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**Psychosocial and Cognitive Development  
of Undergraduate University Students  
in Greek Cypriot Universities**

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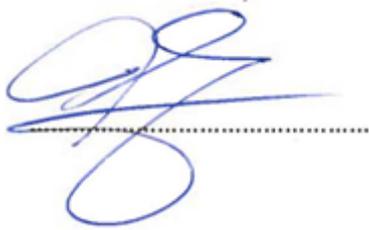
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## **DECLARATION OF DOCTORAL CANDIDATE**

The present doctoral dissertation was submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy of the University of Cyprus. It is a product of original work of my own, unless otherwise mentioned through references, notes, or any other statements.

Fotini Kranou Kyriakides



## Abstract in Greek Language (ΠΕΡΙΛΗΨΗ)

Ο στόχος της συγκεκριμένης διδακτορικής διατριβής είναι η διερεύνηση της παρούσας κατάστασης της ψυχοκοινωνικής και της γνωστικής ανάπτυξης των φοιτητών καθώς και της διαφοροποίησης της στα χρόνια της ανώτατης εκπαίδευσης ενός ατόμου στα Ελληνοκυπριακά Πανεπιστήμια. Στο θεωρητικό τομέα, η διατριβή εξετάζει την αλληλεπίδραση ανάμεσα στην ψυχοκοινωνική και γνωστική ανάπτυξη σε τέσσερα επίπεδα ανάλυσης μέσα από μια τριαδική επιστημολογία του υποκειμένου-αντικείμενου-άλλου.

Λαμβάνοντας υπόψη την θεωρία ηθικής και γνωστικής ανάπτυξης του Perry ως σημείο εκκίνησης, πρώτα μελετάται ο τρόπος που ο Perry επηρεάστηκε από τους Piaget και Kohlberg σε σχέση με την διατύπωση μιας θεωρίας των σταδίων και ακολούθως συζητείται το πώς η θεωρία του Perry επηρέασε τις πιο σύγχρονες θεωρίες μετα-τυπικής σκέψης της γνωστικής ανάπτυξης. Προβάλλεται το επιχείρημα πως όλες οι θεωρίες σταδίου εξαρτώνται πάνω σε μια δομική ανάγνωση της Πιαζετινής θεωρίας καταστέλλοντας τις αναφορές στην κοινωνιοψυχολογική θεωρία του Piaget και συγκεκριμένα τον ρόλο της κοινωνικής αλληλεπίδρασης στην γνωστική ανάπτυξη. Αυτή η διατριβή παρουσιάζει την κριτική που ασκήθηκε από τον Riegel και το διαλεκτικό πλαίσιο στην προσπάθεια του να απομακρυνθεί από το ατομικιστικό παράδειγμα, όμως ταυτόχρονα αναδεικνύει τα προβλήματα αυτών των αρχικών προσπαθειών. Αυτό το πρόβλημα επανορθώνεται μέσα από μια συζήτηση των τρόπων με τους οποίους σύγχρονοι κοινωνιο-πολιτισμικοί θεωρητικοί κατανόησαν την ανθρώπινη ανάπτυξη στις πιο σύγχρονες τους θεωρίες. Περαιτέρω, η διατριβή μελετά την κοινωνιο-ψυχολογική θεωρία στην Πιαζετινή προσέγγιση και την θεωρητική εξέλιξη του μέσα από διαδοχικές γενεές έρευνας στην κοινωνική αλληλεπίδραση και γνωστική ανάπτυξη. Ακολούθως, προτείνεται ένα ολοκληρωμένο πλαίσιο ανθρώπινης ανάπτυξης ως μια κοινωνιο-ψυχολογική διαδικασία και το οποίο επαναφέρει τον κεντρικό ρόλο των κοινωνικών σχέσεων σε σημαντικά γνωστικά και ψυχοκοινωνικά αναπτυξιακά αποτελέσματα όπως αυτά της τυπικής σκέψης, του ενδιαφέροντος για πραγματική μάθηση, της ανεκτικότητας, της δέσμευσης σε μελλοντικά σχέδια και του αισθήματος αυτό-καθορισμού. Τα αποτελέσματα της διατριβής, πέραν της παρουσίασης μιας περιγραφής του προφίλ και της ανάπτυξης των φοιτητών πανεπιστημίου για πρώτη φορά στο Κυπριακό πλαίσιο, ξεκαθαρίζουν το ρόλο του φύλου και του κοινωνικο-οικονομικού καθεστώτος στην ανάπτυξη. Επιπλέον, η διατριβή επιχειρεί τη συνάρθρωση των τεσσάρων επιπέδων ανάπτυξης του Doise (1986) μέσα από την ενσωμάτωση του ρόλου της κοινοτικής

συλλογικής ταυτότητας και ιδεολογικών μεταβλητών σε ένα κοινωνιο-πολιτισμικό μοντέλο ανάπτυξης των φοιτητών πανεπιστημίων.

Τα δεδομένα συλλέγησαν με διαχρονική έρευνα ερωτηματολογίου. Ένα ερωτηματολόγιο με αξιόπιστες κλίμακες κατασκευάστηκε μετά από αριθμό πιλοτικών δοκιμασιών. Οι κλίμακες βασίζονται στο θεωρητικό πλαίσιο του σχήματος του Perry (1998), της θεωρίας της κοινωνικής ψυχολογίας του Piaget και της θεωρίας των διανυσμάτων της ταυτότητας των Chickering και Reisser (1993). Οι ερωτήσεις δημιουργήθηκαν βάσει των θεωριών που αναφέρονται στη διατριβή στα σχετικά θέματα των δύο υπό διερεύνηση περιοχών ανάπτυξης. Το ερωτηματολόγιο χορηγήθηκε σε δύο διαφορετικά ακαδημαϊκά έτη.

Τα ευρήματα της έρευνας προτείνουν ότι παρατηρούνται ήσσονος σημασίας αλλαγές κατά τη διάρκεια των φοιτητικών χρόνων. Δίδεται σημασία στο ρόλο του φύλου, της κοινωνικο-οικονομικής κατάστασης και κλάδου σπουδών, ενώ με τη βοήθεια ιεραρχικών παλινδρομήσεων, σταυρωτών διαχρονικών συσχετίσεων και την δημιουργία ενός μοντέλου δομικών εξισώσεων, η διατριβή προτείνει ένα πιο ολοκληρωμένο και ξεκάθαρο μοντέλο για τον κεντρικό ρόλο των κοινωνικών σχέσεων σε σχέση με την γνωστική και ψυχοκοινωνική ανάπτυξη των φοιτητών.

## **Abstract**

The purpose of this thesis is to examine the current state of affairs and changes taking place in the higher education years of an individual in relation to both aspects of psychosocial and intellectual development in Greek Cypriot Universities. Theoretically, the thesis explores the interplay between psychosocial and intellectual development at four levels of analysis through a triadic epistemology of the subject-object-other.

Taking Perry's theory of ethical and intellectual development as a point of departure the thesis discusses the way Perry was influenced by both Piaget and Kohlberg, in the formulation of his stage theory. The way Perry's work influenced more recent post Post-formal theories of cognitive development is also discussed. It is argued that all stage theories depended on a particular structuralist reading of Piagetian theory that suppressed the references to the social psychological work of Piaget and in particular the role of social interaction in cognitive development. This thesis then discusses how critical voices internal to this literature like Riegel's attempted to depart from what they considered the individualistic paradigm through the introduction of a dialectical framework but then also point to the problems and shortcomings of these initial efforts. This problem is redressed through a discussion of the ways that major socio-cultural theorists understood human development in their more recent theories. Furthermore, the social in Piagetian theory and its development through successive generations of research on social interaction and cognitive development is revisited. An integrative framework of human development as a social psychological process is then proposed that welds together a role for social relations on crucial cognitive and psycho-social developmental outcomes like that of formal operational thinking, deep learning, tolerance, commitment to future plans and self-determination. The results of the thesis, beyond providing for the first time in the Cypriot context a description of the profile of university students' state of development also clarify the role of gender and socio-economic status of the students in their development. Additionally, the thesis attempts the articulation of Doise (1986) four levels of analysis by integrating a role for social ethnic identity and ideological variables in a socio-cultural model of university student's development.

A questionnaire with reliable scales was designed after various cycles of pilot testing. The measures are based on the theoretical framework of Perry's Scheme (1998), Piaget's social psychological theory (Piaget 1932; Piaget 1977/1995) and Chickering and Reisser's vectors of identity (1993). Questions were created based on the theories used in this thesis

on the relevant subjects of the two areas of development to be examined. Its final version was administered at two different semesters.

The findings suggest that minor changes are observed during the university years of a student. Still light is shed on the role of gender, socio-economic status and the major followed in relation to the cognitive and psycho-social development of students. With the help of hierarchical regressions, cross-lagged correlations and the construction of a SEM model a more holistic and clear picture of the role of social relations in cognitive and psycho-social development of students is offered.

## Summary

In this PhD thesis I explore the psycho-social and cognitive development of Greek Cypriot University students. Taking Perry's theory of ethical and intellectual development as a point of departure I first explore the way Perry was influenced by both Piaget and Kohlberg in relation to the formulation of a stage theory and then discuss the way Perry's work influenced more recent post Post-formal theories of cognitive development. It is argued that all stage theories depended on a particular structuralist reading of Piagetian theory that suppressed the references to the social psychological work of Piaget and in particular the role of social interaction in cognitive development. This critique is articulated in two moves. First, I show how critical voices internal to this literature like Riegel's attempted to depart from this individualistic paradigm through the introduction of a dialectical framework but then also point to the problems of this initial efforts. A major problem of these first efforts was the absence of a well developed socio-cultural framework for analysis based on Vygotskian theory. This problem is redressed through a discussion of the ways that major socio-cultural theorists understood human development in their more recent theories. In a second move I revisit the social in Piagetian theory and its development through successive generations of research on social interaction and cognitive development. An integrative framework of human development as a social psychological process is then proposed that welds together a role for social relations on crucial cognitive and psycho-social developmental outcomes like that of formal operational thinking, deep learning, tolerance, commitment to future plans and self-determination. The results of the thesis, beyond providing for the first time in the Cypriot context a description of the profile of university students state of development also clarifies the role of gender and socio-economic status of the students in their development. Additionally, the thesis attempts the articulation of Doise (1986) four levels of analysis (intra-personal, interpersonal, intergroup/positional, social representations/ideological) by integrating a role for social ethnic identity and ideological variables in a socio-cultural model of university student's development.

## Aknowledgments

This thesis is the result of a beautiful journey personally, academically and professionally. I have been working with university students in the USA and in Cyprus since I was a university student myself. As an athletic counselor, practicum counselor at the University of Louisiana, Counselor at the University of Cyprus and at the Cyprus University of Technology I observed the ways that students learn, socialize, relate, and develop. The ways in which I observed for so many years young adults developing socially and cognitively and the change that takes place during their undergraduate studies, as well as my personal change while studying at the university, have intrigued my academic curiosity and were the reason for this research.

First of all I would like to thank my whole family for supporting me in more ways than they will ever know; each and everyone in their own way. I would like to express my graditude and love to my husband Christos Kyriakides for his emotional support and love throughout this exciting yet difficult journey. I thank him also for all the technical support when technology failed me more than often. His ongoing encouragement and believing in me made it possible for me to persist.

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I dedicate this thesis and my Ph.D to the light of my life, my son Andrew.

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## Introduction

This thesis is motivated by my personal experience of working with university students in counseling centers of university settings for ten years. It has been an amazing and wonderful experience to observe the modification in the students' manner of thinking, socialization, and approach to their studies. But what I found most intellectually challenging was to render intelligible the role that their relationship with their self, their interactions with others, and their relationship with collectivities like the university, and more generally the country they live in how they all relate to each other. This thesis examines all of the above, but places important emphasis on the psychosocial and intellectual development of students in Greek Cypriot universities. Unfortunately there has not been any research until today in Cyprus to study all of the above.

There is a number of research studies examining the Cyprus higher education system, for example the types of higher education institutions, the type of education they offer and the fields of study individuals choose the most (eg. Pashiardis, 1997) and the demand for higher education in Cyprus (Menon, 1997). In addition, studies examine the predicaments of higher education and specifically examine general in opposition to specialized higher education, elite versus mass higher education, and the economics of higher education (Pashiardis, 2006). Further research focuses on the conflict that exists among society and academics regarding the role of the university and the ways that the conceptions that academics have about the role of the university influence the knowledge being constructed, as well as the legitimation to be provided (Persianis, 2000). Moreover, other more student-centered studies examine the ethical judgments like violation of school regulations, selfishness, cheating, and computer ethics of university students in two accredited Greek Cypriot universities (Zopiatis-Krambia-Kapardis, 2007).

Other studies examining university student issues observe their views in regards with participation in university governance (Menon, 2005), university student views regarding the aspirations and character of the university, as well the whether the extent to which the university prepares the students for the labour market is satisfactory (Menon, 2002). Moreover, earnings and employment expectations of university students (Menon, 2008), as well as the earnings and employment paths were of recent graduates were compared (Menon et al., 2012).

During their university years, a number of changes in the intellectual and the psychosocial domains of students are expected to occur. This thesis observes and describes aspects of the cognitive and psychosocial development of students in Greek Cypriot universities and in particular the quality of social interactions and relationships with their peers, and family, faculty university and society more generally.

The thesis will map for the first time the current state of the cognitive and psychosocial development and social relations of Greek Cypriot university students on a number of issues in order to shed light on the university students' views, behaviours, relationships and how these change from one year to the next through a longitudinal examination of relationships between a series of variables. The thesis will additionally explore the role of gender, socio-economic status of students and the major of their studies in relation to their cognitive and psycho-social development.

But this thesis primarily aspires to do more than map the status of the current views of students and understand what changes from one year to the next. It also aims to make a theoretical contribution in the existing theories of development during the university years through a sociocultural approach that has been developing during the last decade in the field of social developmental psychology, that of Genetic Social Psychology (Psaltis & Zapiti, in press). In the process of developing such a sociocultural framework I will be revisiting Piagetian theorising and specifically unearth from oblivion the forgotten social psychology of Piaget (Kitchener, 1982; 2004) which is a necessary step in order to redress the theoretical problems that emerge in the dominant paradigm of research in university students' development, that of William Perry (1969/1999).

William Perry's book *Intellectual and ethical development in college years* (1969/1999) was influenced by Piaget and it will be argued that he read Piaget as simply a stage theorist, as most mainstream western developmental psychologists did during the sixties and seventies thus failing to offer a proper social constructivist framework of student development. Perry himself was a stage theorist and did not elaborate on the role that the quality of social relationships plays in the co-construction of the intellectual and psychosocial development of students. This was an area also not covered by the major developmental psychologist who is often considered as the primary representative of a socio-cultural theory of human development, Lev Vygotsky.

Perry's views on the way particular epistemological positions as stages relate to particular ways of relating with figures of authority as I show in the literature review section of this thesis, are in fact problematic. Social relationships of a cooperative or

constraining form in Piagetian terminology (Piaget, 1932) can be found at any point in a child's development and as such they are expected to be linked with processes of co-construction and communication across the life span and not relate to any specific point in a person's life, only to be superseded afterwards. The self is not only relating with particular others, but it also relates to collectivities and this is again a fact of life that is present from life to death. The way the self relates with these collectivities can also take varying forms and it need not be specifically related with any specific stage as it will be argued in the thesis. The personal epistemology of individuals might not shift from stage to stage in a stage like manner, but what could matter the most is to examine the role of the quality of the relationships of the individuals with particular forms of epistemological beliefs. Perry wrote his book in the era of the strong critic by developmental psychologists of Piaget's formal operational stage as the end point of development. A number of theorists (Baxter-Magolda (1992), Belenky-Clinchy, Goldberger and Tarule (1986), King & Kitchener (1994), Kuhn (1979) studied university students based on Perry's model. Perry relates specific types of relationships with specific stages; this thesis argues that the way of relating and belonging in the collectivity is a process not confined within specific stages, but is to be found throughout the lifespan. And although Vygotsky and post-Vygotskians like Cole (1986; 1996) do place emphasis in activity and how it is structured in terms of expectations and norms, they did not theorise how the quality of social relationships and ways of interacting with others relates to cognitive and psychosocial development in the same way that one can find in Piagetian theorising (Psaltis, Duveen & Perret-Clemmont, 2009)

Most stage theorists influenced by Piaget like Perry (1968/1999) and Kohlberg (1971;1976) reduce social interaction and the quality of social relations into a form of social knowledge, whereas this thesis views social interaction and microgenesis in particular as the "motor" of human development (Duveen and Lloyd, 1990).

There is also a contribution of this thesis at the a national level and more generally as a case study of post-conflict societies since the emphasis it brings on issues of national identification and intergroup relations with the other main community of Cyprus, that is Turkish Cypriots, and the role of social interaction with them makes quite visible the ways in which national identification regulates not only the potential of social interaction to reduce prejudice for the other community, but also the potential for cognitive integration and reflection of epistemological beliefs, the learning process and cognitive development it self. Such an integration of social identity dynamics in cognitive developmental theories is

indeed seen as one of the main contributions of this thesis in that the proposed framework achieves the articulation of Doise's four levels of analysis (Intrapersonal, Interpersonal, Intergroup/Positional, Ideological/Social representations).

To sum up, the purpose of this thesis is to examine the current state of affairs and changes taking place in the higher education years of an individual in relation to both aspects of psychosocial and intellectual development in Greek Cypriot Universities. Theoretically, the thesis aspires to explore the interplay between psychosocial and intellectual development at four levels of analysis through a triadic epistemology of the subject-object-other.

## **The Chapters**

### **Chapter 1: Perry's Model of Ethical and Intellectual Development in the College Years**

In the first chapter I discuss the basic theories that I consider significant in understanding student development. I based this thesis on William G. Perry's theory of student development. Perry was an educational psychologist and professor at Harvard School of Education, who studied the intellectual and cognitive development of male university undergraduate students in the 1950s and 1960s. Perry, as a stage theorist based on the Piagetian school, examined their epistemological development through nine positions ranging from dualist to relativist epistemologies, grouped in four categories; dualism, multiplicity, contextual relativism, and committed relativism. Perry's research was the basis for studies that followed in the more recent years including students of both genders, different nationalities and in a great variety of universities. Despite the fact that various models and modifications have been proposed, it could be argued that the main developmental trajectory identified by Perry from initial absolutism through relativism to a more constructivist epistemological stance is always present. The student development theories that will be discussed in this chapter are self identity theories (Erickson's stages of Psychosocial Development, Marcia's Ego Identity Status, Chickering's Theory of Identity Development), cognitive theories (Perry's Theory of Intellectual and Ethical Development, Belenky, Clinchy, Goldberger, and Tarule's theory of women's ways of knowledge, Baxter Magolda's Model of Epistemological Reflection, King and Kitchener's Reflective Judgement Model), moral development theories (Kohlberg's Theory of Moral Development and Gilligan's Theory on Women's Moral Development). What Perry and post-Perry theorists have in common is that they are deeply influenced by Piaget, yet read him merely as a stage theorist and did not take into consideration the social psychological and sociological part of his theory.

### **Chapter 2: From dialectics to socio-cultural theories of human development**

The period of the 1960's was the time when a social critique was applied in many areas of western societies concerning warfare, politics, and education. Moreover, at this time, the social theorization of Vygotsky was introduced in the west. In this chapter I present Klaus Riegel's (1976) critique to Piaget's cognitive development theory and underline some of

what could be seen as fair and unfair critique of Piagetian theory. Riegel essentially argued for an active social actor in an active social environment and criticised both Piaget and Vygotsky from this perspective. I argue although Riegel is right to support this view he downplayed the fact that Piaget was dialectic himself and that Vygotsky was deeply influenced by Piaget. In this chapter I present the Vygotskian theory and specific idea of proximal development, one of Vygotsky's most interesting ideas in his study of ontogenesis of higher mental functioning, and conception of knowledge acquisition. I place emphasis on the fact that up to this date all of Vygotsky's work has not yet been translated from Russian to English, as well as on the fact that his work has been translated in different versions, providing probable misreading and misunderstandings. This chapter ends with a more updated view of human development in a socio-cultural context by post-Vygotskian sociocultural theories stating that development is viewed as a process of transformation through people's participation and not as a mere transfer of knowledge (Rogoff, 1990), mediated by action and human agency (Wertsch, 1991; 1995, Wertsch, Tulviste & Hagstrom, 1993), Cultural Historical Activity Theory (Cole, 1995; 1996), and cognitive revolution (Bruner, 1990).

### **Chapter 3: Rediscovering the Social in Piaget: Towards a triadic theory of student development**

In the first part of this chapter I discuss in detail Piaget's biography and I intensely explain how and why Piaget was misinterpreted and misread by mainstream psychologists. Though Piaget is known for his cognitive development theory, he is not widely known in the sociology field due to the fact that most of his social psychological and sociological work was only translated into English in 1995 (Piaget, 1977/ 1995), his theory was read selectively through his voluminous writings, leading to criticisms based on limited awareness of Piaget's entire work. Piaget was neither a follower of methodological individualism nor of sociological holism but he took the middle road of relationalism (Psaltis, 2007). Piaget believed that an individual placed in a system of social relations based on mutual respect starts to develop its own personality which is the outcome of continuous interaction with others with comparison, opposition, and mutual adjustment and in this chapter I discuss the types of self-other relationships and the corresponding types of morality that Piaget proposed as the basis of Perry's theorising even if Perry failed to make

these explicit connections in his theory. In this chapter the notions of relations of cooperation, relations of constraint and relations of equilibrium are discussed in detail. Triadic theories and social representations as examined through the three generations of research are explained and analyzed in this chapter providing comprehensive literature review and arguments explaining how the relationships between a psychological subject and another psychological subject both at the interpersonal and the inter-group levels of analysis are expected to formulate the way we approach the epistemological object.

