indicates. As educators, also take into account the level of their students' social skills, as a factor for the formation of the cooperative groups, and this also leads to higher academic achievement, this proves that social skills of students and the time devoted during the instruction towards their development are important and the interventions should last more than thirty minutes, to be more effective. Sufficient time must be allowed to attend the social aspect of the student, as this enables its cognitive and thus academic achievement.

Classroom Environment

Educators, who implement cooperative learning, design their instructional approach in order to promote a cooperative environment. This classroom environment is created when educators teach as facilitators. Specifically, they should encourage students to participate and actively engage into the learning process, as well as support and guide them to approach learning collaboratively (Nastasi B.and Clements D., 1991). This cooperative environment facilitates students' high – order cognitive processes to be developed, and cooperative learning to be more effective (Nastasi B.and Clements D., 1991). The findings of this research study proves that the creation of a cooperative learning environment can lead to higher academic achievement, as educators who often consider this factor for its implementation, facilitated their students to achieve higher performance (86.19%) rather than those who did it sometimes or rarely (85.95%), as

Figure indicates. If educators plan to implement effective cooperative learning, according to this argument should embrace the role of the facilitator and mediator of learning between the cooperative groups, rather than adopting a more traditional teaching approach (Nastasi B.and Clements D., 1991).

Evaluation Methods

Cooperative learning interventions can be assessed in various ways. Assessing the individual accountability of each group member has been suggested that leads to higher academic performance, and it is a factor facilitating cooperative learning effectiveness (Nastasi B.and Clements D., 1991). Not only was this evaluation method used from most of the educators, that responded the questionnaire (45 out of 51), as Table 26 indicates, but also the findings validated the abovementioned argument, in regards to cooperative learning effectiveness. As shown in Figure students who were evaluated based on individual accountability, achieved higher performance (87.19%), rather than those (81.39%) whose evaluation was based on their final product, rather than their contribution, participation, and engagement towards its achievement.

5.5 Reflections

As it is evident in this chapter, there is indication that cooperative learning is an effective teaching method, as its use leads students to achieve high academic performance. This is important for educators, educational institutions, and policy makers, attempting to promote such social – emotional practices, in order to educate students holistically. Additionally, it is concluded that there are specific factors, connected to the educational grade level of the students, the teaching course categories, as well as group formation and implementation parameters that if addressed by educators, students' academic achievement is further facilitated and enhanced. Therefore, to effectively implement cooperative learning interventions it is suggested that educators consider these factors and parameters, which are analyzed and presented in this research project. The next chapter focuses on these suggestions, based on the analysis and discussion chapters.

6. Suggestions

6.1 Introduction

Following the analysis and discussion chapters, which were focused on presenting and connecting he findings of this case study with the existing literature, this chapter attempts to provide specific suggestions, regarding the implementation of effective cooperative learning. Suggestions are included for each research goal, and they are also accompanied by a written description.

6.2 Research Goal 1

For the first research goal, suggestions have been made regarding the effectiveness of cooperative learning, while it is implemented in different educational grade levels, specifically Middle School and High School. Additionally, suggestions regarding the effectiveness of cooperative learning, depending on the teaching course category, in which it is used, are also included. The suggestions have been expressed based on the analysis and discussion chapters, thus the grade point averages of the students have been taken into consideration, along with the scientific evidence presented and analyzed in the literature review.

Educational Grade Level

Based on the grade point averages of students in Middle School and High School the following suggestions have been made regarding cooperative learning, implemented in these educational grade level:

- There is indication that Middle School courses provide a more effective foundation, in terms of cooperative learning implementation and high academic achievement, rather than high school courses;
- There is indication that Middle School students are academically benefited more than High School students through the use of cooperative learning, as the findings proved that they achieved higher performance;
- The use of cooperative learning is appropriate and should be used in both educational grade levels, as it is accompanied with high academic achievement in Middle School and High School.