#### **Chapter 4: Methods**

This thesis attempted to resolve the issue of the absence of a valid and reliable questionnaire that measures the various aspects of students' cognitive and psycho-social development, as well as the a lack of research that explores the process of change itself through quantitative methods. This thesis attempts to redress these problems first, through the construction of such a questionnaire in the Greek language and second the design of a longitudinal study. In order for this thesis research questions to be answered, a questionnaire with reliable scales was designed after various cycles of pilot testing. The measures are based on the theoretical framework of Perry's Scheme (1998), Piaget's social psychological theory (Piaget 1932; Piaget 1977/1995) and Chickering and Reisser's vectors of identity (1993). Questions were created based on the theories used in this thesis on the relevant subjects of the two areas of development to be examined. The questionnaire was pilot tested twice and its final version was administered at two different semesters. The first wave questionnaire was answered by four hundred and thirty two ( $N=432$ ) undergraduate Greek Cypriot university students and the second wave by two hundred and one ( $N=201$ ).

#### **Chapter 5: The Results**

In this chapter I present the data analytic strategy I followed to answer my main research questions and the relevant findings. The five research questions that this thesis attempted to answer were: a) Offer a description of the profile of Greek Cypriot undergraduate students, b) Explore possible differences in terms of gender, socioeconomic status (SES) and year of studies on the variables measuring aspects of the psychosocial and cognitive development of students across their academic studies and c) Explore longitudinal changes in a period of 16 months shift on the variables measuring aspects of the psychosocial and

cognitive development of students , d) Identify patterns of interrelationship between the variables e) Specifically explore a social constructivist account of the role of the quality of social relationships for learning and cognitive development. The findings suggest that minor changes are observed during the university years of a student. Still light is shed on the role of gender, socio-economic status and the major followed in relation to the cognitive and psycho-social development of students. With the help of hierarchical regressions, cross-lagged correlations and the construction of a SEM model a more holistic and clear picture of the role of social relations in cognitive and psycho-social development of students is offered.

### **Chapter 6: Discussion**

In the final chapter I revisit the main findings and highlight their significance and contribution in relation to the various theories reviewed in the theoretical part of this thesis. The proposed framework of Genetic Social Psychology proposes that student development should be examined as the result of social interactions in the context of various social relations that are constrained by belongingness into specific groups and the asymmetrical relations of status (e.g gender, SES, ethnicity) between these groups as a form of privilege. The hallmark of the more advanced forms of cognitive and psychosocial development is a notion of co-operative relationships both at the interpersonal and intergroup levels of analysis and in this sense the field of intergroup relations should become a central theme of the future studies of student development.

# Chapter 1: Perry's Model of Ethical and Intellectual Development in the College Years and beyond

## 1.1. William Perry and his theory as a point of Departure

William G. Perry was an educational psychologist and professor at Harvard School of Education, who studied the intellectual and cognitive development of students while in college. Perry studied male Harvard University students in the 1950s and 1960s. Perry and his colleagues began to examine the experience of students and initially they had agreed to evaluate twenty or thirty students with open interviews at the end of each academic year to observe the diversity in the students' answers concerning the intellectual and ethical relativity.

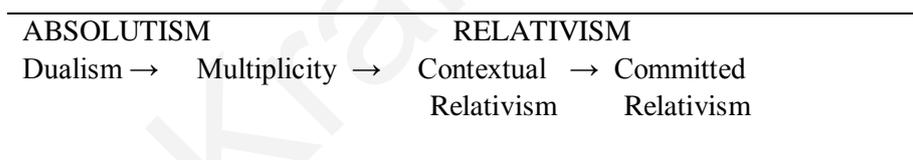
He believed that their epistemological growth developed in the course of the "journey" through nine positions ranging from dualist to relativist epistemologies and which are categorized into four stages. He came to the conclusion that students are the makers of meaning. Perry created a developmental scheme, which explains how students learn and which attempts to comprehend the way a university student views the nature of learning, of truth, of the world, and the way an individual makes his or her choices about the meaning of life, responsibilities, and values. Moreover, the context of intellectual development which Perry examined includes how university students learn, think, comprehend, organize, evaluate and feel about the experiences and facts that take place during their studies.

In addition, he argued that the students' expectations about learning and teaching change while at university and that they follow a pattern explained in his schema of nine positions grouped into four categories. Each category as a stage represents each one of the four undergraduate years. In positions 1,2 and 3 the person modifies the absolutist right or wrong way of thinking to allow for multiplicity of points of view. In positions 4,5 and 6 the person is coordinated with diversity. The idea of position 5 is that the person views knowledge as relative and though professors might be viewed as experts, they are not above scrutiny. The order of structures before position 5 describes the development of a person from the dualistic absolutism towards the acceptance of a more general relativism. The order after this position describes and explains the development of the person while placing the self in a relativistic world through the action of personal commitment in a way that a particular position is taken and justified.

There are three positions of diversion from development and these are *delaying*, *escaping*, and *retrieving* which offer alternative solutions at the critical points of

development. A student can turn to them when he or she does not feel ready, when angry and when they feel estranged. These deflections were seen as proper reactions to particular contexts or circumstances. Perry views knowledge as an acquirement of values which are challenged and redefined to be adopted with confidence. The Perry scheme, as well as its extension by later researchers (Moore, 1991; 1994) suggests that in some way the change of beliefs about the nature of knowledge precedes and ‘triggers’ changes in the learner’s views about the role of the teacher, who is viewed as the source of truth to authority as a resource with expertise to share, and changes in the role of the learner from passive receptor to active agent in defining arguments and creating new knowledge.

The first category in the scheme of Perry (see Figure 1.1 below) is *dualism*, where freshman students view the world in a dualistic form and think in terms of absolutes in black and white, right and wrong, success and failure. They expect authority figures to provide the answers to all questions and that all knowledge is possessed by those authority figures (i.e. professors). It is expected that the professors will provide them with the correct knowledge in order to memorize it and they find hypotheses, abstract thought and discussion difficult. Any uncertainty or ambiguity upsets and confuses them. Perry discovered that students in the stage of dualism also find thinking and learning difficult and have decreased tolerance when asked individually and when they present their personal views or conclusions.



**Figure 1.1. Perry’s Scheme**

The first three positions fall under the category of dualism:

Position 1: Basic Duality

In this position the students suppose that knowledge is objective, set and definite. They believe that there are right and wrong answers, which are known to the “authorities”. Thus, they believe that they must obey the authorities. When students are in this position, they think that everything is solvable and their task is to learn the solution from the authorities, even though the right answer could be hidden by them. This is the most basic group of assumptions and opinions in the nature of knowledge and values. The ethical

responsibility of the students includes memorisation through hard work, corrections, answers and tasks imposed by the person in authority, the professor. For as long as the authority and the absolute remain indifferent from one another, the authority figure remains as the wisest form and the structure seems to exist in a closed system. At this position, the students believe that as long as they do their job right and complete whatever they are asked of by their professors, they will do fine. The extension of possible value that the students place on their cooperation with others, the dissimilarity and variance, prepares the ground where the changes in the structure will take place. The changes in development are viewed from thought to meta-thought from the person who knows to the person who is the judge of his or her thought.

#### Position 2: Multiplicity: Pre-legitimate

Students believe that truth exists, but not all authorities are knowledgeable. Moreover they presume that knowledge and its components can be proved, but it might be difficult to be proved; experts may find the proof, but some can be more experts than others. The students understand that it is not possible for all knowledge and learning to be known and they accept different ideas and views in areas of doubt. They understand and realize the variety and diversity in opinions and uncertainty and recognize them as a kind of confusion and that the authority form is not well informed or causes the students' confusion on purpose in order for them to learn to find the true answer themselves. The students might react negatively while disagreeing with the statement that all opinions and thoughts are valuable. If the student rebels towards the authority before being adequate or advanced in analytic abilities of relativistic thought, the result will be the simple and plain absolutism. Knowledge is comprised of facts and principles that can be proved, although it may be difficult to carry out the proof.

#### Position 3: Multiplicity subordinate

The student does not have as strong of a bond with the authority and with absolutism and understands that uncertainty exists even in sciences as physics. Thus, they may wonder how they will be evaluated in a university where not even the professors have the answer. The striving for being correct and hardworking is not as important anymore and the ethics of the authority are under scrutiny and doubted concerning the evaluation of the students' hard work. Therefore, the students feel the need to discover on which basis their opinions are being graded.

In the second category which takes place in the sophomore year, *multiplicity*, students discover that not all knowledge is known and that all opinions have value. In this stage students wonder what their professors want them to think even though their role might be trivialized. This position is often observed in students who have understood that knowledge is not comprised by right or wrong answers and that it is not an issue of right or wrong, but it is a matter of opinion. Until the students reached this stage, they had the opportunity to watch and listen to many forms of authority that seemed to have had the correct knowledge and answers, to disagree among them many times; thus they came to the conclusion that it is possible even for the professors to not have the required knowledge in some cases. The students at the stage of multiplicity still view subjects as true or not true to a large extent, but they also recognize that these subjects can be known or not known yet. In later stages of multiplicity, the students can even understand a kind of knowledge as unfeasible. Trust is observed towards the inner voice and not just towards the authority in the stage of multiplicity, which includes positions 4a and 4b. The student has succeeded to keep dualism in his or her world and simultaneously has prepared the self for the absolute freedom. At this stage the student might oppose the authority and is often expressed in two ways by either attempting to understand and follow the rules of the professor and his words. Emotionally the students of this stage feel anger, sadness, and are agitated.

#### Position 4a

The stage of multiplicity includes positions 4a and 4b. In the position 4a, *Multiplicity Correlate*, the student understands his or her right to a personal opinion in subjects which are not clear and believes that the authority does not have the right to prove it wrong. Moreover, the student feels the freedom of the many choices along with the understanding that the authority might have the wrong knowledge or opinion and come to the view that in the cases that the authority does not have the answers, the opinion of each person is as valuable and correct. Therefore, there is a struggle for a kind of independence in critical intellectual abilities, whereas their answers to various issues are very subjective without the need for meaning or truth and may be based on personal experience; since authority cannot prove a statement to be wrong, then this statement is considered correct.

#### Position 4b

The position 4b is *Multiplicity subordinate*, which is the second possible direction where the student does not assume that all answers are equally correct, but instead meticulously deals with rules. They believe that if they provide the authorities with the exact information that they want to hear, then they will have the right answers. They trust that the authority has the right to grade them even in uncertain areas and they try to find the rules by which grading takes place. The experience at this stage is freeing and offers a feeling of security and more meaning.

Though positions 1 to 3 do not offer alternative solutions, position 4 opens a new opportunity of independent thought and intuition as well as undertaking of responsibility. What is more, this stage provides the idea of teaming with the rest of fellow students and the realization that they are not alone in the complex learning process.

#### Position 5

The third stage according to Perry's scheme is *Contextual Relativism* and includes position 5, Relativism Correlate, Competing, or Diffuse, which takes place around the junior year. The students understand that authorities may not have all the answers, may not have all the knowledge, they question the authorities' values, as well as the truth. At this phase of cognitive and ethical development they think in terms of relativism and view that they are entitled to their own opinion whereas everything, even their professors' knowledge and thoughts are relative. Knowledge is seen as contextual and theories to them are metaphors for interpreting experience and evaluating knowledge. Professors are viewed as experts, but are not above scrutiny.

The students are involved in a fundamental transformation from viewing the world in dualistic terms and with relativity being the exception to a world that is basically connected. Students find making conclusions or decisions without omitting any factors difficult and therefore tend to expose complications in learning without committing to anything.

In the fifth position, correlation is viewed as the means of analysing and evaluating data and not as the assumption that the professors want the students to think in a specific way and that in turn they have to do so. The student understands knowledge and values, even that of authority, as relevant and has moved further from the previous absolute (right/wrong) functions.

In relativism correlation, the world is divided in areas where the authority has the answers and in areas where correlation needs to be used. In relativism competing

something may be true for the whole world, but the worldwide assumption to be alternated with a previous one. In relativism diffuse, which is the best developed structure of the three, relativism is accepted in general but without consequences regarding commitment. This is the most difficult part since for the first time the student feel independent and able for decision making, but does not know where he or she stands. At the same time, the student believes that the professor has the correct answer somewhere and hopes that it will be given to him. For some period of time, even for months, the student may not be able to cope and only a few students do not adopt one of the rejection models. Nonetheless, the student understands the deeper reality of relativity and experiences within the self the origin of meaning, whereas in earlier stages it was expected that this meaning would come from external factors. This brings along a greater level of autonomy while the student realizes that if he or she wishes to understand the world, it is needed to understand the self first.

Perry originally argued that the changing viewpoint beyond the fifth position is not structural and that undergraduate students seldom display post-contextual-relativistic thinking. Later studies that took place over the years, to be discussed later, (Baxter-Magolda, 1992; King & Kitchener, 1994; Moore, 1991, 1994) argue that only a small number of students reason consistently from a stance beyond the contextually relativistic perspective.

In the fourth category or stage, *commitment within relativism*, university students commit to a number of values and understand that they must be open to change for knowledge to construct. In this stage, students believe that there is no genuine knowledge, but a willingness to be involved with the process. Perry believed that only a few students ever achieve this stage in its whole, but reaching this stage is the motive for the students to evolve. The procedure of choice making is being done with emphasis on the practice of decision making instead on the acceptable result. This allows for the peaceful coexistence of different opinions and views and shows the commitment of the person for the creation of organizational procedures. The challenge acts as committed relativism in periods of fear and uncertainty. This stage involves positions 6,7,8 and 9.

#### Position 6

*Commitment foreseen*, the sixth position, contains a subjective choice between the alternative solutions of relativism like judgement and action. The student understands the need to place the self in a relativistic world through a personal commitment. This

awareness may result in eagerness, ambivalence, agitation or double acceptance and the decrease in choices prepares the student for the commitment of position 7. The student experiences a feeling of internal power from being free and autonomous to select an individual choice, which offers the student trust towards the self. This does not mean that he or she rejects the authority's knowledge, but understands them as human and probably wrong.

Through choice and assurance, the student creates meaning and relationships with logic remaining relativistic and leaving him or her with reliable data, but with no ways of selecting among them. The result is for the student to assure his or her position knowing that logic will never assure it completely. When at this position, the student's commitment in field of studies and future career, ethics and values are affected.

#### Position 7

Regarding positions 7-9 "...in the drama of maturation we have been observing, the setting has now become stabilized. From this point onward, our records reveal no major restructuring of the background of life" (Perry, 1999. p.170). Maturation is now centered around responsibility and may undertake an engagement away from the initial commitment at his or her own risk. At this point, the student may commit to values, job, a person or another ideal. The first commitment or assurance are presented, as well as the acceptance of them in personal experience and choices. After the study of alternative solutions and the use of logic and experience, the student makes an initial commitment, undertaking responsibility, to a certain area. At the end, after a number of commitments and experiences, the student has realized that he or she has adopted a way of life and not a specific number of decisions. The development here is more qualitative and not quantitative and at this point there are no drastic changes are observable, but a form of maturation instead.

Perry does not explain in detail positions 7 and onwards and classifies them as one category without analyzing each one in detail. Position 7, *Initial commitment*, includes the ontological undertaking of a formal Commitment. The student comes to term with the responsibility of who he is and with what he will deal. Due to the decisions already taken, feelings of relief and pride are being felt for the goals and choices, and he is attached with the role of the choice regarding his studies and future profession.

#### Position 8

Position 8, Orientations in implications of commitment, describes a level of experiences through which the commitments came to be. The adaptation of commitments is not always typical or stable. The student experiences the complications of commitment and examines issues of responsibility. Intensities between feelings and meaning, freedom and restriction, action and reflection, and extension and narrowing may be experienced by the student, who at this stage examines the prospect of belonging together with the authority in areas of commitment (values, occupation etc). Identity both in content and the personal style of commitment develops. This position involves learning to assist in the development of more commitment in a number of different areas.

#### Position 9

In position 9, Developing Commitment(s), the reevaluation of commitments along with the new priorities is being observed, while commitments already in use or under reconstruction with new terms are considered to be part of the development. It can be observed that the balances are developed within the intensities of qualitative polarities (alternation between action and reflection) and also the acceptance of mood change and prospect is viewed within the identity cohesion.

### **1.2. Student Development Theories Beyond Perry**

Perry's research was the basis for studies that followed in the more recent years including students of both genders, different nationalities and in a great variety of universities. Despite the fact that various models and modifications have been proposed it could be argued that the main developmental trajectory identified by Perry from initial absolutism through relativism to a more constructivist epistemological stance is always present. Furthermore, because Perry's scheme was both clinical as well as empirical regarding research, it offers explanations about feelings and motives experienced by the students during their academic career in ways that many specific theories of cognitive or moral development failed to capture in a holistic manner. His study is of importance since it was the first study to present that basic developments indeed take place in the university years.

The main developmental trajectory from the less to the more complex in some of the more holistic theories of psycho-social students development concerns a complex identity,

cognition, and values (Komives & Woodward, 2003). Students of today have more and higher in complexity developmental issues than ever in the history of higher education (Evans, Forney & Guido-DiBridio, 1998). In their study of student development Evans, Forney and Guido-DiBridio attempted to answer the questions of what are the interpersonal and intrapersonal changes that take place while the student is in the University, which are the factors leading to this development, what aspects of the university environment are significant to development, and what are the developmental outcomes of achievement in the university. According to the same sources, psychosocial, cognitive-structural theories, and person-environment theories provide explanation of the student development. What the students think about and what their preoccupations are as well as how these evolve is what psychosocial theories examine. From the perspective of cognitive theories the main concern is to examine how individuals think about psychosocial issues and what changes occur in their reasoning process. What is more, cognitive theories observe the intake of information, experience perception, and construction of meanings (Komives & Woodward, 2003).

According to Evans, Forney and Guido-DiBridio (1998), cognitive theories explore the assumptions that people use to adapt and organize their environments and that they always occur in sequential order regardless of other issues, like culture (Evans, 2003). According to Evans (2003), change occurs because of assimilation and accommodation; assimilation integrates new information into existing cognitive structures and rounds them to expand them, while accommodation creates new structures to include stimuli that do not fit into the structures that already exist. For this reason, Kegan (1994) believed that educators and peers have a crucial role in providing a bridge between the new and old ways of meaning.

As mentioned in Evans, Forney and Guido-DiBridio (1998), the main names of cognitive theories relevant to the formation of university student development theories are Perry (1995), King and Kitchener (1994), and Kohlberg (1971). The more recent cognitive theorists who examined intellectual, as well as moral development and placed emphasis on gender differences are Belenky, Clinchy, Goldberger and Tarule (1986), and Baxter Magolda (1992). All of these theorists' work is reviewed in this thesis were used to design a part of the questionnaire through which data collection was conducted in order to answer the research questions of the present thesis.

The same trajectory for example can be found in King and Kitchener's Reflective Judgment Model (RJM) (King & Kitchener 1994) which argues that knowledge and concepts of justification develop in different stages from adolescence to early adulthood. In

their Model Stages 3 (Ages 16-20) and 4 (Ages 21-25) King and Kitchener (1994) found that there was a strong relationship between the factors age and stage of development. Changes related to character development also seem to take place. Furthermore, they believe that the rate of change differs between individuals.

Baxter Magolda (2001) who proposed a more holistic theory of both cognitive and psycho-social development of students places emphasis on the importance of the cognitive, interpersonal, and intrapersonal dimensions on the ways of knowing. Student development theories provide useful information about student growth and change throughout their studies at the university and observe the conditions that encourage development (Evans, 2003). As mentioned in Evans (2003), development is a complex process in which individuals do not fit or address all the issues perfectly. Furthermore, it is stated that only the students themselves have the answers as to what they are to do with their lives. Theories seem to provide useful information to the educational institutions and to the students themselves, but how the students will develop is usually known only by them.

There are researchers who have examined the issue of student development throughout the university years beyond the work of Perry. One important aspect of more recent work is that they did not base their theories on findings only from males as it was the case in the original theory of Perry. Belenky, Clinchy, Goldberger and Tarule (1986), and Baxter-Magolda (1992) are two examples of such theories. Both of them support the view that even though there are clearly differences among the two genders, the stereotypes of men and women will not be as useful in providing readymade answers about the differences between the two genders. It seems to be true that some men think and learn in the same way as women, while some women develop their learning process in similar ways with men. According to Reynolds (2003), a general scheme can be summarized in four basic stages. In the first stage, knowledge is viewed as external and is derived by authority figures, whereas the significance of interpretation does not have true meaning. The knowledge seems to be absolute with absolute answers and the educators are viewed by the students as the ones with all the answers. The educators, who do not offer all the answers and do not explain what exactly they ask of the students, are viewed as unfair and inadequate.

In the second stage, the students observe and recognize areas where the 'truth' is not available immediately. For this reason, every individual has the right to a personal opinion. Uncertainty is valid, whereas the view of the 'authority' does not matter as much anymore and knowledge is either objective or personal.