Reflections

According to the analysis of the findings, regarding cooperative learning effectiveness in Middle School and High School, it is suggested that its use facilitates students' high academic performance in both educational grade levels. Additionally, the findings show that Middle School students achieved higher performance than High School students. This might be attributed to the difference between Middle School and High School students' age and mindset as learners. Middle School students might be benefited more by the implementation of cooperative learning, while High School students might prefer a more individualistic, or competitive instructional approach, so as their academic achievement to be enabled. This happens since they are preparing to enter the tertiary education and they might be more conducive to individual academic success rather than learning

cooperatively. Also, the difference in academic achievement between the students of the two educational grade levels might be also due to the rigorousness of the courses and the evaluation system of the educators. High School courses are more demanding, especially in the last two grades (11^{th} and 12^{th} Grade), as well as students are assessed more systematically, and thoroughly compared to Middle School. While the differences in the grade point averages are small, it is suggested that the findings should be used as indications, which need to be examined in other educational settings using cooperative learning.

Course Category

Based on the grade point averages of students in the course categories of Languages, Mathematics, Science, Arts & Social Science, and Physical Education courses the following suggestions have been made regarding cooperative learning, and the facilitation of its effectiveness:

- Cooperative learning should be implemented at a high rate in languages courses, as it has been found to be most effective in this course category;
- Cooperative learning should be used in any of the course categories, as it facilitated all students to achieve high academic performance, irrespective of the course category, in which it was implemented.

Reflections

According to the findings of the research, the course category of Languages led students to higher academic performance, compared to the rest. This is an indication that the content of this course might be more appropriate for the implementation of highly effective cooperative learning. Furthermore, since all course categories, facilitated students high academic achievement, it is suggested that cooperative learning should be used, as it promotes students' academic progress, irrespective of the course category it is implemented in. This means, that there might be other factors apart from the course category, which if attended by educators cooperative learning will be effective. These factors were explored in this case study and they are related to the cooperative groups' formation and the implementation of cooperative learning. Suggestions have been made in this chapter regarding these factors.

6.3 Research Goal 2

For the second research goal, suggestions have been made regarding the effectiveness of cooperative learning, and specifically group formation factors. Group formation factors explored in this research goal are: groups' size, students' level of ability, gender, age, nationality, personality and level of social skills. The suggestions have been expressed based on the analysis and discussion chapters, thus the grade point averages of the students have been taken into consideration, along with the scientific evidence presented and analyzed in the literature review.

Size

Regarding the most effective group size it is suggested that:

- The smaller the number of the members of a group, the more possible for students to be benefited academically;
- Pairs found to be more effective, in terms of facilitating students' achievement rather than small groups;
- For the size of the group educators should also consider their teaching course, learning goals, students' age, ability, gender, personality, and social skills.

Reflections

As it has already been stated the findings of the study validate the argument of the existing literature regarding groups' size, and cooperative learning effectiveness. The smaller the cooperative group, the better chances for higher academic achievement. This is explained by the argument, suggesting that the less the number of the group members the bigger the opportunity for individual contribution and participation. Specifically, groups organized in pairs found to be more effective than small groups, consisting of four (4) to five (5) students. However, this is only an indication, while the small difference in the grade point averages leads to the suggestion that this argument should be further investigated. When the size of the cooperative group is investigated, other factors should be also taken into account, related to teaching course, learning goals, students' age, ability, gender, personality, and social skills.

Level of Ability

Regarding formation of homogeneous or heterogeneous groups, in terms of students' level of ability it is suggested that:

- Heterogeneous cooperative groups result in higher academic performance;
- The educators, should take into account that medium ability level students might find it difficult to assume roles and actively participate in groups, in which they coexist with higher and lower ability level students;
- Educators should consider monitoring group members' interactions, participation, engagement, and contribution to ensure that heterogeneous groups, in terms of students' ability level will be effective, irrespective of the students' level of ability.

Reflections

Heterogeneous cooperative groups, in terms of students' level of ability lead to higher academic performance, compared to homogenous, consisting of students of the same level of ability. This is suggested, not only by the existing literature, but it is also validated by the findings of this research study. This suggestion is explained since in heterogeneous groups students are exposed to different perspectives and assume roles, either as teachers or students that enable their cognitive abilities and result in higher academic achievement. Additionally, it is suggested that educators should monitor members' interactions, participation, engagement, and contribution individually, as medium level students, when placed in heterogeneous groups, are challenged, in terms of finding their voice, role, and place. Therefore, to be effective, heterogeneous cooperative groups, in regards to students'

level of ability, should be monitored closely by educators during the implementation of the cooperative learning interventions, to ensure equal participation and contribution of the members.