The studies suggest that students in the third stage may appreciate the form more than the content, but what is more they learn how to incorporate external ways of learning, understanding and respecting complexity, realizing and valuing different approaches, and listening to their internal voice, which may be critical for the individual's personal opinions. Paradoxically, the students begin to think independently by following their educator's indicated way. As they grow older and are in the fourth stage, the students rarely find themselves among freshmen, they are aware of complexity, are suspicious of simple answers, understand that the problems and the solutions are according to the context and the point of reference. Moreover, they understand learning as a structural procedure in which they take part consciously.

In particular, Baxter Magolda's *Knowing and Reasoning in College* (Baxter Magolda 1992/2001) elaborated on Perry's work and on studies of women's ways of knowing. The researcher interviewed university students of both genders for five years. She found four prominent ways of knowing; The first is *absolute knowing*, which includes students who look for right or wrong answers while studying, relating to friends and significant others, and decision-making. To them knowledge is what they previously learned from other figures of authority and what they are currently learning from their professors. The second category of knowing is *transitional knowing* in which students understand that the authority figures do not know all there is to know. Thus, they turn to their own attempts of understanding knowledge. By doing so, they enter the third category, the one of *independent knowers* who believe all views to be equally valid, interact more with teachers and peers, and prefer to be enrolled in classes which allow self-expression. The fourth way of knowing is contextual knowing. Students in this category think in the context of knowledge produced by professors, peers, and other forms of knowledge holders while they are able to judge, weigh, and adjust to new information. Absolute knowing, which was most prominent in freshmen decreased each year while transitional knowing increased in the freshman, sophomore, and junior year. Baxter Magolda's findings conclude that independent knowing was only evident minimally in sophomore and junior year, whereas contextual knowing was rarely evident among college students. According to the same sources, this leads to the conclusion that most college students are absolute and transitional knowers.

Baxter Magolda's more recent work in 2001 found that students apply cognitive, interpersonal, and intrapersonal skills on their learning process. *Self-authoring*, according to Baxter Magolda, is the process of developing internal foundations students by applying

their skills on their learning process and at the same time trying to conceptualize why they were not satisfied. For this reason they attempted to find solutions according to their own and others' needs. This process may lead to deeper definition of their own needs and values. Baxter Magolda (1992) concludes that self-authoring ways of knowing were not developed until some time after graduation from the university as the university environment does not encourage them. Kegan (1994) believes that self-authorship may be a person's general way of knowing.

In addition, the work of Erikson (1987), another renowned theory of psychosocial development focusing on the development of identity is characteristic of this "stage like" approach proposing in quite vague terms a role for "biological" and "socio-cultural factors". Erikson's (1987), developmental theory regarding identity development is an eight stage theory influenced by psychoanalysis and states that in each stage the individual should confront and master new challenges. Each stage is based on the successful completion of previous stages since issues that are not successfully completed, might represent themselves in the future (Erikson, 1950). According to Erikson (1987) the individual proceeds through the stages, which are characterized by a psychosocial crisis and conflict, through the negotiation of biological and sociocultural forces. The successful settlement or resolution of these conflicts will lead the individual to emerge from the particular stage with the virtue more valued of the two.

Erikson's stages are the following (Erikson 1950, 1958, 1964, 1968):

1. *Trust Versus Mistrust (birth - 1 year)*
2. *Autonomy vs. Shame and Doubt (1 year - 3 years)*
3. *Initiative vs. Guilt (3 years - 6 years)*
4. *Industry vs. Inferiority (6 years - 12 years)*
5. *Identity vs. Role Confusion (13 years- 19 years)*
6. *Intimacy vs. Isolation (20 years-40 years)*
7. *Generativity vs. Stagnation (45 years-65 years)*
8. *Ego Integrity vs. Despair (65 years +)*

Stages 5 and 6 are of particular importance for the present thesis as they overlap with the age group of university years.

In the *Identity vs. Role Confusion (13 years- 19 years)* stage Erikson claims that during the shift from childhood to adulthood, children become more independent and begin to think about their future (career, family, relationships). At this stage the adolescent re-evaluates identity (sexual and occupational) based on who they are. Moreover, they experiment with various roles they will later play in the adult world and eventually most adolescents reach an understanding of identity concerning who they are and where they are headed. The results may cause confusion about the self and their role in the world. Once the stage is completed, the virtue of fidelity will be obtained. The failure to achieve ego identity in this stage is termed 'identity crisis' and the person attempts to reconcile who he or she is and who the society expects him or her to become. Society offers allowances for the person to find the self, experiment and explore through the state of a psychosocial moratorium.

In stage 6 of *Intimacy vs. Isolation (20 years-40 years)* the person begins to share the self intimately with others and explores relationships with long term commitments with individuals outside of the family like reciprocal relationships of friendship or marriage and make sacrifices for them if needed. Feelings of commitment, care, security are the result of the successful completion of this stage. Contrary, if the person avoids intimacy and is afraid of commitment, the result might be loneliness and isolation. When the person completes this stage successfully, the virtue of love will be acquired.

According to McLeod (2008), Erikson is vague in explaining the grounds of development and the kinds of experiences people must experience in order to encounter effectively a range of psychosocial conflicts. Erikson's theory is a descriptive overview of social and emotional development and does not explain the how or why of its occurring nor it explains the way the outcome of one stage influences personality in a later stage (Erikson, 1964; McLeod, 2008). It could also be argued that aspects of the everyday life like the formation of identity (like sexual orientation) or being in social relationships cannot be localized in specific stages, thus downgraded from dynamic and always changing processes in a person's life to a specific and static characteristic of a stage that is then settled once and for all.

When defending his theory, being questioned concerning its stage like and sequential character in specific age ranges, Erikson (1956) suggested that the processes transpire throughout the lifetime in one form or another and that the reason he placed emphasis on these phases was because of the timing of the conflicts appearing and becoming prominent. Nevertheless, the theory's strength seems to lie in its ability to link psychosocial development across the whole lifespan but it seems to be rather weak in its conceptualization of the processes that lead from one stage to another and specifically concerning the role of social relationships and social interaction as well as capturing the dynamics and socially constructed nature of identities in specific socio-cultural contexts. Even the prominence of the particular psycho-social conflicts in specific stages has been questioned.

James Marcia's theory of identity development (1966) for example extended Erikson's theory with emphasis on psychosocial development in adolescence. He elaborated on Erikson's fifth stage assuming that what takes place is not a matter of identity resolution or identity confusion, but is actually the level up to which the person has searched and committed to an identity in different domains like politics, career, religion, relationships and gender roles. Marcia (1973) believed the two critical domains within which the adolescent should commit ideology and occupation.

Marcia (1993) assumes that the development of identity entails two steps, the breaking away from childhood beliefs in order to explore alternatives in certain domains and their commitment in those domains. During this period, the adolescent chooses a crisis, re-examines old beliefs and values, and explores new alternative occupations and beliefs (Marcia, 1973). Four identity statuses describe the development (Marcia, 1973): a) Foreclosure, in which the commitment is made without the exploration of alternatives, b) identity diffusion, where adolescents avoid to explore and commit and remain in a state of diffusion. It is possible that adolescents at this stage did not experience an identity crisis and that they do not experience anxiety as they do not invest in much. This stage is characterized by stagnation as the person does not attempt to construct an identity and has no identity to reform. c) Moratorium is the stage in which the individual is in the middle of a crisis with vague or absent commitments and is dynamically exploring alternatives. d) Identity achievement is the last stage which takes place after the crisis is worked through and the person went through explorations and commitments.

The exploration of identity in the specific context of the university was made by Chickering (1969) who observed for ten years freshman to senior students at the college of

his employment and his collections of observations was presented in his first book *Education and Identity* in 1969 and in its update in 1993 with Reisser (Chickering & Reisser, 1993).

Chickering, believes that the development of identity is the most important issue that students struggle with in university (Evans, Forney, & Guido-DiBridio, 1998). His theory is more holistic in the sense that he considers emotional, interpersonal, ethical, and intellectual aspects of development and suggests seven parts of identity development. The vectors can be viewed as a sequence of stages or tasks as regards to feelings, thoughts, beliefs, and relationships with other individuals. The advancement in the course of the vectors may be observed as taking place at dissimilar rates. The vectors interrelate with one another leading to the reassessment of matters already worked through. Though they are built on one another, the vectors do not follow a strict sequential order and this advance of multiple vectors permits individuals to function with superior stability and intellectual complexity (Chickering & Reisser, 1993).

According to Chickering and Reisser (1993), the seven vectors of identity development are developing competence, managing emotions, moving through autonomy toward interdependence, developing mature interpersonal relationships, establishing identity, developing purpose, and developing integrity. The stages are presented below:

1. Developing Competence
2. Managing Emotions
3. Moving through Autonomy toward Interdependence
4. Developing Mature Interpersonal relationships
5. Establishing Identity
6. Developing Purpose
7. Developing Integrity

1. Developing Competence

While in college, the student develops three kinds of competence: a) intellectual competence, the ability of reasoning and critical skills, mastering content, comprehension, analysis and synthesis of skills, b) physical and manual skills, which involves athletic and artistic achievement, and 3) interpersonal competence, the ability to communicate effectively with others including listening, cooperating and communicating skills, tuning in to the other person and responding properly, utilizing a number of strategies in order to assist a relationship to flourish.

## 2. Managing Emotions

Feelings like depression, guilt, fear, anger, hurt, boredom, tension and shame can potentially disrupt and upset the educational process when extreme or overpowering and devastating. The first mission of this vector is to allow these feelings into consciousness and acknowledge them as indications. Development takes place when the students learn the ways to release what irritates or scares them before they lead them to explosion or immobilization and heal wounds before these harm other relationships.

## 3. Moving through Autonomy toward Interdependence

Learning to function with self-sufficiency, assuming responsibility and depending less on others' opinions are crucial to the college student development. The moving through autonomy towards interdependence requires emotional independence, the freedom from the constant need of reassurance, affection and approval, and furthermore it requires instrumental independence, recognition and acceptance of interdependence. Instrumental independence is basically composed of the ability to organize activities and solve problems independently and the capacity to be mobile. Developing autonomy concludes with the understanding that greater autonomy assists in the formation of improved types of interdependence, which entails the respect of autonomy of others.

## 4. Developing Mature Interpersonal relationships

This vector entails a) tolerance and appreciation of differences and b) capacity for intimacy. Tolerance can be observed in both an intercultural and an interpersonal context and it refers to the skill of responding to people individually instead on the basis of stereotypes. The respect of differences in close friends may generalize to contacts from other cultures leading possibly to the decrease of bias and ethnocentrism and the enjoyment of diversity. The capacity for intimacy is based on the modification of quality of relationships with intimates and friends, moving from too much dependence or dominance towards an interdependence between equals.

## 5. Establishing Identity

Development of identity enables the student to discover at what kinds and levels of experience, intensity and frequency they resonate in satisfying, safe, or self-destructive way. According to Chickering and Reisser (1993), it involves comfort regarding body and appearance, comfort regarding gender and sexual orientation, self-worth in a social, historical, and cultural perspective, explanation of self-concept through roles and life-style, opinion of the self in replying to feedback from valued others, self-acceptance and self-

esteem, and personal stability and integration. As a result, a strong self understanding emerges leading to the perception that the person is the owner of the self.

Moreover, establishing identity involves *reflecting* on the family of origin and ethnic tradition, understanding the self separately of religious or cultural tradition and viewing it as a member of a social and historical context. This will lead the person to stability and to view the self as competent, familiar, and valuable (Chickering & Reisser, 1993).

#### 6. Developing Purpose

A large number of college students is vague and unsure about who they want to be and view college merely as a means to become qualified for professional purposes and live a comfortable life and not as a way to learn how to build skills utilized in a number of life experiences or to learn. This stage includes assessing interests and options, goal clarification, persistence, action planning and setting priorities in order to incorporate three basic fundamentals; *vocational plans and aspirations, personal interests, and interpersonal and family commitments.*

#### 7. Developing Integrity

This vector includes three sequential overlapping stages, which are (a) humanizing values-the move from the mechanical application of rigid beliefs and with righteous thinking in order to balance personal interest with that of other human beings, (b) personalizing values-the process of conscious affirmation of values and beliefs and at the same time respecting those of others, and (c) developing similarity through corresponding personal values with conscientious social behavior.

Interdependent relationships are viewed as crucial since if they are involved in healthy relationships, they will be able to communicate and express themselves in a number of ways, which will lead to knowledge skills (Baxter Magolda, 2001). Chickering and Reisser (1993) believe that culture defines the environmental demands on a developing individual. Furthermore, they believe that culture and gender influences may vary the progression of developmental tasks. Adams, Berzonsky and Keating (2006) found that identity processing styles and identity statuses are directly connected to the formation of psychosocial resources in undergraduate university students and that identity is embedded in the social contexts of family life and university experience. The identity process, though, may be difficult and can lower self-esteem, cause social withdrawal, and increase the possibility of depression (Dixon & Kurpius, 2008).

### **1.3. Piaget and Kohlberg as ancestors of student development theories**

In order to offer a solid evaluation of the main threads of student development theories as a whole it is essential to understand the philosophical and theoretical premises that influenced directly or indirectly these theories. Perry (1968/1999) discusses the philosophical and psychological theories that influenced his model in the final chapter of his book. He identifies “contextual pragmatism” (Dewey, 1938) as the main philosophical influence and the theories of Jean Piaget, Robert W. White, Erik Erikson, Heinz Werner, Kurt Lewin, Fritz Heider, Gordon Allport, George Kelly, Peter Blos, R.J Havinghurst and “...others” as he writes (p.228) as his psychological influences. He also explicitly cites Kohlberg as a researcher of moral development that influenced his work. There is no doubt however that the theories of Piaget first and Kohlberg second are the ones that most researchers subsequently considered to be the main influences on Perry in his formulation of a stage theory. This claim however, raises the question of how exactly was Perry influenced by these two theorists.

When explicitly comparing his model to Piaget he admits that “more is involved than particulars” (p.228). He stated that his work “depends heavily” on his particular concepts of assimilation and accommodation and “somewhat more broadly, too, we make similar assumptions about the emergent, interactional ontogenesis of intelligence” (p.228). He also states that methodologically he was influenced by the Piagetian clinical interview and specifically the method of his “posing moral situations” in his work on the moral judgment of the child (Piaget, 1932/1965). In a self-critical spirit he admits that his theory is similar to Piaget in asserting some “pretty large generalisations about human development in our culture on the basis of a few homogeneous and specialised subjects, in one highly specialised setting”. So great was the influence Piaget had on Perry that he goes on with the exercise of “attempting to assimilate our work to his frame and then consider what distinctions would be revealed by the effort” (p.229). His scheme, he states corresponds to Piaget’s “formal operations stage” and also traces a recapitulation by “vertical decalage” as he writes with the centrifugal movement from lower to higher stages of development, meaning away from egocentrism to more differentiation. He also seems to be quite aware of the importance of subject-object interdependence in Piagetian theory when he states that “this awareness [away from egocentrism] reflects back to create a new and differentiated awareness of self and to make possible a complex dynamic equilibrium between self and the environment” (p.229). In this context Perry also discusses the emphasis of his theory as

focusing on a “person’s assumptions about the origins of knowledge and of value” but he states that up to that point Piaget did not explore these issues in late adolescence and early adulthood despite the fact that they have pointed out with Inhelder explicitly to it with their proposition that adolescents can not only think about what it “is” but what “might be”. It is here that Perry sees his major contribution, as exploring development at ages beyond 15 that Piaget did not explore and in this connection he brings the idea of meta-thinking as a special characteristic of development beyond age 15 and he writes about shift from the “moral environment” to the “ethical” and from the “formal” to the “existential”. His positions 5 to 9 in his scheme describe as he writes in “very general terms” the course of orientation in this environment and equilibrium in this new environment describing for the first time the contours of a post-formal theory. The dissatisfaction with Piaget’s “stage theory” and the need to explore whether there is a stage of cognitive development beyond the formal stage proposed by Piaget was one of the favourite themes of debate in developmental psychology during the 60s, 70s and 80s.

#### **1.4. Formal operational thinking and Post-formal thinking**

The transition from childhood to adulthood through adolescence according to Inhelder and Piaget (1958) entailed the ability to think in terms of formal operations. A comparison between concrete and formal operations can be understood in their statement: ‘ Although concrete operations [characteristic of children in the previous concrete operational stage from around 6-12 years old] consist of organized systems (classification, serial ordering, correspondences, etc.), proceed from one partial link to the next in step-by-step fashion, without relating each partial link to all the others. Formal operations differ in that all of the possible combinations are considered in each case. Consequently, each partial link is grouped in relation to the whole; in other words, reasoning moves continually as a function of a “structured whole”’ (p. 16). The transition from childhood to adulthood contains a shift in responsibility that individuals have for ensuring the outcome of their activities as they do no longer depend on more capable individuals, but have to attend to them alone (Inhelder & Piaget, 1958).

Piaget argued that during adolescence, cognitive development reaches its full potential with formal operational thought through two major changes; hypothetico-deductive reasoning and abstract thought (Cook & Cook, 2005). In hypothetico-deductive reasoning adolescents reason from general principles to particular conclusions in order to

manipulate several variables systematically, test their effects systematically and come to correct conclusions. Piaget (1972) states:

‘...Hypothetical reasoning changes the nature of discussions: a fruitful and constructive discussion means that by using hypotheses we can adopt the point of view of the adversary (although not necessarily believing it) and draw the logical consequences it implies. In this way, we can judge its value after having verified the consequences. Secondly, the individual who becomes capable of hypothetical reasoning, by this very fact will interest himself in problems that go beyond his immediate field of experience. Hence, the adolescent’s capacity to understand and even construct theories and to participate in society and the ideologies of adults; this is often, of course, accompanied by a desire to change society and even, if necessary, destroy it (in his imagination)’ (p. 42).

Abstract thought refers to thought about things not real or tangible, sometimes things that are only possibilities. When at this kind of thought, adolescents spend long periods of time contemplating all possible outcomes of simple actions (for example what clothes to wear at a social event) and as annoying as this behavior may seem to their family, it is actually a sign of cognitive maturity.

When at the stage of formal operations, the adolescent learns how to think logically about abstract concepts like truth, justice, morality, fairness and develops the ability to reason flexibly about them understanding at the same time their relativity. And though, according to Piaget, adolescents are at the formal operations stage, they still express a kind of immaturity in the form adolescent egocentrism which is the individual’s inability to differentiate between their own abstract reasoning and thoughts of those of others (Inhelder & Piaget, 1985). This is expressed in two forms; imaginary audience and personal fable. In imaginary audience adolescents believe that the others are as concerned with them as they are about themselves, feeling at times self-conscious and believing that they are on stage being noticed for everything embarrassing that they do. In personal fable adolescents believe that their new abstract thoughts are unique and invulnerable and that no one has ever thought about the same issues the way they do (Cook & Cook, 2005).

Piaget sustained that through the achievement of hypothetico-deductive reasoning and abstract thought and with the gradual decline of adolescent egocentrism, young adults gradually achieve what he called mature cognition acquiring the ability to reason about anything, to use scientific reasoning which enables them to solve complex problems. Actually, Piaget stated that individuals never reach a permanent state of equilibrium and

that the process of adapting and reorganizing cognitive structures and working toward better equilibrium is an everlasting process (Piaget, 1972). Piaget assumed that the rate of developmental progress may be different for different children, especially from one culture to another and that moreover different children function differently in various areas of functioning to which they apply formal operations based on their aptitudes and professional specializations. He stated that ‘...we may find some children who advance quickly or others who are backward, but this does not change the order of succession of the stages through which they pass’(Piaget, 1972, p.41).

Piaget acknowledged that the experiments of his Genevan studies were carried out with children in the best elementary schools of the west, but argues that participants from other schools and different social environments do provide results that differ from the norms. This notion, according to Piaget (1972) does not mean that his observations have not been confirmed, but that they may be true for some populations with the need of understanding why these exceptions still remain.

The four Piagetian stages sensorimotor, preoperational, concrete operations are each necessary to the construction of the following stage and the average age that children enter each stage can be different in various social environments, from one country to another or even from one region of a country to another. Piaget foresees a first possibility in predicting the difference in speed of transition (due to the quality and frequency of intellectual stimulation through adults or possibilities for activity) of development without modification of the order of succession of the stages. In the scenario of poor stimulation and poor activity, the development of stages three and four will be delayed. Regarding the fourth stage, formal operations, there will be a greater delay for the ages fifteen to twenty and in some cases some forms of thought may never be formed, especially in disadvantageous conditions, unless the individual makes a change in the environment while development is still possible. According to Piaget,

‘this does not mean that formal structures are exclusively the result of a process of social transmission. We still have to consider the spontaneous and endogenous factors of construction proper to each normal subject. However, the formation and completion of cognitive structures imply a whole series of exchanges and a stimulating environment; the formation of operations always requires a favorable environment for ‘cooperation’, that is to say, operations carried out in common in a spirit of mutual respect (e.g., the role of discussion, mutual criticism or support, problems raised as the result of exchanges of information). Briefly, this

position would mean that in principle all normal individuals are capable of reaching the level of formal structures on the condition that the social environment and acquired experience “provide the subject with the cognitive nourishment and intellectual stimulation necessary for such a construction’ (p. 44).