Gender

Regarding formation of homogeneous or heterogeneous groups, in terms of students' gender it is suggested that:

- Balanced cooperative groups, in terms of gender representation are more effective academically;
- Educators should be consistent with monitoring the interactions between male and female students, especially if the parameter of equal representation is not met.

Reflections

The findings of the study validate the suggestions of the existing literature regarding the effectiveness of mixed gender cooperative groups. The parameter which should be taken into consideration for the formation of such groups is equal representation of both genders. Therefore, a balanced group, consisting of the same number of male and female students facilitates high academic achievement for both. This argument is mostly explained, as research studies have proved that male students tend to receive more help, compared to females. Therefore, while heterogeneous groups, in terms of gender are suggested, the criterion of both genders' equal representation should also be met in order for them to effective.

Age

Regarding formation of homogeneous or heterogeneous groups, in terms of students' age it is suggested that:

- Educators should be cautious when they form cooperative groups, consisting of students in different ages;
- Group cohesiveness, effective communication, and appropriate collaboration between the members should be considered.

Reflections

While the existing literature suggests that heterogeneous cooperative groups, in terms of students' age lead to higher academic performance, the findings of the are not consistent with this argument. On the contrary, homogeneous cooperative groups, consisting of students in the same age found to be more effective. This might be explained due to the cohesiveness of these groups. Specifically, students of the same age might be more comfortable to communicate and collaborate with each other, rather than working with older or younger students. Therefore, this research study suggests that the atmosphere which is created in a cooperative group consisting of students of the same age - effective communication, collaboration, and cohesion - facilitates higher academic performance. As this is a case study, this argument needs to be further explored in other educational settings that implement cooperative learning, in order to be validated.

Nationality

Regarding formation of homogeneous or heterogeneous groups, in terms of students' nationality it is suggested that:

- Heterogeneous cooperative groups lead to higher academic achievement;
- Heterogeneous cooperative groups result in academic as well as social outcomes.

Reflections

Nowadays classrooms have been transformed into multicultural learning environments, as relocation to other countries, and continents have become extremely feasible for work or other related issues. The existing literature suggests that cooperative groups, consisting of students with different nationalities not only facilitate students' academic achievement, but also result in social outcomes. This study validates this argument, as according to its findings such groups generated higher academic achievement for students, rather than those, consisting of students with the same nationality. Of course, it needs to be highlighted that only a few educators (five) in the investigative educational setting do not form heterogeneous nationality groups, as their class rosters, are consisting of students with the same nationality and thus they do not have this option at all.

Personality

About considering students' personality characteristics, for the formation of the cooperative groups it is suggested that:

- Students' personality should be taken into account for the formation of the groups often, in order to facilitate students' high academic achievement;
- Educators should consider forming balanced groups, consisting of both introverted and extroverted students in order to facilitate all members' academic performance.

Reflections

The findings of this study suggest that considering the factor of students' personality often for the formation of the cooperative groups, result in higher academic performance. Specifically, it is suggested that educators take into account characteristics of students, related to their introverted or extroverted type of personality. Depending on if they are more introverts or extroverts, group members will behave differently in the cooperative group. To avoid a possible domination of the extroverts, and at the same time exclusion of introverts, it is advised that educators attend the criterion of equal representation of each personality type, by forming more balanced groups.

Level of Social Skills

About considering students' level of social skills, for the formation of the cooperative groups it is suggested that:

- Educators, who consider the level of students' social skills for the formation of the groups often, they facilitate their students' academic achievement;

- The formation of homogeneous cooperative groups, in terms of the level of members' social skills leads to higher academic achievement.

Reflections

When educators consider the level of their students' social skills for the formation of the cooperative groups more often it is more possible their academic achievement to be benefited. Cooperative groups, which are consisting of students with similar level of social skills, can be more effective, due to their cohesiveness. Group members are expected to communicate and collaborate effectively, thus successfully complete the final group product. Therefore, homogenous cooperative groups, in terms of the level of students' social skills are suggested to lead to higher academic achievement. It is advised that the argument needs further examination to be validated, considering that the present research project is a case study.

6.4 Research Goal 3

For the third research goal, suggestions have been made regarding the effectiveness of cooperative learning, and specifically factors related to its implementation. Implementation factors explored in this research goal are: the assignment of roles to group members, the duration of the cooperative learning interventions, the use of extrinsic rewards, the educators' form of instruction, the classroom environment, the teaching of social skills, and the evaluation methods. The suggestions have been expressed based on the analysis and discussion chapters, thus the grade point averages of the students have been taken into consideration, along with the scientific evidence presented and analyzed in the literature review.

Role Assignment

Regarding the practice of role assignment to group members it is suggested that:

- Educators should rethink the practice of assigning roles in order to ensure students' individual accountability;
- When role assignment is implemented to ensure group members' individual accountability, should consider students' learning needs in order to be effective;
- The roles assigned by educators should be interdependent, in order everyone's contribution to be encouraged.

Reflections

While implementing cooperative learning educators might consider assigning specific roles to the group members. This has been suggested by the existing literature as a way to ensure members' individual accountability, and therefore facilitating students' academic achievement. However, the findings of this study were not consistent with this argument. For this reason, it is suggested that educators should re-think the practices which are used, or can be used in order to ensure member's individual accountability. Additionally, since they choose to measure students' individual accountability, through assigning specific roles to the group members it is advised that these will be

aligned to students' learning needs, in order for the practice to be effective and the roles attainable. Finally, educators might be useful to assign roles that are interdependent, in order to encourage the contribution of all members.

Duration

Regarding the duration of the cooperative learning interventions it is suggested that:

- For the duration of the cooperative learning interventions the teaching course, the learning goals, and students' level of ability should be taken into account;
- Cooperative learning interventions should be designed to last for a significant part of the classroom time;
- Cooperative learning interventions lasting from thirty (30) minutes or more is possible to increase students' academic achievement

Reflections

The findings of the study are consistent with the argument, which has been supported by the existing literature, regarding the factor of duration, and its impact on cooperative learning effectiveness. Specifically, it is suggested that the respective cooperative learning methods, should be designed to last for a significant part of the classroom time, in order to be effective, in terms of facilitating students' academic performance. Interventions lasting for at least thirty (30) minutes or more found to be more effective. While this factor is investigated, the educators and researchers should also take into account other parameters, which affect cooperative learning duration; the teaching course, the learning goals, and students' level of ability. Therefore, while there is indication that the more classroom time educators devote to their cooperative interventions the more effective they will be, it is suggested that this suggested should be further explored.

Extrinsic Rewards

Regarding the use of extrinsic rewards by the educators it is suggested that:

- Extrinsic rewards (grades, prizes, certifications), facilitate students' academic achievement, even in classrooms, in which educators adopt the cooperative instruction, as the primary form of instruction;
- Educators should try to combine the use of cooperative learning along with the integration of extrinsic rewards to maximize students' academic performance;
- As in cooperative classroom environments academic achievement is enabled by students' interactions, when extrinsic rewards are used, educators should ensure that they will not be the primary stimulus for academic achievement.

Reflections

The existing literature supports that extrinsic rewards are not required, while educators implement cooperative learning. This argument is explained, since the academic achievement that cooperative learning enables to students, it is derived primarily by group members' interactions and exposure to

different arguments and perspectives. The findings of this research study do not necessarily disagree with this argument. However, it is suggested that extrinsic rewards, such as grades, prizes, and certifications should be used to maximize students' academic achievement, as it was found that the educators who used them facilitated their students' academic performance more than those who did not. However, it is advised that even if extrinsic rewards will be used, they should not be the primary factor and stimulus that will enable students' academic achievement. This must be a result of the group members' interactions and cooperation among them. Educators therefore should monitor their use, if they decide to implement them.

Form of instruction

Regarding the form of instruction used by the educators it is suggested that:

- A balanced implementation of cooperative, individualistic, and competitive instructional approach is ideal to maximize students' academic achievement;
- Before implementing cooperative instructional approach, as the primary form of instruction educators should consider the level of their classroom heterogeneity.