Piaget (1972), also refers to a second possibility for variations in relation to the attainment of formal operations, which takes into consideration the variation of aptitudes according to age. This possibility might exclude certain categories of normal individuals in favourable environments and from the possibility to attain formal operations thinking level as aptitudes of individuals change progressively with age. This hypothesis implies that certain behaviour patterns form characteristically general properties stages until a certain level in development is reached. After this point, aptitudes become more important than the stages’ general characteristics and form greater differences between subjects. Moreover, by adopting this interpretation, it would have to be admitted that only individuals talented in fields of logic, math, and physics would be able to construct formal structures, whereas individuals who are literally, artistic and practical would not. This hypothesis would not suggest a comparison between under-development and normal development, but would entail a developing diversification in the span of aptitudes of individuals to be greater at 12-15 years and more than all at the age span of 15-20 years. Piaget states:

It is possible to characterize stages in a given population in terms of chronology, but this chronology is extremely variable. It depends on the previous experience of the individuals.., and it depends above all on the social milieu which can speed up, slow down, or even prevent its manifestation... I consider the ages only relative to the populations with which we have worked; they are thus essentially relative. (Piaget in Osterrieth et al., 1956, p. 34).

Piaget’s third hypothesis (1972) for the source of variations on formal operational thinking, which he believes is the most probable, claims that all normal individuals reach and acquire the formal operations stage with the idea of ‘progressively differentiating aptitudes’ (p.45). Piaget (1972) concluded that while all normal people acquire formal operations, they accomplish this stage in different areas based on their aptitudes and professional specializations and that the way the formal structures are used are not the same for all cases. They do so in different areas based on the individuals’ ‘aptitudes and their professional specializations (advanced studies or different types of apprenticeship for the various trades): the way in which these formal structures are used, however, is not

necessarily the same in all cases' (Piaget, 1972, p. 45). For example, a lawyer may think about legal cases in a formal manner, but not in the case of sorting laundry (Cole, 1996). This hypothesis merges the concept of stages with the notion of progressively differentiating aptitudes. It suggests that all normal individuals attain the formal operations stage either at 11-12 years to 14-15 years or between 15-20 years.

A number of researchers beyond Perry also argued that Piaget ignored cognitive development after adolescence (Alexander & Langer, 1990; Basseches, 1984; Commons, Richards, & Armon, 1984) and suggested a fifth postformal stage of development. One of these proposals, came from a more societal angle that laid claims to the Vygotskian framework, to be discussed in more detail in the next chapter. This was the proposal of the existence of a dialectical stage (Riegel, 1975), during which the individual can 'accept contradictions as the basis of all thought and to tolerate conflicting operations without equilibrating them under all circumstances' (p. 61 ).

According to Lourenco and Machado (1996) and Marchand (2009), other developmental researchers (Kramer, 1983, 1990; Pascual-Leone, 1984) have followed Riegel (1973; 1975) and proposed a postformal stage under the name of "epistemological stage", "dialectical stage", "relativistic stage", "stage of unitary operations", and "stage of discovery, not solution, of problems", whereas other researchers even suggested three stages within postformal thinking like systematic, metacognitive, and cross-paradigmatic. These discussions are still inconclusive until today, the main reason being both disagreement on the existence or not of such a stage and also its relationship if it exists with formal operations.

There is for example from a Piagetian perspective the claim that Piaget in fact never stated that the formal stage is final, nor that cognitive development stops after adolescence; what he said is that the structure of formal operations is a final form of equilibrium (Lourenco & Machado, 1996). Piaget stated:

Formal operations integrate in a single system the groupings that until then were not coordinated with one another, [and] the structure of formal operations is not modified during the life span of the individual, although it may be integrated into larger systems [ such as polyvalent logics ]. (Inhelder & Piaget, 1955, pp. 294-295)

Lourenco & Machado (1996) claim that postformal reasoning constitutes a stage at all, it is not logically superior to formal-operational reasoning. Moreover, when college students were assessed in a number of formal tasks and some tasks devised to measure "postformal" tasks it was found that "subjects showing full formal operational reasoning

were not more likely than those showing early formal operations to be scored postformal" (Kallio & Helkama, 1991, p. 20). Moreover, it is of question to ask if a postformal stage is needed in order to describe adult achievements.

‘...Piaget did not ignore postadolescent development, as his critics have frequently claimed, and empirical studies have not shown unambiguously that from an operational viewpoint the postformal stage is more advanced than its predecessor. Ironically, most of the proponents of the new stage confess that the very target of their criticism, Piaget's formal stage, provides a good model to conceptualize their own postformal "stage"’ (Lourenco & Machado, 1996, p. 156).

Moreover, Kramer (1983), a defender of postformal thought sustained that ‘it is (...) not clear that the formal operational and postformal uses of contradiction are all that different, at least empirically’ (p.99).

Marchand (2009) stated: ‘The failure of certain postformal theorists to consider the levels of development (from genesis to consolidation) within the formal operations stage constitutes a significant lacuna, which can lead to the undervaluing of the potentialities of this level of thought. Consequently, it is not clear or empirically confirmed that formal operations are insufficient for coordinating the different references, nor that the eventual coordination of various types of reference represents a structural development beyond formal operations’(p.43).

Followers of Piaget examined Piaget’s stages and developed theories based on his methodology. Moreover, they included social and moral issues in order to present their cognitive and moral stages. Examples of theorists who introduced their theories of stages (sometimes also called vectors) are Kohlberg (1976), Evans, Forney, and Guido-DiBrido, (1998), and Chickering (1969).

### **1.5. Kohlberg’s Moral Development Stage theory**

Kohlberg was a close follower of Piaget's theory of cognitive development and used much of Piaget’s methodology and inspiration in his dissertation and it is widely assumed that Kohlberg’s work is also an extension of Piaget’s work. The emphasis of his theory is on how people make moral judgments and it created practical and real life applications for his theory, which was used in moral education programs in schools, prisons and universities. Kohlberg’s work is an example of research in the Piagetian tradition. Kohlberg focused on moral development and has proposed a stage theory of moral thinking (Crain, 1985).

Kohlberg was born in 1927 and grew up in New York. He attended the Andover Academy in Massachusetts and did not go immediately to college. He became involved in carrying Israeli refugees from different parts of Europe to Israel. In 1948, he enrolled at the University of Chicago, where, because of his high scores on admission tests, he only had to take a few courses to earn his bachelor's degree in one year. He stayed on at Chicago for graduate work in psychology and became interested in Piaget and his theory on moral issues of children and adolescents (Crain, 1985).

Kohlberg believed that moral behaviour is consistent, predictable and responsible at higher stages (Kohlberg, 1971). Regarding the relationship of Kohlberg's stages to cognition, he analysed his stages examining the cognitive structures under them and looked for parallels in pure logical and social thought and he did so in terms of role-taking capacities which enable the person to consider the views of others (Kohlberg, 1976). In describing cognition stages, Kohlberg (1976) sustains that children at the first stage believe that there is only one correct view and that it is that of authorities. At the second stage, they understand that there are different interests and different points of view and that perspectives are relative. People at the third stage view role-taking as a deeper empathic process and are concerned with the feelings of others. At stage four, they view society in a broader conception of coordination of roles through the legal system, whereas stage five places emphasis on democratic processes and finally stage six examines the way everyone takes one another's perspectives based to the principles of justice (Crain, 1985). Kohlberg (1976) argues that in this way the moral stages may be related to stages of logical and social thought as they share similar insights. Kohlberg believed moral development to be a number of transformations in an individual's thought regarding what is considered right or necessary (Evans, Forney, & Guido-DiBridio, 1998). Prerequisites for moral development are Piaget's general cognitive structures and social perspective taking, which is the ability to place one's self in another person's position and understand how she or he feels.

The Three levels of Kohlberg's Moral Development with the six stages are:

Level 1 (Pre-Conventional)

1. Heteronomous morality
2. Individualistic, instrumental morality

Level 2 (Conventional)

3. Interpersonal normative morality
4. Social system morality

### Level 3 (Post-Conventional)

5. Human rights and social welfare morality
6. Morality of universalizable, reversible and prescriptive ethical principles

### ***Pre-conventional***

According to Kohlberg (1971/1976) the pre-conventional level of moral reasoning is more often observed in children, where the morality of an action is judged by its reasoners by its consequences. This state is called pre-conventional because children do not yet speak as members of society, but view morality as something external to themselves, as that which the older people say they must do (Crain, 1985).

The first stage, *heteronomous morality*, is defined as obeying rules to avoid punishment and actions are justified based on avoidance of punishment and superior power of authorities (Evans, Forney, & Guido-DiBrido, 1998). Children also refrain from physical harm to persons and property. Kohlberg's stage 1 is similar to Piaget's heteronomous morality where the child believes that authorities set the rules he or she must unquestioningly obey.

In the second stage, individualistic, *instrumental morality*, individuals follow rules if it is in their best interest and understand other peoples' needs and interests which conflict with their own; right is what is fair, equal exchange, or agreement (Evans, Forney, & Guido-DiBrido, 1998). Moral relativism can be viewed at this stage as the interests of society that conflict with personal interest are thought to be relatively wrong and since everything is *relative*, each is free to pursue his or her *individual* interests; children recognize that there is not just one right view that is handed down by the authorities and different individuals have different viewpoints (Crain, 1985). Respondents at this stage still reason at the pre-conventional level speaking as isolated individuals and not as members of society (Crain, 1985). They see individuals exchanging favors, but there is still no identification with the values of the family or community. Moreover, Kohlberg (1976) found that this was often observed in freshmen university students.

### ***Conventional***

As Kohlberg (1971/1976) states, the conventional level is viewed in adolescents and adults. The main characteristic is that the individual judges the morality of his or her actions through comparison to society's views and expectations. The basic characteristic of this level is the acceptance of what society considers right and wrong, thus the person

obeys rules and follows norms irrelevant of possible consequences for obedience or disobedience. Moreover, the appropriateness of rules is hardly ever questioned.

In the third stage, *interpersonally normative morality*, individuals define right by living up to the expectations of those close to them and carry out their social roles in an acceptable way (Evans, Forney, & Guido-DiBridio, 1998); the person enters society through the fulfillment of social roles and is approved or disapproved by others as they live up to the society's expectations by being a "good boy" or a "good girl" (Kohlberg, 1973) as a main concern is the maintenance of the image of a "good person" and the gain of approval by others (Evans, Forney, & Guido-DiBridio, 1998). The morality of an action in this stage is judged by the assessment of consequences in the individual's relationships and might include mutual respect. Moreover, Kohlberg believed that the reason for rules and authority existence is to support social roles. As mentioned in Crain (1985), children of this stage see morality more than simple ideals and believe that people should live up to the expectations of the family and community and behave in "good" ways with motives and interpersonal feelings such as love, trust, and concern for other people.

In the fourth stage, *social system morality*, laws are viewed as important to be obeyed to maintain a functioning society and morality is dictated by an outside force (Kohlberg, 1973). Kohlberg believed that ideals explain what is right and wrong; if a person does not follow the law, maybe everyone will do so and stated that there is an obligation to follow laws and rules. The person at this stage becomes concerned with society as a whole and the emphasis is on obeying laws, respecting authority, and performing duties to maintain the social order (Crain, 1985). Moreover, individuals at this stage view the social system to be made up by a set of rules and procedures equal to all people and right is viewed as holding the laws established by society and do what is right to maintain the system and to fulfil obligations (Evans, Forney, & Guido-DiBridio, 1998). According to Kohlberg (1973), most society members remain at this stage. Kohlberg found that stage 4 does not become central until the boys are in their 20s and 30s.

#### ***Post-Conventional (Principled level)***

At this level, individuals realize that they are separate entities from society and that their view may be above the society's view. Rules are viewed as useful but not as absolute dictates to be obeyed without doubt and might be disobeyed if they are not consistent with personal ethical principles. Kohlberg (1971/1976) believed that some people may never

reach this kind of moral reasoning, where individuals possess their own moral evaluation of a situation.

In *human rights and social welfare morality*, which is stage five, individuals view the world having different opinions and values, which are thought of as needing to be mutually respected to each person or community uniquely. The laws are viewed as social contracts and when they do not promote general welfare, they should be modified to meet the greatest good for the larger number of people (Kohlberg, 1976). Individuals at this stage believe that a good society is best viewed as a social contract which individuals enter working towards the benefit of all (Kohlberg, 1976; Evans, Forney, & Guido-DiBrido, 1998); thus they understand that different social groups within a society have different values, but they believe that all rational people would agree on two points: they would all want certain basic rights, such as liberty and life to be protected and they would want democratic procedures for changing unfair law and for improving society. Stage 5 appears only in the mid-20s and never becomes very prevalent (Crain, 1985). The rightness of laws and social systems are assessed on the foundation of the extent to which they encourage basic human rights and values (Evans, Forney, & Guido-DiBrido, 1998).

*Morality of universalizable, reversible and prescriptive general ethical principles* is the sixth stage, where moral reasoning is based on abstract reasoning based on universal ethical principles. Laws are viewed to be valid only if they are based on justice; if laws are not just, individuals feel obliged to disobey them. The person at this stage behaves in certain ways because it is right and not because it is expected or legal (Kohlberg, 1976). Kohlberg believed that just decisions can be reached by looking at a situation through one another's eyes (Crain, 1985). Morality is viewed as the equal consideration of the points of view of everyone involved in a moral situation. Kohlberg did not have empirical findings on the existence of this stage as none of his study's participants demonstrated the attainment of this stage (Crain 1985; Evans, Forney, & Guido-DiBrido, 1998).

According to Kohlberg for a person to progress to a higher stage of moral reasoning, stages cannot be skipped, the process is constructive and initiated by conscious construction. Progress takes place because the person presents increased psychological and social balancing of conflicting social-value claims competence. Justice operation is the equilibrium reached when conflicting claims are resolved. Justice operations include equality, the impartial regard for people and reciprocity, the regard for the role of personal merit. The most important outcome of equality and reciprocity is reversibility. Reversibility in this theory refers to the assessment of a moral act in a situation to examine

if this act would be satisfactory even if persons would switch roles in that particular situation.

Kohlberg's (1976) levels of morality include substages labeled A and B. The A substage is reflective of a heteronomous orientation with concern for obedience to authority. The B substage refers to an autonomous orientation (concern for rights and mutual respect). Kohlberg believes that individuals using substage B reasoning were more likely to express moral action consistent with their beliefs than individuals in substage A reasoning (Crain 1985; Evans, Forney, & Guido-DiBridio, 1998).

This kind of distinction made by Kohlberg is important, as it directly relates to the original Piagetian theorising and his distinction between social relations of constraint and social relations of co-operation (Piaget, 1932/1965) to be discussed in detail in Chapter 3. Such a creation of subcategories became essential in Kohlberg's reformulation of his theory after 1976 after empirical findings consistently showed that across age both an autonomous and heteronomous orientations could be located although the idea of transition from A to B as a sub-stage transition seems less supported by empirical evidence.

Kohlberg's theory's six 'hierarchical developmental stages of moral reasoning are tied to cognitive development, invariant in order, and generated by the interplay of maturation and general environmental experience' (Garbarino & Bronfenbrenner, 1976, p. 71). Kohlberg's instrument for assessing moral reasoning is the Moral Judgment interview including three parallel forms with a structured interview format and three hypothetical dilemmas followed by nine to twelve questions with the characteristics of justification, clarification and elaboration (Evans, Forney, & Guido-DiBridio, 1998). The famous Heinz dilemma examines conflict between the value of preserving life and law. In this dilemma, a woman is dying of cancer and a pharmacist has discovered a therapy which could save her life. The husband cannot afford to buy the treatment and the pharmacist refuses to offer it for a lower price as he has discovered it and wants to make profit off of it. The participants are asked whether the husband should steal the treatment from the pharmacy.

Kohlberg's research, as Perry's research which is based on Kohlberg's theory, was based on empirical research using only male participants. Moreover, according to Crain (1985), his stages are not culturally neutral, as the application of his theory to different cultures showed, and although they progress through the stages in the same order, they do so at different rates.

Kohlberg is a close follower of Piaget, thus most of his theoretical positions reflect those of Piaget (Crain, 1985; Rest et al., 1988). His stages develop from the individual's

personal thinking about moral problems and not through maturation or socialization, as socializing agents do not teach new ways of thinking directly, but they only facilitate development (Crain, 1985). Regarding social experiences, he believed that they work best when they are open and democratic as the less the children feel the pressure to conform to authority, the freer they are to form their own ideas (Kohlberg, 1976).

Kohlberg (1976) referred to his stages as holistic structures which develop in an invariant sequence and comprise hierarchy and called these qualities a *hard* stage model. Kohlberg attempted to prove how his stages correspond to Piaget's mental stages and how his stages meet the criteria of a stage. Regarding Piaget's first criterion stating that there are qualitative differences in the ways of thinking, Kohlberg's stages seem to be qualitative different since the responses of his research's participants at stage 1 were very different of those at stage 2 taking the focus from obedience to authority (stage 1 responses) to the freedom to behave as one wishes (stage 2 responses) (Crain, 1985). Concerning Piaget's second criterion, which refers to the existence of structured wholes, Kohlberg believed and attempted to prove that the stages are general patterns of thought being expressed on a range of issues and not isolated responses (Crain, 1985).

The third criterion in Piaget's theory proved that there is progress in an invariant sequence and Kohlberg believed that his stages do unfold in invariant sequence and that children always move in the same order from stage 1 to stage 2 and so forth; he believed that stages are not skipped nor are they followed in mixed-up orders (Colby et al., 1983)). Piaget's stages are hierarchically integrated; Kohlberg attempted to show the way each new stage offers a more general framework for dealing with social issues (Crain, 1985). He believed that every new stage keeps the insights of the prior stage and recasts them into a broader framework, thus making each new stage more cognitively adept than the previous. Hierarchic integration enables Kohlberg to explain the direction of his stage sequence (Crain, 1985). Like Piaget, Kohlberg also believes that his stages are universal, meaning that the sequence is the same in all cultures as each stage is conceptually more advanced than the next one and that for one to understand this, one needs to understand them in terms of Piagetian theory (Kohlberg & Gilligan, 1971). In Kohlberg's theory, cultural factors do not shape children's moral thought directly, but stimulate thinking, whereas social experiences can challenge their ideas (Nisan and Kohlberg, 1982). This challenge can be seen in university students in courses in which teachers doubt the unexamined assumptions of their childhoods and adolescences on purpose, motivating them to think about moral matters in new ways (Kenniston, 1971).

### *Evaluation of student developmental theories*

The basic commonality of moral, intellectual and cognitive developmental theories reviewed up to this point is that all of them are stage theories and all lay claims to be influenced by the theory of Jean Piaget in that they read Piaget's theory as a stage theory with stage transitions taking place at a specific age range. In the cases where the stage notion is abandoned then a substitute notion (like statuses or vectors) are introduced that still retain a sense of orthogenetic direction. Moreover, all theories entertain some vague notion of the importance of maturation and environmental influences.

Erikson's eight stage theory carries a heavy psychoanalytic baggage, is excessively general and it is biased against women (Gilligan, 1982). Though in its fifth stage it refers in the development, confusion and complexities of adolescence and early adulthood, it is not descriptive nor referring specifically to students. Moreover, Erikson's theory does not recognize variations in development suggesting developmental crises unfold in an invariant and linear way but does recognize the importance of environmental influences.

Marcia's theory of statuses was also ordered and had a static nature. Marcia (1976) himself recognized his theory as problematic as it was based only on a sample of men. Chickering's theory overcame some of these problems by proposing that his theory's vectors were different from stages though built on one another, they were not mutually exclusive or unilinear (Torres et al., 2009). Moreover, Chickering's student identity development theory revision explained in more detail intellectual issues through the focus on dimensions of identity like race and gender in a more contemporary light. As college populations became more diverse and social scientists attended to racial and sexual orientation identity development in the 1970s, 1980s, and 1990s, student development theory evolved to focus tightly on identity development of specific student populations (e.g., racial and ethnic groups, lesbian, gay, bisexual, and transgender students, and women). 'In the last decade, although studies of specific populations have continued to enrich knowledge of identity development in distinct domains considered more or less in isolation, some scholars (Abes, 2009; Abes et al., 2007; Jones, 2010; Stewart, 2009) have begun to put the pieces back together to consider the whole student again, in all of his or her complex and intersecting identities'.(Torres et al., 2009, p. 590). In the past fifteen years research on identity became 'more inclusive, nuanced, and interdisciplinary in its approach' (Torres et al., 2009, p. 582).

Torres et al (2009) discuss three major commonalities between identity theories. The first is that many of the theories focus on identity as a progress from the simple ideas one has about the self to complex understandings of what identity consists of (for example Marcia, 1993) and other theories examine development through the progress of linear stages (which have been judged for viewing identity as rigid, stable and external to the individual) or statuses (taking into account preceding means of coping and acknowledging progress towards internalized ways of viewing the self) leading to the final point of the identities becoming internalized, synthesized and permanent (Cass, 1979; Helms, 1994). The second similarity between the identity theories 'is the general understanding that identity is socially constructed and reconstructed. Disequilibrium prompts the individual to enter a re-formation period that does not disintegrate his or her established identity; instead, the cognitive process of making meaning of changes prompts reconstruction of identity that incorporates change in environment, social status, or other life events' (Torres et al., 2009, p. 582). The third common characteristic in identity development theories is the environment, or context, which influences the behavior, attitudes, and cognition of the person (Torres, 2009; Bronfenbrenner, 1993).

Abes (2009) supports that though it is crucial to understand the commonalities in theories, newer approaches to understanding student development now emerge, which explain the way power and privilege shape identity theories through the study of marginalized populations (by race, ethnicity, disability, or sexuality for example) and of societal structures and dynamics producing marginalization and oppression (for example racism and heterosexism). In this thesis it is argued that unless the study of social interaction and social relations is taken seriously into consideration the effects of privilege and marginalization will never be adequately integrated in student development theories.