Reflections

According to the findings of the study, educators who implement a balanced form of instruction – including the cooperative, individualistic, and competitive approach – maximize students' academic achievement. There is a research debate regarding this argument as a body of researchers support that cooperative learning must be the primary form of instruction, in order to facilitate students' academic achievement. On the contrary, the findings of this research project indicate that a balanced approach, including the three form of instruction is more effective. While, this is a conflicting point in the scientific field, further investigation is suggested in other educational settings, implementing cooperative learning. Finally, it is advised that educators who plan to implement cooperative learning as a primary form of instruction should be cautious of their classroom heterogeneity, especially in terms of students' level of ability, so their interventions to be more effective.

Classroom Environment

Regarding the classroom environment it is suggested that:

- A collaborative classroom environment, which is created by the educators embody the role of facilitator and mediator of learning rather than director, facilitate students' academic performance.

Reflections

The findings of the research validate the argument that has been supported by the existing literature that a cooperative classroom environment, in which the educators act as facilitators and mediators of learning, facilitates students' academic performance. Therefore, educators who plan to implement cooperative learning in their classroom should create the appropriate collaborative atmosphere in order for this to be beneficial for students' academic achievement. This atmosphere

is student – centered, as the protagonists of the learning process are the students, which are guided, supported and encouraged by educators to be active participants and contributors. It is suggested to educators who plan to implement cooperative learning, not to act as directors of learning, but seek ways to engage students in this process.

Teaching Social Skills

Regarding teaching social skills to group members it is suggested that:

- Teaching social skills to students, as part of the cooperative learning intervention, results in enhanced academic achievement;
- Educators should plan their cooperative learning methods, taking into account to allow sufficient time for the teaching of social skills to group members.

Reflections

While investigating the group formation factors, it was suggested that the level of students' social skills should be considered, and homogenous group should be formed in order for the facilitation of students' academic achievement. When this is neglected, it is highly possible that the need of teaching social skills as part of the cooperative learning interventions arises. The findings of the study, suggest that teaching social skills as part of the cooperative learning interventions, results in enhanced academic achievement. Therefore, it is advised that educators should design their cooperative learning methods, predicting to allow sufficient time for the teaching of social skills to group members. The development of social skills, such as the ability to effectively communicate, resolve conflict, and cooperate will lead to the attainment of the final group products, and the learning goals as defined by educators. Thus students' academic achievement will be benefited by this practice.

Evaluation Methods

Regarding the evaluation methods which are implemented it is suggested that:

- Evaluation methods based on assessing students' individual accountability leads to higher academic achievement;
- When educators focus on evaluating the final group product, individual accountability should also be included, in order for each student's contribution and participation to be assessed and academic achievement to be facilitated.

Reflections

The evaluation system that educators implement affects students' academic achievement. When cooperative tasks are assessed in order to measure students' individual accountability, then students' academic achievement is benefited. This is explained, as students' genuine contribution and participation to the final group product is assessed. On the contrary, focusing only to final group product might not be sufficient in order for all group members' efforts to be increased and academic achievement to be enabled. Thus, even if the educators plan to assess the final group

product, it is suggested that they should also include measuring students' individual accountability. This combination might be proved more beneficial to produce academic outcomes for all the group members.

6.5 Reflections

From the investigation of the research goals it is concluded that cooperative learning is a social – emotional teaching practice that leads to high academic achievement. However, educators who plan to use it, should be take into consideration their teaching course, the educational grade level in which they teach, as well as all the investigative factors, related to the cooperative groups formation, and the implementation of the method. Both the literature review of this research, as well as the analysis of the data of this case study suggests that if these factors would be addressed then it is highly possible that student performance will be maximized. Due to the nature of a case study it is strongly recommended that the findings should be further explored in similar educational institutions, which implement cooperative learning methods, so as to be validated. All in all, this case study provides scientific evidence that a social – emotional teaching method, in particular cooperative learning, not only results in social – emotional outcomes, but also promotes the academic progress of students.

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Appendix

Cooperative Learning

Without the cooperation of its members society cannot survive, and the society of man has survived because the cooperativeness of its members made survival possible…. It was not an advantageous individual here and there who did so, but the group. In human societies the individuals who are most likely to survive are those who are best enabled to do so by their group.

(Ashley Montagu, 1965)

Cooperation is working together to accomplish shared goals. Within cooperative situations, individuals seek outcomes that are beneficial to themselves and beneficial to all other group members. Cooperative learning is the instructional use of small groups so that students work together to maximize their own and each other's learning (Johnson D. & Johnson R).

This questionnaire aims to collect data on the use of cooperative learning as well as their beliefs and selections regarding factors that impact its effectiveness.

Please navigate to the next section to fill out the questionnaire.

* Required

1. Email address *

General Information

The following questions are related to information regarding the level of education you are currently teaching, your teaching course(s), the categories that these are classified, your teaching experience, your opinion on the positive impact of cooperative learning on student performance, and how often you integrate cooperative learning into your instructional methods.

2. Which of the following better describes your teaching experience? *

Mark only one oval.

- 0 - 5 years
- 6 - 11 years
- 12+ years

3. Which school are you currently teaching in? If more than one, select the one with most teaching hours. *

Mark only one oval.

- ◯ Elementary School *Skip to question 4*
- ◯ Middle School *Skip to question 5*
- ◯ High School *Skip to question 5*

Elementary School Section _ Grade

You were navigated to this section because you are currently teaching in the elementary school. Please answer the following question to specify the grade you are currently teaching.

4. Which grade are you teaching? *

Mark only one oval.

- ◯ Grade 1 *Skip to question 9*
- ◯ Grade 2 *Skip to question 9*
- ◯ Grade 3 *Skip to question 9*
- ◯ Grade 4 *Skip to question 9*
- ◯ Grade 5 *Skip to question 9*
- ◯ Elective /Special *Skip to question 5*

Teaching Course Category

You were navigated to this section because you are currently teaching in the elementary, middle or high school. Please answer the following question to specify which category your course falls under.

5. Which of the following best describes your teaching course? *

Mark only one oval.

- ◯ Theoretical
- ◯ Practical

6. In which of the following categories is your course classified? If more than one, please check the appropriate boxes. *

Check all that apply.

- [ ] Arts
- [ ] English / Other Language
- [ ] Mathematics
- [ ] Physical Education
- [ ] Science
- [ ] Social Studies

Other: [ ] _____

7. If you are teaching more than one course, please respond to this questionnare considering only one of your teaching courses. Indicate this below, i.e: Block 4: Humanities *

_____

8. For the course you indicated above please specify if it is: *

Mark only one oval.

- ◯ Honors
- ◯ Regular
- ◯ Mixed

Cooperative Learning

The following questions assess educators' beliefs on the effect of cooperative learning on student performance and the extent of its use in the classroom.

9. According to your opinion to what extent cooperative learning facilitates student performance? *

Mark only one oval.

	1	2	3	4	5	
Very Low	◯	◯	◯	◯	◯	Very High

10. To what extent did you integrate cooperative learning methods in your instruction? *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Very Often

Cooperative Learning_Groups Formation

The following questions assess the factors that impact cooperative learning groups formation. Specifically the factors that are investigated are the size and type of the groups, students' level of ability, gender, age, nationality, personality, and social skills.

11. Considering my groups' size, they are mostly organized in: *

Mark only one oval.

- ◯ Pairs
- ◯ Small Groups (4-5 students)
- ◯ Pairs & Small Groups

12. Which of the following types of cooperative learning groups do you choose to organize your classroom ? If more than one, please check the appropriate boxes. *

Team Learning: Students are organized and divided into different teams preparing to compete; Expert Groups: Consisting of students who all research the same topic; Collaborative Task Completion: Consisting of students who are assigned to complete a group task, in which they are also evaluated; Collaborative Problem - Solving or Investigation: Consisting of students who are assigned to solve or investigate a problem selected by them or the educators.

Check all that apply.

- ☐ Team Learning
- ☐ Expert groups
- ☐ Collaborative Task Completion
- ☐ Collaborative Problem - Solving or Investigation

Other: ☐ _____

13. Based on the ability level of my students, I form cooperative groups that are: *

Mark only one oval.

- ◯ Homogenous
- ◯ Heterogenous

14. I form the cooperative groups based on the learning needs of every student: *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Very often

15. I form the cooperative groups based on the ability level of every student: *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Very often

16. When I form cooperative groups I assign students with special learning needs in the same group. *

Mark only one oval.

- ◯ Yes *Skip to question 18*
- ◯ No *Skip to question 17*

Special Learning Needs

You were navigated to this section because you are not assigning students with special learning needs in the same group.