### **1.6. The role of social relations and student development theories**

On the whole student development theories that were influenced by Perry recognized that psycho-social and cognitive developmental processes are somehow interconnected but most of the times they reduce both aspects of development to a manifestation of a structure of a specific stage. From this perspectives there is also some role given to social relations as a factor of importance although there does not seem to be a clear view or consensus about the aspects or quality of social relationships that are expected to relate with cognitive and psychosocial development and through which developmental process of change.

Sometimes the role of social interaction is related to the importance of guidance by a more expert individual which resonates with Vygotskian theorizing and the notion of the Zone of proximal development to be discussed in more detail in the following chapter.

For example, Lindemann and Anderson (2001) believe that professors play an important role in helping students adopt new ways of thinking. In doing so, they ought to become involved in making a difference between what students will learn on their own and what they may learn with their professors' guidance. "The evolving mind is not awaiting some transformation from within but responds to external influences" (Lindemann & Anderson, 2001, p. 107). Lindemann and Anderson state that learning depends on relationships with others and needs a social network of teachers, classmates, friends, and family members. These aspects are thought to be imperative for intellectual development.

At other times, and more clearly resonating with the original Piagetian framework the quality of social relations is discussed as an important factor albeit by introducing a "gender difference" discourse (Belenky, Clinchy, Goldberg, and Tarule, 1986) that departs from the original Piagetian theorizing ending up in the argument that women and men learn and develop through different processes. These researchers also based their study on Perry's scheme observed the importance of family environment on cognitive development of female university students. They state that women learn through connected knowledge and that the programs and teaching methods of most universities are not properly organized for women's learning as well as that several changes are needed to be made. These researchers believe that female university students may develop if they place emphasis on connection of knowledge, understanding and acceptance instead of assessment; collaboration instead of debate. This "gender difference" discourse in relation to the processes of development and learning itself goes back to the influential feminist writings of Carol Gilligan (1982). In her book *In a different voice* (1982), Gilligan argues that women think and speak in a different way than that of men regarding ethical dilemmas and presents the feminine ethic of care and the masculine ethic of justice .

Gilligan (1993) building on but also criticizing Kohlberg proposed three levels of moral development in women in two different periods. In the first level, which is *orientation to individual survival*, decisions are based on the self and on the personal needs. The thinking that taking care of others as well emerges and acceptance by others becomes central, but at a later transition, *from goodness to truth*, the person includes taking care of the self as well as others. In the third level of *morality to nonviolence*, the person understands that caring not to hurt others includes not hurting the self, as well.

Furthermore, Gilligan believes that moral reasoning and psychosocial nature, as well as educational achievement, are different for males and females. As mentioned in Clifton, Perry, Roberts and Peter (2008), Gilligan states that females are more likely to view the self in terms of interpersonal relationships with others and are concerned with social discourse, intimacy, and care-giving, while males are more likely to define the self as autonomous from others and concerned with individual attainment and status. As a result, they are more aware of their own feelings and the feelings of others. Gilligan (1982) has provided examples of transformations of post conventional moral judgments that she takes to be examples not of regressive particularization strategies but of a universalistic ethic of care. Gilligan's position deserves attention because of the function of universals of care in the transition beyond the stage of contractual principles. Universals of care (or an ethics of the good life) may provide just those challenges which permit particular contexts to function as triggers or stage-transcending devices.

Gilligan's theory has been criticized in that she, like other feminist psychologists, present the concept of difference between males and females and though the difference is no longer biologically based, is decontextualized (Weisstein, 1993) and is assumed that the female difference is fixed and not dependent on social context (Ruddick, 1990). Unfortunately, this theory often ends up supporting the stereotypes between men, women, and their communication and the "women are from venus and men are from mars" pop psychology. Since this is an "ethical" theory, many ethical theorists don't agree that Gilligan has established a double standard or stereotype of justice vs. care. Carol Gilligan's theory suggests that men and women are on two different spheres of ethical communication with other people, while other theorists have established the idea that men and women are on the same level, but communicate differently. Griffin (1991) believes that Gilligan's two-voice hypothesis has received criticism with many critics bothered with the notion of a double standard referring to justice for men and care for women and that moral philosophy did not suggest different ethics for different groups. Moreover, he sustains that a large number of social scientists criticize Gilligan for not offering research support to validate her theory. Other researchers commenting on the role of social relations suggest that negative peer interactions stifle development. According to Marra and Palmer (2004), the best indicator of a successful education is the ability to reason in context, digest and evaluate evidence. Furthermore, a successful student is able to apply these skills by thinking complexly to solve difficult problems.

Despite the fact that statements like these about the importance of social relations for both cognitive and psycho-social development come from various quarters and traditions in the recent years what one notes is that social relations and social interaction are rarely given the central role. This is because, as we show in detail in chapter 3, these theories mostly employ an individualist psychological model where social interaction comes as an epiphenomenon of a stage of knowledge that the individual is in, with maturational factors or in the best case individual psychological characteristics as “filtering” the knowledge system of the person in relation to how he or she perceives both the “object” and the “social world”. This characteristic can be found in various stage theories that explore both cognitive and psycho-social aspects of development. The review of the theories must have made abundantly clear that there is a need for a deeper understanding of the social relational aspects of the environment and specifically their role in the formation of cognitive and psycho-social development.

### *Student Development Theories Overview*

#### Self Identity Theories

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#### **Erickson’s stages of Psychosocial Development (Erickson, 1959)**

1. Trust vs. Mistrust (0 - 1 year)

Virtue: Hope. Emphasis on the infant’s basic needs being met by parents.

2. Autonomy vs Shame & Doubt (1-3 years)

Virtue: Will. Child controls actions and motor abilities; the parents provide the security base from which the child ventures out to assert his or her will.

3. Initiative vs Guilt (3-6 years)

Virtue: Purpose. Initiative to undertake, plan, attack a task in order to be active. The child learns to master the surrounding world, basic skills and basic principles of physics.

4. Industry vs Inferiority (6- 12 years)

Virtue: Competence. Awareness of the self as individual. Responsibility is developed with the ability to share and cooperate.

5. Identity vs Role Confusion (13 - 19 years)

Virtue: Fidelity. New concern with emphasis on how the person appears to others.

6. Intimacy vs Isolation (20 - 40 years)

Virtue: Love. Ability to form intimate and reciprocal relationships through friendships or marriage. They sacrifice and compromise.

7. Generativity vs Stagnation (45- 65 years)

Virtue: Care. Establishing and guiding the next generation.

8. Ego Integrity vs Despair (65 years and onwards)

Virtue: Wisdom. Productivity is reduced and life is explored through the eyes of the retired person.

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Accomplishments are contemplated and integrity is developed if the self is viewed as leading a successful life.

### **Marcia's Ego Identity Status (1996)**

Extent of exploration and commitment in different life domains (eg politics, religion, occupation, gender roles). Two parts assist in the achievement of identity development in adolescence: a) Time of choosing or crisis and b) Commitment.

- **Foreclosure**

A commitment is made without the exploration of alternatives

- **Identity diffusion**

The overwhelming of identity development can cause the adolescent to neither choose nor commit or explore regarding life defining areas.

- **Moratorium**

The individual is in a crisis, but commitment is absent or vague.

- **Identity achievement**

After the crisis is over, the likely progression is from identity diffusion to moratorium and finally to identity achievement. Identity achievement is the status of the individual who has undergone through a crisis, explored identity and made commitments.

### **Chickering's Theory of Identity Development: The Seven Vectors (Chickering & Reisser, 1993)**

1. **Developing Competence**

Development of intellectual and interpersonal competence, of physical and manual skills.

2. **Managing Emotions**

Recognition, acceptance, appropriate expression and control of emotions

3. **Moving Through Autonomy Toward Interdependence**

Increase of emotional freedom

4. **Developing Mature Interpersonal Relationships**

Development of intercultural and interpersonal tolerance, appreciation of differences, ability to create healthy and intimate relationships

5. **Establishing Identity**

Acknowledgement of differences in identity development based on gender, ethnic background and sexual orientation

6. **Developing Purpose**

Development of career goals, commitments to personal interests and activities, establishment of strong interpersonal commitments

7. **Developing Integrity**

Personalization of values and development of congruence

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Cognitive structural theories - Intellectual and ethical development

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### **Perry's Theory of Intellectual and Ethical Development - Positions**

1. **Basic Duality** -Dichotomous view of life, good-bad, right-wrong answers, black-white, facts,

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authorities have correct answers.

2. Multiplicity Prelegitimate - There may be conflicting answers, authority is not always correct, therefore begin to start trusting inner voices.

3. Multiplicity Legitimate but Subordinate - Knowledge that there are other answers.

4a. Multiplicity Coordinate - Knowledge and understanding of the existence of multiple answers and various ways to examine circumstances, start to think that everyone has the right to their opinion.

4b. Relativism Subordinate - Authorities do not want the right answers, but want students to think.

5. Relativism - Examining various viewpoints or answers. Everything is relative but not equally valid.

6. Commitment Foreseen - Commitment and/ or trust in the opinions of others or the viewpoints they feel are correct for them.

7-9. Commitment - Revisiting previous commitments and changing them if necessary.

### **Belenky, Clinchy, Goldberger, and Tarule (1986) - Positions**

1. Silence - Disconnected from knowledge, its sources and their relationship to knowledge. Voiceless and Mindless.

2. Received knowledge: Listening to the voices of others - Knowledge and truth received from infallible others, not from the self. Receive and repeat the words of authorities.

3. Subjective knowledge: The inner voice - Inner knowledge is considered superior to others, truth resides in self.

4. Procedural knowledge: Separate and connective knowledge - Multiple sources of knowledge exist, which need to be evaluated. Focus on sources' knowledge accuracy and worth of authority.

5. Constructed knowledge: Integrating the voices - Understanding of interrelatedness of knowledge, knowing and the knower. Listen, share and cooperate, yet maintain own voice undiminished.

### **Baxter Magolda's Model of Epistemological Reflection (1992):**

Six Model Assumptions:

1. Ways of knowing and their patterns are socially constructed
2. Ways of knowing may be understood and questioned through naturalistic inquiry without manipulation.
3. Flexible reasoning patterns
4. Patterns are related to, but not dictated by, gender
5. Student stories are context-bound and situational
6. Ways of knowing are based on experience.

Stage 1: Absolute Knowing - Authorities (professors) possess the absolute truth. Receiving and mastering knowledge.

Stage 2: Transitional Knowing - Authorities do not possess all knowledge. Interpersonal and impersonal knowing

Stage 3: Independent Knowing - Knowledge is uncertain. Interindividual and individual patterns.

Stage 4: Contextual knowing - Individual constructs knowledge based on evidence.

### **King and Kitchener's Reflective Judgment Model (1994)**

Stage 1: Knowledge is absolute and concrete. Obtained through direct observation.

Stage 2: Knowledge is certain, not directly accessible, obtained through authority figures

Stage 3: Knowledge is certain or temporarily uncertain

Stage 4: Knowledge is uncertain - ambiguity

Stage 5: Knowledge is contextual and subjective, requires evidence

Stage 6: Knowledge is constructed in individual conclusions about ill-structured problems

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Fotini Kranou Kyriakides

## Moral Development

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### Kohlberg's Theory of Moral Development

Level 1: Preconventional

Stage 1: Heteronomous morality: Avoidance of punishment and behavior based on authority

Stage 2: Individualistic-Instrumental morality: Self interest and understanding the needs of others

Level 2: Conventional

Stage 3: Interpersonally normative morality: Appropriate social roles and maintenance of good image

Stage 4: Social system morality: Social obligations, following laws established by society, carrying out duties

Level 3: Post conventional or principles

Stage 5: Humans' rights and social welfare morality: Promotion of fundamental human rights and values

Stage 6: Morality of universalizable, reversible, and prescriptive general ethical principles: focus on equal consideration of others

### Gilligan's Theory on Women's Moral Development

Level 1: Orientation to Individual Survival: Self-centered individual concerned with survival.

First Transition: From Selfishness to Responsibility: Attachment and connection to others incorporate responsibility and care in moral decision-making

Level 2: Goodness as Self-Sacrifice: Survival develops into social acceptance, may surrender personal judgment for the sake of consensus and connection

Second Transition: From Goodness to Truth: Observation of needs as truth not egoism.

Level 3: The Morality of Nonviolence: Redefinition of morality

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## 1.7. Engagement with University Environment and the Peer Group

There are two concrete variables that distinguish as to what is truly important in the university and concerning its role in the students' development. These are the peer group and the university faculty's orientation (Astin, 1993). Astin's study included 500,000 university students from 1,300 universities and concludes that the peer group of same age students is the most important source of effect of development in the undergraduate years. This type of interaction influences the student's development, the acquiring of a degree, the GPA, and continuation to graduate studies. What is specifically important to the peer group (Astin, 1993) argues are the values, behaviors, self-concept, and socioeconomic position that it represents.

Similarly, the more student-centered the university faculty is and the more its members interact with the students, the more influence on the students' behaviors, values,

and goals. The campus environment is not the only factor that matters; the degree and level that the student participates in it matters more (Astin, 1993). It seems that the students who participate in their program by working on projects, exams, presentations, and independent research enjoy more aspects of student life than the ones who participate less. An important research outcome was that students of universities that are research-focused seem to be dissatisfied with fewer opportunities for social and emotional growth, whereas students of student-centered universities seemed to enjoy their studies in a greater degree. The same was found for students of applied sciences (i.e. engineering) as students seem to feel negatively and dissatisfied, whereas a high correlation with depression was found. Kezar (2006) believes the size of the university to be one of the most important factors for student satisfaction and engagement with the institution. He also finds it to be crucial for the development of the interaction of students with faculty members, learning, and supportive educational environment. Furthermore, Tinto (1993) believes that the psychological characteristics of a university student impact greatly both the academic and social integration.

In the same line with Astin, Pascarella and Terezini (2005) state that student engagement with the university environment will increase if the opportunities increase. According to LaNasa, Olson, and Alleman (2007), with the increase of the university's expectations, of opportunities, and of the emphasis placed on the culture of participation, students may be influenced to engage more. Engagement has two major components (Kuh, Kinziw, Schuh, Whitt & Associates, 2005). The first consists of the amount of time and effort that the university students put into studying and into other experiences which lead to success. The second is the university's distribution of resources to provide opportunities for beneficial activities.

According to Sanford (2006), there has to be a balance between challenge and support within the university environment as too little challenge may offer the student comfort and security, but will prevent development from taking place, whereas too much challenge may promote negative responses. As stated by Sanford, the amount of challenge in a university setting has to be relevant to the amount of support offered. The equilibrium between challenge and support will assist in student development.

The finding of ways of challenging and support of the university students for the creation and development of their own voice and the opportunity for formation of relationships with the academic and administration personnel based on respect and autonomy are important factors towards the student's intellectual, emotional, and social

development (Baxter-Magolda, 2001). Partnership is also an important factor for the student's development (Baxter-Magolda, 2001). The research that Baxter-Magolda performed with the students she followed after their graduation and up to their early thirties showed that university education lacks the attention to the development of the self and that the role of the professors in guidance, partnership, and support for supporting the student's "self-authoring" was very important.

"Becoming the author of one's life in essence bringing the source of meaning making inside the self- is a life changing transformation" (Baxter-Magolda, 2001, p.331). For students to truly live the educational experience, universities need to move from the traditional teaching models, as well as the strict organizational structures viewed in many universities. University experiences that take place out of the classroom might be greater than the academic ones as far as development is concerned (Astin, 1993; Baxter Magolda, 1992, 2001; Chickering & Reisser, 1993; Tinto, 1993), the universities need to design an environment not viewed as the one where the authority figures own all the answers for the students (Baxter Magolda, 2001).

Pascarella and Terenzini (2005) believe that the university experience can assist in the students' psychosocial development with supportive, constructive since positive interactions with faculty are related to progress in dimensions in moral development, personal independence, emotional autonomy, social integration, and a general sense of well being. Furthermore, both individual and environmental characteristics impact student satisfaction and development (Umbach & Porter, 2002).

The relationships of students with their parents are also considered important for student development. Renk, Donnelly, Klein, Oliveros, and Baksh (2008) found that negative perceptions of students' parents may serve as a risk factor for behavior problems. Another view is that college students with a negative outlook on life may view the relationship with parents and their own functioning negatively. Two important aspects of emotional development are autonomy from parents and developing an intimate relationship with another person. Grotevant and Cooper (1986) suggested that the renegotiation of the relationship with parents is viewed as an aspect of a healthy emotional development. Autonomy from one's parents is to be established not in the sense of complete separation, but as a movement toward reciprocity as equal adults. Arnett further believes that another developmental emotional task is to establish an intimate relationship with a partner outside the family (Levinson, 1978; Arnett, 1994) as well as the establishment of emotional self-control.

Positive social relations have also been specifically linked to self-esteem, one of the most well studied variables in psychology. As mentioned by Napoli and Worman (1998), self-esteem, was directly related to academic integration, social integration, and goal commitment. Harter (1999) describes self-concept as the awareness that individuals have of the self in specific domains like academic achievement, behavior, social approval, athletic competency, and appearance. Self-worth is the general acceptance of the self and is multi-dimensional. Furthermore, according to Harter, it is influenced by the way the person evaluates his or her competence in a specific domain and the importance they place on this ability. As mentioned by the same source, a sense of self-worth is both a cognitive and social construction, therefore constructive communication with important others like parents, peers, and teachers are very important to the development of self-worth. Self-esteem may be high or low for a given self-concept depending on the positive or negative views of the individual on that specific concept (Harter, 1999).

“Theoretically, self-concept, self-esteem, and self-efficacy beliefs share a common emphasis on an individual’s beliefs about his or her attributes and abilities as a person” (Valentine & DuBois, 2005). Clifton et al. (2008) found that students who present better coping and academic control strategies and those with higher self-esteem have higher academic achievement than students who do not present high levels of self-esteem. In their research, Clifton et al. found that positive interaction with professors, student collaboration, and group study, can improve academic achievement both in male and female students.

According to Valentine and Dubois (2005), academic self beliefs might be a stronger influence on academic achievement than other more general self-beliefs. According to the same sources, it may be of more importance for a student to believe that he or she is a capable learner than to have a generalized sense of ability as a person. Even if literature suggests that self-beliefs and academic achievement are highly correlated, Valentine and DuBois observe that it is difficult to decide the level of association. The researches refer to four different psychosocial models. These are the *Skill Development model*, which believes that academic achievement influences self-beliefs and that self-beliefs do not influence academic achievement and the *Self-Enhancement model*, which states that self-beliefs influence academic achievement and that academic achievement does not influence self-beliefs. The third model is the *Reciprocal Effects model*, which holds that self-beliefs influence academic achievement which in turn influences the development of self beliefs. The fourth model, *the Null*, speculates that there is no causal relationship between the two. The Valentine-DuBois research agrees with the Reciprocal Model. From the preceding

review of the main theoretical approaches in student development it should be clear that there are points of convergence and points of divergence in the effort to understand what and if anything develops during the university years. There is also agreement that somehow the socio-cultural context of student development needs to be taken into account but that the main ancestors' theories did not facilitate such an understanding. In recent years there is also a convergence on the need for broadening the coverage of the development of various groups in relation to issues of marginalization and privilege. There is also agreement among many theorists that a more holistic account of student development that takes into account both the cognitive and psycho-social aspects of development needs to be developed but the relationships between these aspects are still unclear. This was also identified as a problem in a recent review of the field (Evans, Forney, Guido, Pattern & Renn, 2010). Importantly, this problem is partly attributed to the fact that the classical approaches of Perry, Kohlberg and Erikson were based on clinical interviews and qualitative analysis that failed to clarify the relationship between various variables covering both cognitive and psycho-social development. There is thus an urgent need for the use of psychometrically valid measures and model testing that will offer a more complete picture of the interrelationships between these aspects of development. Beyond, this there is also currently a very poor understanding of processes of change since rarely research in the field made use of longitudinal designs that are in a position to clarify possible developmental paths.

In the following chapter the issue of the socio-cultural nature of development is given more attention, in chapter 3 the proposed framework of the current thesis is proposed and in chapter 4 some of the methodological problems identified in the field are addressed in detail.

## **Chapter 2: From Dialectics to Socio-cultural Theories of Human Development**

### **2.1 Dialectical Approaches to human development**

As briefly discussed in the previous chapter, one of the lines of critique of the Piagetian tradition took the form of proposing the existence of a post-formal stage in human development. The more radical societal or socio-cultural critique came from the dialectical approach of Klaus Riegel in the early sixties who proposed the theory that can capture the dynamics stemming from the presence of an active psychological subject in an active and changing environment that changes from the subject's own actions.

The 1960s were characterized by the vitality of the social movements of that period, that took the form of collective action for the support of freedom of speech, human rights, feminism, anti-authoritarianism, also expressed through various student movements. Critique was applied in many areas of society concerning warfare, politics, and education. As a result, theories that were seen as individualistic were intensely criticised for failing to resonate with the real social problems, if not for reinforcing ideological domination of the powerful and privileged over the powerless. During this period, some western psychologists criticized what they viewed as the failed traditions in developmental psychology: the traditions of capitalism and mercantilism (Ijzendoorn, Goossens & Van der Veer, 1984). Riegel saw Piaget's theory as falling in the mercantile tradition that constrained comparisons and conflicts between individuals but within classes since it had nothing to say about the competition between the classes. He also considered Vygotsky's theory as more social but not ideal as the latter saw a passive individual in an active environment although he rarely used Vygotsky in his writings. His favourite theoreticians who proposed an active subject in an active world were Marx, Hegel and Rubinstein.

Klaus F. Riegel is considered the initiator of the « dialectical psychology » school in the late 1960s as a result of his view that psychology was losing its ties to a social-historical context (Ijzendoorn, Goossens, & Van der Veer, 1984). Riegel (1972) observed that the notion of competition and conflict within stages of cognitive development, though conceivable, was rejected by Piaget. Riegel additionally suggested a communication between the sociological notion of class and the psychological conception of stage; in the

same way that mobility from the lower to the upper classes was almost impossible with the representatives of each class observed separately, each mental activity stage was also examined individually (Ijzendoorn, Goossens, & Van der Veer, 1984).

Riegel generally disagreed with the notion of stable traits, abilities and competencies emphasized by western psychology and believed that instead of searching for abstract and alleged universal entities, concentration should be placed on concrete events in sequential (chronological) order (Riegel, 1976). Riegel, like another well-known psychologist of the west with a mind for societal critique Jerome Bruner, believed that the study of meaning had been so eliminated from psychology, that it could not be put back, therefore it should be examined from the beginning (Riegel, 1970).

The individual is seen by Riegel as changing in a changing world and should be examined in this way, though this view is not sufficiently applied if the individual is observed in terms of traits and competencies; the individual should be viewed in a concrete social world (Riegel, 1976). Moreover, Riegel believed that both the individual and his or her environment should be the object of study and research (Ijzendoorn, Goossens, & Van der Veer, 1984).

Riegel (1976) also rejected the preference for equilibrium, balance, or stability found in Piaget and argued that emphasis should not only be placed on the issue of how tranquility of the mind or of the social situation is accomplished, on how problems are solved and the way answers are found, but equal emphasis should be placed on how problems are created and the way that questions are raised. The state of balance and stability has found its expression in the equilibrium theory, which he saw as a static state theory, which failed to change needs to be explained in terms of imbalance, the basis for any movement. As he stated, 'An instructive example of the overemphasis of stability at the expense of change, of the state of equilibrium rather than the process of transformation, is Piaget's (1950) theory of cognitive development.

Riegel (1976) investigated how children resolve conflicting situations, contradictory evidence, or inconsistent impressions, but rarely did he report how children come to question their earlier judgments and how they create their own problems:

Whenever new questions and doubts arise in the child, triggered by new experiences but not explained by Piaget's theory, the balance is disturbed and new operativity is generated in the child. Eventually a new equilibrium will be attained, and thus the child has moved into the next higher level of cognitive balance...little attention is given to the question of how transitions are initiated and executed. Like Athena sprang from Zeus's forehead clad in full armor, so does a child switch into a new stage of development in a

miraculous fashion. Not even directed training will help, for as long as a child operates within the cognitive structure of the earlier stage, he or she is not yet able to comprehend those of the next; once the child has reached the later stage, there is no reason for such training either, because now the child knows already what he or she is supposed to learn. The same criticism can be raised from a different perspective, Piaget considers only the child's interactive operations with objects but does not consider that the most important objects are other subjects who, like the child, operate actively upon objects and, in particular, upon other subjects. Piaget has paid little attention to the outer or social dialectics of developing individuals. By restricting his analysis to the interactions of the subject with objects, he succeeded in describing the logics of stages in rational thinking but failed to elaborate the fundamental basis of cognitive operations, the social basis of human being. (p. 691)

Contrary to Piaget's cognitive development theory, a dialectical interpretation of human development does not place emphasis on the plateaus at which equilibrium (balance) is achieved. Instead, development is viewed as the result of asynchronies in several dimensions over time. The dimensions are the inter-biophysical, the psychological, the socio-cultural and the external physical. When two sequences are in conflict, coordination and synchrony break down and critical changes can take place. Riegel argues that developmental and historical tasks are never completed as new questions and doubts arise in the individual; 'the organism, the individual, society, and even outer nature are never at rest, and in their restlessness they are rarely in perfect synchrony...Development requires a delicate synchronization between the progressions along the different dimensions' (Riegel, 1976, p. 697).

All these arguments by Riegel suggest that he failed to recognise the dialectical nature of Piagetian theory clearly seen in his notions of assimilation and accommodation and the importance he gave in his earlier work on relations of constraint and co-operation to be discussed in more detail in the next chapter. Riegels' arguments lead to the conclusion that he misread Piaget as simply a maturation and stage theorist that was widespread in the USA at that time (see Psaltis & Zapiti, 2013) Riegel was false in assuming that a child is thinking dialectically when unconcerned about the contradictions entailed (Ijzendoorn, Goossens, & Van der Veer, 1984). Goldmann (1959), a renowned Marxist sociologist of the time, who certainly read Piaget in depth and collaborated with him, in fact believed that Piaget was the second greatest dialectician in the west after the historian Lukacs on the basis of his genetic approach and his belief that logic emanates from action on the world. He worked for years with Piaget and pointed to many points of convergence between the dialectical epistemology of Hegel and Marx in the area of the development of intelligence

in ontogenesis and in the fundamental unity of thought and action. Garcia (1980) explains that though Piaget was not a Marxist, he expressed remarkable similarities with members of the dialectical tradition (see also Psaltis, 2005a). The solution proposed by Riegel in the end of the day can be considered as problematic.

In Ijzendoorn, Goossens, and Van der Veer (1984) it is rightly pointed out:

And yet Riegel felt obliged to neutralise the so-called anti-dialectical character of Piaget's theory by adding a fifth, dialectical stage to Piaget's classical stages, suggesting the transition through one or more of the "traditional" stages as a condition for reaching that stage. In other words, the highest level of dialectical thinking can be reached both through the senso-motoric stage and through the pre-operational, concrete operational or formal-operational stages. By adding this fifth stage, Riegel believed it was possible to expand considerably the opportunities for equivalent inter-individual development. (p.14).

Riegel fails to make his theory more convincing and in error in believing that intra-individual differences cannot be explained in Piaget's theory; he does not point out the notion of *decalage*, which is important in Piaget's equilibrium theory suggesting that he was not aware of this aspect of Piaget's theory (Ijzendoorn, Goossens, & Van der Veer, 1984). Moreover, Riegel denies nearly all equilibrium states and reduces development to constant conflicts. On the whole Riegel seems to have been highly influenced by the American misreading of Piaget as an individualist, maturation and stage theorist that we expose and deconstruct in Chapter 3 (Ijzendoorn, Goossens, & Van der Veer, 1984). In addition, if he had the chance to read Vygotsky maybe he could have appreciated the dialectical nature of his theory more.

### **An updated reading of Vygotsky and consequences of his theory for development**

The early 1960s was also the time when the first translation of Vygotsky's *Thought and Language* (Vygotsky, 1934/1972) was published in the west with a sense that he was the "social" remedy for the "individualism" of Piaget although this view is currently rapidly changing (Kitchener, 2009; see chapter 3). In the presentation of the most important ideas of Vygotsky that follows it should be kept in mind that whereas almost all of Piaget's work is now published in English, the same does not hold true for Vygotsky. Only about half of Vygotsky's work is currently translated in English, therefore there is still room for misinterpretation and misunderstanding of his theory, let alone in the sixties at the height of the cold war and with only one book translated into English as the case of

Riegel makes clear. Beyond known problems with the translations of the work of Vygotsky in English (distortions, omissions), it should also be kept in mind that the socio-political context of his time meant that his published work in Russian was also the result of censorship from the communist party (Van der Deer & Yasninski, 2011).

It should not be forgotten that Vygotsky was greatly influenced by Piaget, having dedicated a whole chapter in his book *Thought and Language* (1934/1972) as a commentary on Piagetian theory and that their differences were often more apparent than real. So close were the theories of the two that “it is difficult for many psychologists to understand how Vygotsky could be a “Piagetian” in much of his thinking (whilst being critical of Piaget in some areas)...” (Van der Veer & Valsiner, 1991, p.392). This of course in no way denies the fact that for Vygotsky and his school Piaget was publicly the main ideological opponent and that he explicitly drew on Marx contrary to Piaget who did not consider himself a Marxist. Vygotsky wished to reformulate psychology to contribute to the building of the new socialist state of the USSR (Lucy & Wertsch, 1987). He had two reasons for his wish to reformulate psychology; the first was to provide a new Marxist theoretical groundwork for psychology by incorporating:

...certain ideas about labor as a tool mediated-process, the social nature of human consciousness, and historical materialism in general into psychological theory. Second, he wanted to create a psychological theory that would provide guidelines for approaching some of the massive practical problems involved in building a new socialist state. In this connection he was particularly concerned with issues in instruction and development. (p.68)

Marxist psychology was important to Vygotsky in two ways; first, it led him to place emphasis on the social origins of human consciousness viewing its social dimension as primary in time and in fact thus expressing a clear sociogenetic point of view. Social processes, according to Vygotsky were viewed as providing the historical groundwork for human mental functioning to emerge and also giving rise to individual psychological processes in ontogenesis. Second, he viewed social processes like labor to be mediated by nonhuman objects and psychological tools which enable them to enter into social interaction with others and plan and regulate their own actions. Vygotsky believed that the means used to regulate others and the self are crucial to determine the nature of the human mind (Van der Veer & Valsiner, 1991). Apart from Marx, Vygotsky was influenced by other theorists of his time like Piaget, Gestalt psychology, Pavlov, Thorndike and others in order for his work to emerge (Van der Veer & Valsiner, 1991). Furthermore, Vygotsky

was influenced by semiotics, the study of signs and sign processes and their relationship to objects.

Vygotsky's theory focused on three general themes; genetic analysis, social origins of exclusive human higher functioning and semiotic mediation (Van der Veer & Valsiner, 1991). He used genetic or developmental analysis and claimed that it is possible to understand human psychological functioning only by understanding its origins and developmental transitions. Vygotsky believed that the concentration needs to be on the process of development by which higher forms are established and not on the product of development. Moreover, he believed that rather than limiting his account of mental development to evaluating if an individual has a certain ability or concept in its finished form, he examined the past history and the future potential of mental phenomena arguing that what children can do with the help of others may demonstrate better their mental development than what they can do alone (Wertsch, 2008) which formed the basis of his well known notion of Zone of Proximal development.

Vygotsky's analysis of psychological tools and mediational means included referred to natural language and a number of systems for counting, mnemonic techniques, algebraic symbol systems, art, writing and other conventional signs. His reasoning was grounded in an analysis of how various influences come into contact and transform action by arguing that the primary functions of direct stimulus-response action without mediational means, with the use of different mediational means is transformed into the higher mental functions (Wertsch, 1995).

According to Vygotsky, higher mental functions are the result of a number of qualitative transitions or revolutions that need to be examined in various genetic domains like phylogenesis, socio-cultural history and ontogenesis. This higher human functioning in the individual is believed to be derived from social interaction, as well as tied to the socio-cultural milieu in which it emerges (Lucy & Wertsch, 1987); This claim is explained in Vygotsky's "general genetic law of cultural development" which states that

Any function in the child's cultural (or, higher mental) development appears twice, or on two planes. First it appears on the social plane, and then on the psychological plane. First it appears between people as an interpsychological category, and then within the child as an intrapsychological category. This is equally true with regard to voluntary attention, logical memory, the formation of concepts, and the development of volition. (p.163)

Vygotsky believed that any higher mental function was external, at first, for the reason that at some point it was social before becoming an internal and truly mental function through the process of internalisation (Wertsch, 2008). Vygotsky thus strongly believed that social changes are followed by fundamental changes in thought processes and it was this concept that was central in his theory and which guided most of his research with Luria in the post-Soviet Revolution years (Jovchelovich, 2007) in Uzbekistan. Vygotsky's theory argued that 'the development of higher psychological functions in humans needs to be understood as part of a general theory of sociohistorical development' (Jovchelovich, 2007, p. 53). His notion that culture and societal development form the development of psychological functions was viewed by many theorists as his most fundamental contribution (Cole, 1985; 1996, Wertsch, 1985).

‘...socio-historical shifts not only introduce new content into the mental world of human beings: they also create new forms of activity and new structures of cognitive functioning. They advance human consciousness to new levels (Luria, 1976, p. 163).

Though Vygotsky was influenced by Marx, it is evident that he was also influenced by Piaget, as argued earlier. For example he focused on Piaget's egocentric speech and argued that it marks the transition from social to inner speech, contrary to Piaget's belief that egocentric speech is a reflection of egocentric thought (Lucy & Wertsch, 1987). The study of the interpsychological origins of egocentric speech is important because the understanding of its nature must be based on the types of communication in which the child participated (other-regulation by adults) before the appearance of the speech function (Wertsch, 2008).

What makes Vygotsky's approach unique is his statement that semiotic systems like human language mediate social and psychological processes (Wertsch, 1991). Vygotsky incorporated mediational means which do not only facilitate the functioning that could have occurred without them, but alter the entire flow and structure of mental actions (Wertsch, 1985). He believed that the genuine social interaction involves language which entails that experience is represented in terms of categorical meaning (Lucy & Wertsch, 1987).

One of Vygotsky's most interesting ideas in his study of ontogenesis of higher mental functioning was the "zone of proximal development" (Wertsch, 2008), which he defined as "...the distance between the actual developmental level as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky,

1978, p.86). The theory of zone of proximal development reflects two aspects of Vygotsky's work; first it resembles the focus he placed on genetic explanation. As mentioned earlier, Vygotsky was influenced by Marxist theory and adopted that any inclusive explanation of a psychological function should be based on an account of its origins and development. The second reflection of the theory of zone of proximal development is that it reflects Vygotsky's concern about the role that social interaction has in the development of all higher mental functions (Wertsch, 2008).

As Werstch, Tulviste and Hagstrom (1993) state:

Vygotsky devised his account of the zone of proximal development in order to address two practical issues. First, he argued that it can serve as a productive tool when trying to understand the nature of psychological assessment. In this connection he argued that measuring the level of potential development is as just as important as measuring the actual developmental level, a claim that has been explicated by investigators such as Brown and Ferrara [1985]. Second, Vygotsky argued that understanding the level of potential development is crucial for formulating approaches to learning and instruction. (p. 340).

Vygotsky's explanation of the zone of proximal development might have been broader than its usual interpretation as its intent was to provide the message of the interdependence of child development and its social resources (Valsiner, 1988) and even the more active nature of human development where the child creates its own zone of proximal development in role play. Importantly, this was the work of Vygotsky more clearly influenced by Piaget's work on the moral judgment of the child and his distinction between relations of constraint and relations of co-operation (see Psaltis & Zapiti, 2013). In his writings on the play Vygotsky believed that sociocultural conditions of recognizing thinking and its development are inseparable (Moll & Whitmore, 1993; Vygotsky, 1987; Wertsch, 1985) and that thinking is not merely observed as a child characteristic, but as a characteristic of the child-in-social-activities with others (Forman et al. 1993). But it should be clear that often the more widely held interpretation was one of a transmission metaphor based on the fact that Vygotsky (1987) believed that the central element of the teaching/learning (*obuchenie*) process is the unique type of an asymmetrical in knowledge interaction between the child and the adult and the way in which knowledge is transferred to the child through this interactional process (Cole, 2009).

During classroom interactions the teacher directs the children's attention to word meanings and definitions and the systematic relation among them that constitutes an organized system of knowledge. Formal instruction, then, with its special organization and discourse, through its social and semiotic mediations, provides children with the resources to develop the capacity to

consciously manipulate and voluntarily control crucial sociocultural symbolic systems...it is incorrect to think of the zone as solely a characteristic of the child or of the teaching, but of the child engaged in collaborative activity within specific social (discourse) environments. (Moll & Whitmore, 1993, p. 29)

Moreover, according to the same authors, the role of the adult is to offer help in order to enable children to become aware of the ways available to manipulate the literacy process, how to achieve new means, and how to apply their knowledge in order to expand their boundaries; they state that it is crucial that sharing of control between teacher and students and mutual respect exists between them. However, it should be clearly stated that the notion of mutual respect comes from Piaget and not Vygotsky. For Vygotsky, as clearly seen in his original formulation and implied in the notion of internalisation in his general genetic law of cultural development the precondition in a social relationship to be productive for the child is only that the one partner knows more than the child. Issues of status and power are not discussed in Vygotsky (see Psaltis & Zapiti, 2013).

This is also the reason that a great number of Vygotsky's ideas were interpreted in a narrow way with emphasis on the transmission of skills from adults to children and with only a few exceptions, Vygotskians did not successfully recommend alternative systems to traditional educational practices; another reason for this was the way it was interpreted in the context of empiricism which for years dominated the American educational system, which held that the basis of the educational process is the transmission of ready-made outside knowledge towards the individual blank slate mind (Hatano, 1993).

Thus, to the extent that the zone of proximal development is read as a transmission metaphor Riegel was right in his critic that the subject is passive in Vygotskian theory. The Vygotskian conception of knowledge acquisition by instruction entails that (a) knowledge to be acquired by the less mature society member (student) is possessed by the more mature society member (teacher) in the form of skills and strategies for solving problems and therefore the teacher is appointed the role of transmitting the knowledge; (b) the learner brought in the instructional situation solves samples of the target problems with the teacher, who communicates knowledge in a verbally coded form and exhibits the way of solving problems using a coded form of knowledge; (c) the teacher's supporting role becomes less important while the student acquires knowledge; (d) at the point where the student becomes able to solve problems without the teacher's help, knowledge is considered to have been transmitted successfully (Hatano, 1993). This Vygotskian conception is one of the possible interpretations, although it is accompanied by empiricist

assumptions such as the learner is quite passive, does not need to understand the meaning of skills or construct knowledge, and the only interaction with the teacher, who is assumed to be the only source of information and evaluation, takes place in order to facilitate the acquisition of knowledge (Hatano, 1993). The Vygotskian conception needs to be expanded in order 'to include the acquisition of conceptual knowledge, which enables learners to use the acquired skills flexibly and to invent new skills-in other words, to include the process of learners becoming adaptive experts, therefore Vygotsky's theory can be reinterpreted as realistic constructivism, the notion of knowledge construction by students themselves under some sociocultural constraints (Hatano & Inagaki, 1986; Hatano, 1993).

This extension of the Vygotskian conception would also be more in line with Riegel's vision of an active subject in an active environment. It would also overcome the asymmetrical connotations of transmission found in the "scaffolding metaphor" often met in education. The term scaffolding is a metaphor for the process of an adult assisting a child in completing a task beyond his or her ability as an individual agent, assisting where the task is beyond the child's capabilities, but permitting him or her to concentrate only on the elements within their range; this process is understood as achieving much more than an assisted completion of the task, leading to development of task competence (Wood, Bruner, & Ross, 1976). Discussions on scaffolding and formulations of ideas concerning scaffolding (Bruner, 1986; Wood, 1988; Rogoff & Wertsch, 1984) did not draw openly on Vygotsky's theory of zone of proximal development, but there are parallels, for example the definition of zone of proximal development is the distance between a child's 'potential development as determined through problem solving under adult guidance or in collaboration with more capable peers' (Vygotsky, 1978, p. 86). Bruner (1986) examined the subject of scaffolding from a semiotic perspective, perhaps in the light of Vygotsky who appeared to think of a more semiotic process when analyzing the zone of proximal development (Stone, 1993), which might be named appropriation of meaning or semiotic uptake (Wertsch & Stone, 1985). Bruner (1986) proposed that presuppositional triggers (specific classes of words which trigger presuppositions, which expand the focus of semiotic mechanisms) may play an important role. The social dimension on the semiotics of scaffolding are the situationally defined qualities of an interaction and the enduring dimension of repeated interactions; these two types of interactions are closely related developmentally and situationally (Stone, 1993). But whilst the emphasis on the scaffolding metaphor was one of Bruner's more influential ideas, the more general spirit of

his later critic of the cognitive revolution was in fact the one that deeply influenced the socio-cultural theories that followed him.

In the later work of Bruner (1990) the importance for the study of meaning has been brought to the foreground of theorisation when he argued that psychologists had to bring the mind back into human sciences theories overcoming the narrow view of the *cognitive revolution* in the late 1950, an interpretive stand regarding cognition concerned with meaning-making. The cognitive revolution believed that psychology should join forces with sister disciplines like anthropology, linguistics, philosophy, history and law. The cognitive revolutionists were not aiming at reforming behaviourism, but at replacing it:

...emphasis began shifting from meaning to information, from the construction of meaning to the processing of information. These are profoundly different matters. The key factor in the shift was the introduction of computation as the ruling metaphor and of computability as a necessary criterion of a good theoretical model. Information is indifferent with respect to meaning. In computational terms, information comprises an already precoded message in the system. Meaning is preassigned to messages. It is not an outcome of computation nor it is relevant to computation save in the arbitrary sense of assignment' (Bruner, 1990, p. 4). Moreover, Bruner (1990) stated 'But information processing cannot deal with anything beyond well-defined and arbitrary entries that can enter into specific relationships that are strictly governed by a program of elementary operations. Such a system cannot cope with vagueness, with polysemy, with metaphoric or connotative connections. (p. 5).