17. Prior to assigning special education students to work in cooperative groups I seek advice from the special education professional staff: *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Very Often

Cooperative Learning_Groups Formation i

The following questions assess the factors that impact cooperative learning groups formation. Specifically the factors that are investigated are the size and type of the groups, students' level of ability, gender, age, nationality, personality, and social skills.

18. I form cooperative groups consisting of students in different grades: *

Mark only one oval.

- ◯ Yes
- ◯ No

19. I form cooperative groups consisting of both male and female students: *

Mark only one oval.

- ◯ Yes *Skip to question 20*
- ◯ No *Skip to question 21*

Gender Representation

You were navigated to this section because you form coopeative groups consisting of both male and female students.

20. When forming groups with both male and female students I take into consideration equal representation of each gender: *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Very Often

Cooperative Learning_Groups Formation ii

The following questions assess the factors that impact cooperative learning groups formation. Specifically the factors that are investigated are the size and type of the groups, students' level of ability, gender, age, nationality, personality, and social skills.

21. I form cooperative learning groups consisting of students from different nationalities: *

Mark only one oval.

◯ Yes
◯ No

22. When forming cooperative learning groups I consider each student's personality: *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Very Often

23. For the formation of the groups, I consider each student's level of social skills: *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Very Often

Cooperative Learning Implementation

The following questions assess factors that impact the effectiveness of cooperative learning, associated with its implementation in the classroom. Specifically, the roles of group members, the duration of the cooperative learning method, individual accountability, extrinsic rewards, form of instruction, and evaluation are investigated.

24. I assign specific roles to each of the group members: *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Very Often

25. Usually my cooperative learning session lasts: *

Mark only one oval.

- ◯ up to 15 min
- ◯ 16 - 30 min
- ◯ more than 30 min
- ◯ I do not take the duration parameter into consideration

26. I use extrinsic rewards when implementing cooperative learning in my classroom: *

Extrinsic Rewards: Prizes, Certificates, Grades

Mark only one oval.

- ◯ Yes *Skip to question 27*
- ◯ No *Skip to question 28*

Extrinsic Rewards

You were navigated to this section because you use extrinsic rewards when implementing coopeartive learning in your classroom.

27. I use extrinsic rewards that are: *

Invdivual rewards: Members of the group are rewarded for their perfromance even if the group goal will not be accomplished; Group rewards: Members of the group are rewarded as a whole.

Mark only one oval.

- ◯ Individual
- ◯ Group

Cooperative Learning Implementation i

The following questions assess factors that impact the effectiveness of cooperative learning, associated with its implementation in the classroom. Specifically, the roles of group members, the duration of the cooperative learning method, individual accountability, extrinsic rewards, form of instruction, and evaluation are investigated.

28. The form of instruction I implement is: *

Coopeartive Instrution: Students cooperate with their classmates to achieve individual and group learning goals; Competitive Instruction: Students achieve their learning goal, when their classmates do not ; Individualistic instruction: Students achieve or not their learning goals, irrespective of the progress of their classmate.

Mark only one oval.

- ◯ Cooperative
- ◯ Competitive
- ◯ Individualistic
- ◯ Mixed

29. I use cooperative learning as a primary form of instruction: *

Mark only one oval.

- ◯ Yes
- ◯ No

30. I integrate teaching of social skills in my cooperative learning interventions: *

Mark only one oval.

- ◯ Yes
- ◯ No

31. I set my classroom environment to facilitate cooperative learning:

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Often

32. I use cooperative learning tasks to assess mostly:

Mark only one oval.

- ◯ Academic Growth
- ◯ Absolute Level Performance
- ◯ Other: _____

33. During the process of cooperative learning I include evaluation methods to measure the focus of each group member on the task: *

Mark only one oval.

- ◯ Yes
- ◯ No

34. During the cooperative learning process I assess members' active interaction, engagement, and participation: *

Mark only one oval.

	1	2	3	4	5	
Rarely	◯	◯	◯	◯	◯	Very Often

35. I evaluate the participation and contribution of each cooperative group member on individual accountability: *

Individual Accountability: The contribution of each group member for the final outcome of the task.

Mark only one oval.

◯ Yes
◯ No