Information revolution took place all the way through the postindustrial world. Academic psychology has always been sensitive to the needs of society and through an academic reflex, it had redefined mind away from mind and meaning to computers and information (Bruner, 1990). In the early 1950s computers and computational theory became the main metaphor for information processing, where computing became the model of mind and computability replaced the concept of meaning. Cognitive processes were connected to programs run on computational devices leading one to even believing that to the virtual minds and real minds could be explained in the same way. Bruner (1990) states:

This new reductionism provided an astonishingly libertarian program for the new cognitive science that was being born. It was so permissive, indeed, that even the old S-R learning theorist and associationist student of memory could come right back into the fold of the cognitive revolution so long as they wrapped their old concepts in the new terms of information processing. One did not have to truck with mental processes or with meaning at all. In place of stimuli and responses, there was an input and output, with reinforcement

laundered of its affective taint by being converted into a control element that fed information about the outcome of an operation back into the system. So long as there was a computable program, there was a mind. (pp. 6-7)

New versions of examining the mind emerged and controversies began to appear regarding the architecture of cognition; was it to be viewed as a set of hierarchical structures concerning input or as a connectionist network with distributed control; the field of study started to look familiar again with the question of which theory, mind or computation would prevail, but if computation was necessary in the new science, then the issue on mentalism would resurface (Bruner, 1990). Dennett (1987) believed that individuals have intentional states leading to certain behaviours Churchland (1988) wondered how a belief, desire or attitude be a cause of computation.

Bruner (1990) asks how mental science can be constructed around meaning and the processes through which meanings are created and negotiated in a community like culture itself. 'The symbolic systems that individuals used in constructing meaning were systems that were already "there", deeply entrenched in culture and language. They constituted a very special kind of communal tool kit whose tools, once used, made the user a reflection of the community. We psychologists concentrated on how individuals acquired these systems, how they made them their own, much as we would ask how organisms in general acquired skilled adaptations to the natural environment' (Bruner, 1990, p. 11).

Culture is a product of history and is the world to which humans need to adapt and their tool kit (Bruner, 1990) and without its constituting role humans are unworkable monstrosities, incomplete and unfinished becoming completed through culture. The individual's participation in culture and through culture makes it impossible to view humans as individualistic. According to Bruner (1990), individuals are the expressions of a culture and if the world is treated as an indifferent flow of information to be processed by the individuals will lead to losing sight of the way they (individuals) function.

Moreover, he states that psychology must be organized around the meaning-making and meaning-using processes linking individuals to culture. Through participation in culture, meaning becomes public and shared with shared meanings, concepts and modes. '...the child does not enter the life of his or her group as a private or autistic sport of primary processes, but rather as a participant in a larger public process... And in this process, meanings are not to his own advantage unless he can get them shared by others' (Bruner, 1990, p. 13). Moreover, Bruner believes that culture should be central in psychology because of what is included in "folk psychology" or "ethnopsychology", the

culture's account which involves a theory of mind, of motivation, and the rest and referring to 'what make humans tick' (p. 13).

There have been arguments stating that psychology should be culture-free in order to discover transcendent human universals, but Bruner (1990) stated:

cultural psychology is not just a cross-cultural psychology that provides a few parameters to account for local variations in universal laws of behaviour. Nor, as we shall see presently, does it condemn one to a rubbery relativism...culture and the quest of meaning within culture are the proper causes of human action. The biological substrate, the so-called universals of human nature, is not a cause of action but, at most, a *constraint* upon it or a *condition* for it. The engine in the car does not "cause" us to drive to the supermarket for the week's shopping, anymore than our biological reproductive system "causes" us with very high odds to marry somebody from our own social class, ethnic group, and so on. Granted that without engine-powered cars we would not drive to supermarkets, nor perhaps would there be marriage in the absence of a reproductive system. (pp.20-21)

Bruner (1990) stated that culture has the power to loosen that constraint, the biological limits which are challenges to cultural invention, as well. Even in the absence of biological constraints, emphasis should be placed on cultural inventiveness, which leads to the concern of relativism with questions such as what is meant when it is said that humans are not very adept or ingenious when they construct their social worlds and who judges and with which standards; moreover, if mind is formed by culture and minds are the ones which make the judgments, are humans or are they not locked in inevitable relativism? Bruner wonders if what humans know are absolute or relative to some perspective and considers that in the widely held interaction realities emerge from construction and negotiation processes profoundly imbedded in culture. Constructivism holds that knowledge is merely right or wrong under the perspective of our choice, though rights and wrongs are not the sum of absolute truths and falsities (Bruner, 1990).

Moreover, cultural psychology relates to open-mindedness, which is the willingness to construe knowledge and values from the point of view of a number of perspective, while keeping the commitment to personal values (Bruner, 1990). What is more, open-mindedness is the key to a democratic culture, which is 'neither divinely ordained nor it is to be taken for granted as perennially durable. Like all cultures, it is premised upon values that generate distinctive ways of life and corresponding conceptions of reality' (Bruner, 1990, p. 30).

Through the course of time, social theorists accused the Piagetian school of thought of being individualistic as it is intensely stated in this thesis it was misread and misunderstood. More recent post-Vygotskian theorists (Rogoff, 1995) emphasize the role of collaboration and participation and emphasize the importance of sociocultural factors in development. But it is observed that apprenticeship can be successful only if applied to well-structured social practices. Moreover, these theories do not pay attention on the quality of social relationships and resistance or conflict in the process.

Wertsch (1991; 1993; 1995) placed emphasis in mediational action-acquiring therefore leading to the obtaining of new means and change, which comes from outside of the individual. In addition, human agency is found in dyads and in small groups. Though emphasis was placed on sociocultural research, the sociocultural context and social interaction were ignored at first. At a later point, interaction with other people and artifacts was observed and stressed the importance of participation of the individual as well as recognized that domain general development could take place beyond domain specificity (Hatano & Wertsch, 2001). More recent sociocultural theories, which are open to the Piagetian theory, place the individual with the ability to change the environment (Cole, 1995; 1997).

Moreover, nonverbal communicative devices are thought to be important components of the scaffolding process by a number of theorists like Rogoff (1990) and Wood et al., (1986). In fact, Rogoff (1990) is a characteristic figure of one of the recent post-Vygotskian thinking where the limitations of a narrow reading of Vygostky becomes problematic even when explicitly the transmission metaphor is rejected.

## **2.2. Recent Sociocultural Theories**

Barbara Rogoff places emphasis in learning through collaboration and participation in cultural activities and age-specific settings and proposed a sociocultural approach which entails observation of development in three planes of analysis referring to personal, interpersonal, and community processes and believes that development is a process of participation in sociocultural activities (Rogoff 1995; 1995). Development is viewed as a process of transformation through people's participation and not of acquisition, therefore cognition does not need to be defined as a collection of stored possessions but as a study of a person's possession or acquisition of a capacity and knowledge and the active changes involved in an event or activity in which people participate. Participation entails a system

of creative efforts to comprehend and contribute to social activity to bridge between several ways of comprehending a situation (Rogoff, 1995).

The developmental processes which correspond to these three planes of analysis are apprenticeship, guided participation and participatory appropriation. These planes are inseparable and mutually constituting planes including activities that may become the center of analysis at different times, though with the others remaining in the background of the analysis. Moreover, they involve various parts of focus with the whole sociocultural activity. Activities as the unit of analysis includes active input from individuals, their social partners, historical traditions, materials and their transformations allowing a reformulation of the relation between the individual and the social and cultural environments and are inherently involved with none existing separately (Rogoff, 1995). Individual development is viewed as inseparable from interpersonal and community processes and the changing roles of individuals are jointly explained with those of other individuals with dynamic cultural processes.

The social environment as viewed by Rogoff (1995) is educative in the degree in which an individual shares or participates in some conjoint activity through which the individual appropriates the purpose which actuates it, obtains the skills needed and is soaked with its emotional spirit. Rogoff (1995) rejects the idea that the social world is external to the individual and that development consists of acquiring knowledge and skills. It is believed that an individual develops through participation in an activity while being transformed to become involved in the current situation in ways that will assist the individual to manage the current event and prepare for involvement in other, similar events.

According to Rogoff (1995), *apprenticeship* is found in the plane of community activity and involves active individuals participating with others in a culturally organized activity that its partial purpose is the development of mature participation in the activity by less experienced people and focuses on the specific nature of the activity involved and on its relation to practices and institutions of the community in which it occurs. *Guided participation* is the group of processes and systems of involvement between people's communication and coordination efforts when participating in a culturally valued activity. Face-to-face interaction and side-by-side joint participation are examples of guided participation. Guided participation involves the direction accessible by cultural values, social values, and social partners and the observation as well as the hands-on involvement in an activity. It is an interpersonal process, where the individuals manage their own and others' roles and organize circumstances in which they observe and participate in cultural

activities later transformed in cultural practices with successive generations (Rogoff, 1995).

*Participatory appropriation* refers to the way individuals change through their involvement in activities in the process of becoming prepared for further involvement in related activities. Children and their social partners are interdependent, with their roles being active and dynamically changing with specific processes by which they communicate and share in decision making; this in turn is the substance of cognitive development. In Rogoff's theory, cognitive development is viewed as a participatory appropriation through guided participation and the memory and knowledge process is viewed as less relevant when studying development from this sociocultural approach. If development is viewed as participatory appropriation, then the classic question concerning the transfer of knowledge is recasted. An individual may approach two different situations in different ways and his or her approach deals with the way they interpret the relations between purpose or meaning; this process is a sociocultural activity (Rogoff, 1995).

Rogoff's theory examines the way people participate in sociocultural activity and how this participation transforms from being peripherally involved through observation and assuming secondary roles to adopt responsible roles in the management of these activities. These transformations are developmental with changes in certain directions; according to Rogoff the direction of development is in harmony with cultural values, interpersonal needs and circumstances. Rogoff (2003) believes that progress is needed to be made in the area of understanding regularities in the way engagement in shared and dynamic practices of different communities contributes to learning and development in general.

In regards of childrens' development, Rogoff (1984; 2003) believes that cognitive development is promoted by the arrangements adults provide to the learning environments of the children and their guided participation in activities structured by adults to assist the children to develop toward the goal through subgoals that are appropriate to their skills' level and as the child's abilities develop, the level of the adult's support is adjusted to let the child manage manners independently. This is considered social guidance of learning and the participants learn without focusing on instruction but focus on the structure of the interaction. The adult arranges learning through resources in a certain problem situation instead through ready-made solutions and also emphasizes crucial actions, guidance through choices and provides alternatives in the solution of the problem. The way that the child understands and contributes to the activity tailors the interaction to the teaching-learning situation. Furthermore, adults are viewed as the childrens' guides for socialization

into the culture they are learning and children become socialized participants in the intellectual and social aspects of their society (Rogoff, 2003).

*Still, the apprenticeship model is too narrow in capturing human development as a holistic process.* As convincingly argued by Duveen (1997), it only can be applied to well-structured social practices and also does not pay any attention to the quality of social relationships, the phenomenon of resistance to guided participation and the existence of conflict in this process. The model also presupposes a community of interest between the two members of the dyad (novice and expert) which cannot be taken for granted (Duveen, 1997). Moreover, Rogoff's model does not explain why apprenticeship sometimes fails. There are cases where all the individuals have undergone the same process of apprenticeship, yet individual variability can be viewed: some become better at what they learn than others and what is more, this model explains the way some specific social practices transmit from experts to novices, but does not answer the question of how social change can be acquired through a process of apprenticeship (Duveen, 1997). To account for the lack of social identity dynamics and the notion of resistance in socio-cultural theory, James Wertsch reworked the notion of agency and introduced the notion of voice in socio-cultural theory, that he borrowed from Michail Bakhtin.

### **James Wertsch and the emphasis on agency in historical and institutional processes**

Wertsch (1993) was one of the cultural psychologists who stressed the weak role that the Vygotsky's analysis gave to historic and institutional aspects. By contrast, Wertsch incorporated the "voices" of others...to place sign systems within their production contexts' (Castorina, 2010, p.18.6). Vygotsky was concerned with mediated action (Wertsch, 1991, 1995), which refers to the involvement of irreducible tension between mediational means and the individuals employing them. This notion assumes that individuals designated as agents of actions are defined as *individual-operating-with-mediational-means*. Mediated action can undergo a fundamental transformation with the introduction of new mediational means, which the individual uses in an activity setting (Wertsch, 1995, p.67). Mediational means do not act alone; an individual using new mediational means needs to change, as well to acquire new techniques and skills and the impetus for change comes from outside. This change implies an existing form of mediated action, which is transformed by the introduction of the new means and is viewed as having the effect of transforming mediated action.

Human agency is extended beyond the skin because it is found in dyads and other small groups instead of in individuals and it furthermore owns cultural tools and

meditational means like language (Wertsch, Tulviste & Hagstrom, 1993). As stated in Wertsch, Tulviste and Hagstrom (1993):

The most basic assumption made in Western psychological theories about agency is that agency is a property of the individual. Furthermore, studies typically proceed as if this individual existed in a cultural, historical and institutional vacuum...studies in psychology typically approach this issue on the assumption that sociocultural factors can somehow be appended onto a pre-existing basic account of the individual...there is much to suggest that this form of individualism is grounded in unexamined cultural beliefs held by contemporary Western psychologists. (p. 336-337)

Wertsch et al., (1993) believed that in order to extend Vygotsky's approach there is a need to take into account the mediational means one is making use of and assume that the mediational means shaping human mental functioning are involved in creating and maintaining the cultural, historical and institutional contexts; mediational means do not develop alone, they are embedded in a sociocultural context. Vygotsky seemed to have recognized this issue according to Wertsch towards the end of his life (Wertsch et al., 1993).

According to Wertsch (1995), the aim of sociocultural research is to recognize the way human mental functioning relates to cultural, historical, and institutional setting. Cognitive researchers concentrated on the study of symbol manipulation of the individual and ignoring the surrounding sociocultural context. The fact that human cognitive competence in every-day life depends heavily on continuous interaction with other people has also been ignored (Hatano & Wertsch, 2001/Wertsch, 1998).

Unfortunately, Wertsch also fell in the trap of reading Piagetian theory as individualistic thus failing to integrate his views with Piagetian theory. According to Hatano and Wertsch, problems with the individualistic approach regarding cognitive development enclose the '...overemphasis on age-dependent patterns of growth, the assumption of uniformity of a developmental trajectory, and the neglect of changes that occur in the relationship between an individual and their surrounding environment' (Hatano & Wertsch, 2001, p. 78).

Wertsch (1995) suggests that mental functioning and sociocultural setting may be understood:

...as dialectically interacting moments, or aspects, of a more inclusive unit of analysis – *human action*...Action is not carried out either by the individual or by society, although there are individual and societal moments to any action. For related reasons an account of action cannot be derived from the study of mental functioning or sociocultural setting in isolation. Instead, action provides a context within which the individual and

society (as well as mental functioning and sociocultural context) are understood as interrelated moments. (p.60)

Hatano and Wertsch (2001) propose an alternative to what they view as traditional individualistic approaches to the development of mind and included a range of sociocultural approaches which place emphasis on the institutional, cultural, and historical specificity of mental functioning instead of placing emphasis on universals. They believe that approaches within the sociocultural framework often complement parts of a larger whole and recognize their emphasis on the constitutive role of culture and in how mind develops by incorporating the community's mutual objects accumulated over generations. Moreover, they state that all sociocultural theorists agree in two aspects '... (a) interaction with other people and artifacts plays an important role in learning and in the development of mind, and (b) what occurs in the microenvironment in which individual learning is observed is affected by larger contexts, both at community and global levels" (Hatano & Wertsch, 2001, p. 78). Practices are organized by the culture in which the developing person and although participation in all the practices that constitute a sociocultural context is not compulsory, a large number of practices is accessible to younger people and most of them participate in some of them (Hatano & Wertsch, 2001). This repeated participation improves the cognitive skills and enables the person to do well in these practices, even when he or she does not engage in them. Participation in practice is the concept linking social and cultural setting with individual cognitive development and does not only facilitate cognitive development that would occur otherwise, but does assist cognitive development by offering the participants materials that will enable them to reconstruct the knowledge and skills that are available in the community.

It is worth mentioning that despite the fact that Wertsch and his colleagues did not incorporate Piagetian theory in their approach, they still recognize that it is possible for domain general development to still take place beyond domain-specificity. As Hatano and Wertsch (2001) state:

However, at least some domain-general development can also be explained on the basis of experience with different practices. First, some activities occur across so many different settings that they may have cognitive consequences well beyond particular. Narratives, orthography, and measurement are just a few examples of such activities. Second, what is acquired in one domain may be used in others through analogies, abstraction, and the like. The cognitive consequences of repeated participation in given practice are due to many factors, but studies to date have typically focused on one of these in isolation in an attempt to specify

what is primarily responsible for the development of a particular skill or piece of knowledge. (p.79)

Among the more recent socio-cultural theories more open to an integration with Piagetian ideas and a genetic approach, where the actor has the potential to change the environment also, is the work of Michael Cole.

### **Michael Cole and cultural historical theory**

The origins of Cultural Historical Activity Theory (CHAT) are thought to be based on the 1920s' Russian scholarship. The use of its theoretical context is actually grounded not on the original works, but on translated versions; this may lead to various interpretations, Another fact that needs to be taken into consideration is the historical and cultural background of the theorists in Russia in the 1920s as history and freedom of speech rights differed at the time for North American and Russian theorists.

One of the main proponents of CHAT is Michael Cole who expands on the importance of the theoretical notion of activity in its historical context by incorporating a role for the innovation of cultural artifacts. Cole (1995) claims that the species-specific characteristic of humans is:

Their need and ability to inhabit an environment transformed by the activity of prior members of their species. Such transformations from one generation to the next are the result of the ability/proclivity of human beings to create and use artifacts – aspects of the material world that are taken up into human action as modes of coordinating with the physical and social environment. The idea that the mediation of activity through artifacts (often referred to by the slightly reduced concept of tools) is the fundamental characteristic of human psychological processes and the human environment can be found in the scholarly traditions of many countries. (p. 190)

Cole (1995) states that early formulations emphasize the double-sided nature of artifact-mediated actions implicitly or explicitly, but the auxiliary /tool means are defined by the task and that 'they partake of and constitute the borders between the individual and the social, what is in the mind and what the mind is in' (Cole, 1996, p. 60). In order to examine the culturally mediated behavior, it is essential to recognize the change and transformation processes occurring over time. Artifacts are ideal and material at the same time suggesting that artifacts are usually considered to be solid objects and not 'embodying ideality' (p. 61) and any psychological phenomenon develops from the interaction that takes place in all the levels of the human life system for example, phylogeny, cultural history, ontogeny and microgenesis. Artifacts provide resources for constructing joint activity, coordinating human beings with the world and with each other (Cole, 1996); this

position is referred to as a 'co-constructivist' developmental theory (Valsiner, 1988). (Cole (1995) adopted Wartofsky's (1979) three-level hierarchy of artifacts.

The first level includes *primary artifacts* used in production directly (axes, needles, bowls, computers, telecommunications and networks, mythical cultural personalities) and is viewed as a tool customarily used. The second level refers to secondary artifacts, which have 'a central role in preserving and transmitting modes of action' (Cole, 1995, p. 195) and '...contains representations of primary artifacts and modes of action which utilize primary artifacts. This could include cultural models, which explicate the world of physical objects and even more abstract worlds like social interaction and word meaning' (D'Andrade, 1984, p.93). The third level, *tertiary artifacts*, is a class of artifacts that 'come to constitute a relatively autonomous "world", in which the rules, conventions and outcomes no longer appear directly practical, or which, indeed, seem to constitute an arena of non-practical, or "free" play or game activity' (Wartofsky, 1979, p. 208). The tertiary artifacts, according to Wartofsky, are imaginative artifacts that can color the way the actual world is viewed and assist in the change of current praxis.

'Culture comes into being wherever people engage in joint activity over a period of time' (Cole, 1997, p. 301). Moreover, Cole (1996) believes that culture is the unique human environment, which consists of the remains of previous generations and that it is through enculturation that humans interact indirectly in and through the cultural medium they share. Cole (1997) was influenced by Fine. Fine (1987) states: Culture includes the meaningful traditions and artifacts of a group; ideas, behaviors, verbalization, and material objects' (p. 124) and suggests that the cultural formation emerges in a small group, an idioculture, which is a system of knowledge, beliefs, behaviors, and customs shared by members of a interacting group.

The cultural-historical approach to psychology examines the intimate relationship between the environment of inhabitation with the fundamental qualities of human minds (Cole, 1996). Cole (1995; 1996) is influenced by John Dewey (1938) who stated:

In a word, we live from birth to death in a world of persons and things which is in large measure what it is because of what has been done and transmitted from previous human activities. When this fact is ignored, experience is treated as if it were something which grows on exclusively inside an individual's body and mind. In ought not to be necessary to say that the experience does not occur in a vacuum. There are sources outside an individual which give rise to experience. (p. 39)

Culture is not a simple arbitrary accumulation of artifacts and associated actions; the cultural medium is structured, yet it is not uniform and its patterning is understood in local and face-to-face interactions locally constrained (Cole, 1996) and therefore in examining the question of culture and cognition, ‘one must be concerned with the effective units of culture vis-à-vis mind: they are to be located somewhere between the perfectly patterned whole and the random collection of artifacts’ (p. 62). In parallel terms, D’Andrade viewed structured ensembles within the overall medium of culture and named the units organizing the entire sets of conceptual-material artifacts *cultural schemas* (1984). He sustained that

...schemas portray simplified worlds, making the appropriateness of the terms that are based on them dependent on the degree to which these schemas fit the actual worlds of the subjects being categorized. Such schemas portray not only the world of physical objects and events, but also more abstract worlds of social interaction, discourse, and even word meaning. (p. 93)

Context is the way that the world is realized through the interaction and the most direct frame of reference for mutually engaged actors and it can be viewed as a unit of culture (Wentworth, 1980) and is a joint, mediated activity (Lektorsky, 1984; Rogoff, 1990; Wertsch, 1985, 1991). Thought is not a simple artifactual representation; the uses to which artifacts are put like their instrumentality and their meaning rely on the context in which they are embedded (Cole, 1996). Cole questions how is it possible for minds to interact, meet and share context if two people do not totally share cultures? This quote by Durkheim (1915/1965) underlines the issue of interacting minds:

...if left to themselves, individual consciousnesses are closed to each other; they can communicate only by means of signs which express their internal states. If the communication established between them is to become a real communion, that is to say, a fusion of all particular sentiments into one, common sentiment, the signs expressing them must be themselves fused into one single and unique resultant... (p. 262)

Durkheim suggests that the important factor in producing moments of common understanding, communion, fusion when minds interact is ‘the coordination around the products of prior coordinated actions and reactions...To ensure that the necessary degree of coordinated movement occurs, cultures provide for situations called rituals, mediated by symbolic artifacts and arranged in sequences corresponding to scripts and schemas’ (Cole, 1996, p. 64).

Cole (1995) utilized the *garden metaphor* to explain culture as medium of human life as since the 16th century, culture was viewed as the process, which helps things grow and how growth is promoted. In an artificial environment in which young organisms are

provided with the optimal conditions for growth such as tools. Cole explains that inside the garden and for every kind of plant, there exists the quality of soil to take into consideration, the right amount of moisture, the right timing to plant the seeds and their protection from predators and disease; his theory of development focuses on the research of what exactly is the 'right combination of factors to promote life within the garden walls' (Cole, 1995, p. 196). Cole applied the idea of artifact and culture-as-garden to a certain cultural system called the fifth dimension.

The fifth dimension is a specially designed program promoting all-around-intellectual and social development of children ages 6 to 12. Cole's team worked with youth clubs, day-care centers, libraries, churches, and schools where the children interacted with undergraduate university students as part of completion of a human development course. For the majority of the time, the activities with the children were instantiated as computer programs which included computer games, educational game-like software and the remaining of the time included activities like cardboard games, crafts, and physical exercise. The program designed an activity that children would want to participate in (Cole, 1997).

Children make progress by completing certain tasks and the excellence level for the activities in all the rooms of the program (Cole, 1995; 1997; Nicolopoulou & Cole, 1993). This, according to Cole, is a tertiary artifact (1995; 1997) and a culture system addressing low achievement of many American children and their need for a richer experience with new information technologies and the failure of successful educational innovations to survive beyond a certain period and external funding. As a tertiary artifact it provides a system of activities and participation is satisfying in itself and at the same time provides the participants with influential experiences. 'As a cultural system it is an activity infused with norms, goals, meanings, and esoteric knowledge that provides the medium for learning and development' (Cole, 1995, p. 201) and it furthermore is a tertiary artifact 'in which the reality of everyday life is put slightly askew' (Cole, 1997, p. 299).

The fifth dimension programs took place at a Boys and Girls Club and at a university library. At the Boys and Girls club, the program seemed loud and chaotic, the children came and went as they pleased, played with the undergraduates, but there was a more contentious atmosphere and a lot of byplay. In contrast, the children at the library setting were intimate and concentrated, came and left in scheduled times up to the end of the session and sometimes had to be dragged from the session or pushed out the door by the librarians (Nicolopoulou & Cole, 1993). Strong friendships formed between the

undergraduate students and the children, who were also concentrated intensely on the games (Cole, 1995). 'The normative rule of thumb that guides pedagogical practices in the 5<sup>th</sup> D is to provide the children with as little help as possible, but as much help as necessary to endure that both the students and the children have a good time' (Cole, 1997, p. 298).

Cole and his team used the variable noise level to compare the two settings and found that though the Boys and Girls Club was noisier than the library setting, the library was noisier than its ecology, whereas the Boys and Girls Club was quieter (Nicolopoulou & Cole, 1993). The comparison of the degree to which each of the two groups enhanced development found that in the group of boys and girls club, where children came and went as pleased there was a no overall increase in the level of the games played when compared to the children of the library setting and that performance was better at the beginning of the year than at the end. On the other hand, the results for the library setting found that performance improved with the growth of culture and the sharing of knowledge (Cole, 1995; 1997; Nicolopoulou & Cole, 1993). The study furthermore evaluated the impact participation plays on individual children with the main goal to demonstrate that 'it is possible to create a useful environment for nurturing children's intellectual and social abilities' (Cole, Quan, & Woodbridge, 1992).

Cole explains that the theorists who view development in biological terms or in terms of cognitive universals do not see development as a lifelong process, compared to those who believe that culture was important in development and that there do exist developmental stages after adolescence. Freud, for example, believed that development comes to an end after adolescence as when young individuals attain the genital stage and complete sexual reproduction, their biological role is fulfilled (Cole, 1996).

On the whole the socio-cultural theories of human development can be summarized as bringing to the foreground of theorization the role of socially structured activities beyond the more narrow emphasis on action and internalized actions, the role of cultural and symbolic artifacts in the historical process of societal change. In this way they showed how various activities could serve various functions and made researchers sensitive to the contextual and historical nature of knowing and schooling itself. However, this emphasis on context diminished the importance of the study of cognitive structures, which in the end of the day endangers even the acceptance of the notion of development itself which would be a mistake. In the next chapter the argument is made that whilst a socio-cultural theory of human and thus student development is indeed needed, this can not be done by defying the Piagetian work but by overcoming its weaknesses.

### **Chapter 3: Rediscovering the Social in Piaget: Towards a triadic theory of student development**

Jean Piaget was a Swiss genetic epistemologist. He studied at the University of Neuchâtel and at the university of Zurich and received his Ph.D in the natural sciences in 1918 (Chapman, 1988). Before that he studied Natural history and Philosophy. He worked at the Grange-Aux-Belles Street School for Boys, a school in Paris directed by Alfred Binet who created the Binet Intelligence test and assisted in marking the boys' responses to the tests. Piaget discovered that the boys had similar patterns of making mistakes and begun to examine the consistent wrong answers to particular questions. Based on this examination and study, Piaget made concrete progress on his theoretical ideas he had formulated since his PhD years towards a global theory of cognitive developmental stages (Chapman, 1988; Piaget, 1952).

When he returned to Switzerland, Piaget was the director of the Rousseau Institute, the International Bureau of Education at Geneva from 1929 to 1968 and created the Center for Genetic Epistemology in Geneva and directed it for twenty five years. Furthermore, he is the founder of the discipline of genetic epistemology, a discipline which investigates the origins of knowledge. Piaget viewed the origins of general ideas and biology (genera) attempting to explain the unity of organisms and their categorization in genera and species and then conceived them as the basic forms of organization in all life including the structure of mind and that of living organisms, where a developmental continuity was found between human cognition and other levels of biological organization (Chapman, 1988). Chapman argued that structure and equilibrium developed from the concept of genera, 'the relational totalities, arising at all levels of reality out of the interactions among their component parts. This conception of genera was a precursor of his later concept of total structures (structures d 'ensemble) and the coherence of such relational totalities resulted from their particular forms of equilibrium,' (p.6),

Piaget's theory of genetic epistemology has been misconstrued by psychologists as they assumed Piaget's questions to be the same with theirs and they were often disappointed with his answers; his questions were different than those asked by most psychologists and therefore his answers were different, as well (Chapman,1988; Kitchener,1986). This has led to numerous serious misunderstandings leading to the inaccurate interpretation and presentation of his theory in most psychology textbooks. Chapman explains that "the view that cognitive stage development is inherently linked

with age and that the concept of structure implies synchrony in development across different areas of content has often been presented as the very core of Piagetian theory, and the theory has been evaluated in these terms. Study upon study has been conducted showing that the cognitive abilities studied by Piaget do or do not develop at the ages reported by him when certain variations are introduced into the procedures or that children's structural competencies either do or do not develop in synchrony in tasks involving different content" (Chapman, 1988, p. 2).

Though Piaget is known for his cognitive development theory, he is not widely known in the sociology field. One of the main reasons that Piaget's name is not mentioned usually in the sociologist's arena is that most of his works on sociological issues were until recently only written in French and were only translated into English in 1995 (Piaget, 1977/ 1995). Moreover, Piaget's theory was read selectively through his voluminous writings and he was time and again accused for not paying enough attention to certain social factors (Kitchener, 1996) and the role they play in development or was frequently accused for overemphasizing or underemphasizing environmental factors; these examples of criticism, as well as other criticisms were based on limited awareness of Piaget's entire work; taking into consideration the complete volume of his works, one can read a great deal and still miss the essence (Chapman, 1988). What is more, according to Chapman, a number of isolated passages can be found and seem to support the common interpretations if read outside of the framework of his work as a total. Piaget did treat the effects of social and environmental factors, as well as other factors of development, though he may have done so adequately or inadequately; he did not neglect those factors as commonly believed (Kitchener, 1986).

In recent years, and especially after the English translation of Piaget's Sociological studies (Piaget, 1977/ 1995), the misperception of Piagetian theory as 'asocial' and 'individualist', widespread in Anglo-Saxon writings, is giving place to a fairer perception of Piagetian theory based on the whole corpus of his work. The works of Kitchener (1981, 1986, 2000, 2004) and Carpendale and Müller (2004) showed that in fact Piaget had a social psychology and an answer to the question of the relation between the individual and the social. Piaget was neither a follower of methodological individualism nor of sociological holism but he took the middle road of relationalism, as he believed that one could understand society as the sum of social relations between people (Psaltis, 2007). Piaget was particularly interested in the types, or genera, of social relations that existed between people and in his work on the moral judgment of the child (Piaget 1932), in his

sociological studies, and his pedagogical writings, he made a crucial distinction between social relations of constraint and social relations of cooperation (Psaltis, 2007).

Lourenco and Machado (1996) convincingly showed that Piaget's theory was unfairly criticized as conceptually limited, empirically false, or philosophically and epistemologically untenable (p.143). They argued that most of its criticisms are based on pervasive misinterpretations of Piaget's work, and failed to understand the two central issues of his theory, which were 'how new forms of thinking emerge during ontogenesis and how they become psychologically necessary' (p.143) and critics falsely maintained that his theory's controversies can be empirically or methodologically settled before clarified. Moreover, they do not consider the various modifications of the Piagetian theory that took place after 1970 and overlook 'the dialectical, constructivist, and developmental nature of Piaget's unique approach to human development' (p.143).

Piaget's critics assume that his theory viewed age as a criterion of developmental level (Lourenco & Machado, 1996). Piaget, who was a developmental and constructivist psychologist

was treated by his critics as a differential psychologist, concerned more with the question of how children perform at specific ages on isolated cognitive tasks than with the problem of how they develop new types of competencies. (p. 148)

But for Piaget the most important element was sequence and not age for all four of his stages and age was an indicator and not a criterion for developmental change (Beilin, 1992; Chapman, 1988). Moreover, the critics assume that Piaget's theory must be wrong since the data invalidate the ages as mentioned in the protocols of his theory (Lourenco & Machado, 1996) but sequence of transformations and not age of acquisitions is the key in the theory and therefore if a child is able to solve a task earlier than reported in the protocol then the theory is not damaged (Miller, 1989; Strauss, 1989). Furthermore, according to Piaget (1936), nothing in development emerges ex abrupt and therefore, the emergence of a specific competence cannot be expected to develop at a certain age.

Indeed, Piaget's theory is often depicted as stating that there is a strongly homogeneous and synchronous performance across operational tasks and where children commence the concrete operational stage, their developmental level in tasks like class inclusion, seriation, classification, and conservation should be highly correlated (Bruner, 1983; Demetriou, Efklides, Papadaki, Papantoniou, & Economou, 1993). According to Corrigan (1979) for example, Piaget's structuralist position sustains that synchrony between task domains is a fundamental developmental principle since in general, structures

describe functioning in various areas. Research studies that tested Piaget's predicted developmental synchrony found asynchrony and heterogeneity in concrete operational, as well as in formal tasks (Wason, 1977). Delays in different contents or domains, between different same-stage structures in an area of content and between various versions of the same task were found in Piaget's theory (Lourenco & Machado, 1996) and were viewed as a 'serious anomaly' of the theory (Demetriou et al., 1993, p. 481). Some theorists (Flavell, 1977) even believed that the Piagetian theory is doomed and should be abandoned altogether in the developmental research.

Piaget in fact did not support that the groupings of performances (the common set of formal properties) determine the performances, but did believe that these performances are described by them. He believed that performances are equivalent and formal properties are not acquired at the same time or rate (Piaget & Inhelder, 1959). Moreover, it is misleading to interpret the Piagetian stages as chronological and global phases in development "Genetic psychology takes mental processes in their construction and the [developmental] stages are preliminary tools to analyze those processes; they are not ends in themselves" (Piaget in Osterrieth et al., 1956, pp. 56-57). In addition, Piaget stated: 'There are no general stages . . . We see an intermingling of processes of development which are evidently interrelated, but to different degrees or according to multiple temporal rhythms; there is no reason why these processes should constitute a unique structural whole at each level' (Piaget, 1960, pp. 14-15). All these show that Piaget was wrongly criticized as overemphasizing the psychological meaning of logical structures and underemphasizing the effects of content and context when his theory was labeled as an example of 'extreme competence theory' (Fischer, Bullock, Rotenberg, & Raya, 1993, p. 94).

Piaget was also accused for underestimating the importance of learning in cognitive structure formation (Gelman, 1969), for neglecting language and cultural context (Wertsch & Kanner, 1992), for studying very global competencies than local and specific ones (Siegler, 1978) and for not addressing the course of transition across stages or individual differences (Rieben, Ribaupierre, & Lautrey, 1983). These criticisms demonstrate the misinterpretation arising when researchers 'analyze the theory of Piaget from without before considering it from within (Lourenco & Hatano, 1996, p. 149).

Still, the critique of Piaget not actually offering a socio-culturally situated theory deserves more in depth scrutiny. According to Duveen (1997) the "social" was indeed an unstable element in Piagetian theorisation. There are researchers who have accused Piaget for not including social factors in development (Winegar & Valsiner, 1992), for

emphasizing genetic individualism (Forman, 1992), for envisioning development in a social vacuum (Broughton, 1981), and for broadening his studies' findings to all domains, individuals, and cultures (Buck-Morss, 1982) without discrimination. Moreover, he was criticised for his theory's epistemic subject having no social class or sex or nationality, culture, or personality (Murray, 1983) and that his structuralist theory is concerned with knowledge without history and self (Broughton, 1981). It is argued here that some of these criticisms are also unfair as was the synchrony argument discussed earlier, but also that some of them are indeed fair and that reworking Piagetian theory is indeed needed in a particular direction that will retain the strength of his structuralist approach whilst more firmly socio-culturally situating his theory (Psaltis, Duveen & Perret-Clemonr, 2009).

Firstly, it is unfair to state that Piaget did not realise the importance of society for the development of reasoning. Piaget (1947/1967b) stated: "Society is the supreme unit and the individual can achieve his inventions and intellectual constructions only to the extent that he is the seat of collective interactions whose level and value depend obviously on society as a whole" (p.174) and emphasized frequently that even though not sufficient, social factors are necessary for cognitive development (Piaget & Inhelder, 1966/1973). At his initial functionalist phase of his studies, Piaget (1923, 1932) viewed social interaction as the main factor accountable for the transition from egocentric to socialized thinking and gave a social explanation of cognitive structures. At a later point Piaget (1976a) stated that during the initial phase of developing his theory he overvalued the role that language and social interaction play in the construction of knowledge. He proceeded to a more structuralist phase believing that cognitive structures and operations are a result of his or her own coordination and self-regulation of actions (Beilin, 1992; Chapman, 1988) but still he did not retract from his position that the development of reasoning is unattainable outside society and social interaction Piaget emphasized the importance of social factors in knowledge development by stating "by himself, the individual would never achieve complete conservation and reversibility" (Piaget, 1950/1973a, p. 271). In his book *Sociological studies* (1965) and in *Moral judgment of the child* (1932) one can clearly see that Piaget was not an individualist but a relationalist and this remains throughout his theory.

Still, it is also true that Piaget never empirically studied the role of the social in cognitive development (see Psaltis, Duveen & Perret-Clermont, 2009). Lourenco and Machado (1996) also state that there indeed was a social dimension in Piaget's theory, which does not explicate the reason that Piaget never examined it in an empirical research

program though. Piaget (1946/1976b) believed that ‘the social fact is a fact to be explained, not a fact to be invoked only as an explanatory factor’ (p. 10). The second reason Lourenco and Machado suggest is that Piaget believed that the search for social factors in the origins of knowledge was for Piaget ‘an epistemologically lost battle’ (p. 151) because necessary knowledge, goes beyond empirical generalizations and social regularities. This observation also explains why Piaget in his late work overstressed the role of equilibration and reflective abstraction in development. In other words, Piaget believed that individual operations of intelligence and social exchanges have the same and single structure. So once having studied the structure of intelligence in detail it would appear there is no need to study the structure of communication by in depth exploration of the role of social interaction in cognitive development.

### **3.1. Self-Other relations and Moral Development**

Piaget believed that “logic is the morality of thought just as morality is the logic of action” (Piaget, 1932/1965, p.398). Piaget believed that all morality consists of a system of rules, and the essence of all morality is to be sought for in the respect in which the individual acquires for these rules. Still, beyond a set of rules morality is a way of living and in particular relating the self with others. Piaget viewed the self as developing from a lack of awareness to consciousness of others' perspectives to placing the self in a system of social relations. An individual placed in a system of social relations based on mutual respect starts to develop its own personality which is the outcome of continuous interaction with others with comparison, opposition, and mutual adjustment.

Although, as we have seen in the previous chapters morality as a way of relating with others was downplayed and morality as a set of principles was overplayed, it is vital for the present thesis to retrieve this underlying process account of development which brings the quality of social relations between people to the forefront of theorisation about learning and cognitive development irrespective of age, and thus directly relevant to the exploration of student development in college.

Piaget believed that relations based on unilateral respect (relations of constraint) are counterproductive for both cognitive and moral development of the child, and that co-operative relationships are necessary for the development of logic and autonomous morality of the person. According to Piaget (1932/1965) sociomoral development is the shift from anomy (non-regulation by others or the self) to heteronomy (imposition of norms by others on self) and finally to autonomy (mutual construction of norms). There are

two types of *self-other* relationships and two corresponding types of morality. Heteronomous morality hinders development and is characterised by obedience and regulation by others. Heteronomously moral individuals follow rules given by others who possess coercive power and out of obedience. Autonomous is the second type of morality where the person follows rules out of personal necessity; these rules are self-constructed and self-regulating provided they take place in relations premised on mutual respect (co-operation). Moreover, Piaget (1932/1965; 1954/1981) focused on the development of consciousness of the self as a social object being the result of social interaction.

From an epistemological point of view, where there is constraint because one participant holds more power than the other, the relationship is asymmetrical, and, importantly, the knowledge which can be acquired by the dominated participant takes on a fixed and inflexible form (Psaltis, Duveen & Perret-Clermont, 2009). Piaget refers to this process as one of social transmission; such as for example the way in which elders initiate younger members into the patterns of beliefs and practices of the group (Makriyanni & Psaltis, 2007, p. 46; Psaltis, 2007, p. 188). When children are under the coercive force of an authority they can act with mindless conformity in moral and intellectual life, whereas they may be led by any authority or eventually rebel; the child may also follow adult rules only when under surveillance (De Vries, 1997). According to De Vries, "Piaget warned that coercion socializes only the surface of behavior and actually reinforces the child's tendency to rely on regulation by others" (p.5). Piaget (1932/1965) emphasized that ego development needs liberation from heteronomy, otherwise the person will be unable to co-operate. This can be succeeded through the child being respected by the adult who co-operates with him or her. The asymmetric social relation of constraint through the imposing of restrictions by the authority is the basis of the suppression of the other's point of view; it does not lead to construction of new knowledge and this type of communication does not generate novelty, but through conformity leads to social transmission of beliefs and imitation of authority views resulting to the inhibition of the moral and cognitive development of the child (Makriyanni & Psaltis, 2007).

The second type of adult-child relationships is based on mutual respect and cooperation.

By contrast, in relations of co-operation, power is more evenly distributed between participants and a more symmetrical relationship emerges. Under these conditions, authentic forms of intellectual exchange become possible, since each partner feels free to express his or her own thoughts, consider the positions of others, and defend his or her own point of view. Under these circumstances, where thinking is not

limited by a dominant influence, the conditions exist for the emergence of constructive solutions to problems, or what Piaget refers to as the reconstruction of knowledge rather than social transmission of superficial beliefs. (Makriyanni & Psaltis, 2007, p. 46; Psaltis, 2007, p. 188)

Beyond the epistemological connotations of the two types of social relations in Piagetian theory the crucial notion of equilibrium in Piagetian theory is implicated in this discussion.

### **Social Relations of Co-operation and Equilibrium**

The distinction between the morality of social constraint and of morality of cooperation can be traced in the basic forms of equilibrium and characterizes the organization of life at all levels, them being psychological, social, and biological (Chapman, 1988). The regulations and operations development in the child's knowledge construction through organizing experience is called equilibration (Piaget, 1967/1971). Equilibration is the process of establishing equalities; mental development for Piaget is an energetic procedure of disequilibrium and reequilibration in the constant reconstruction of knowledge. There are three forms of equilibrium of social life which are constraint, egocentrism, and cooperation. Based on the morality of social constraint is the view that the younger generation is subordinated to the older generation in the same way all social members are subordinated to society as a whole. Moral egocentrism refers to the person's subordination of social concerns to their own points of view and morality of cooperation or reciprocity synthesizes the interests of individuals and the interests of persons taken together (Chapman, 1988).

When individuals interact with others with different values, they exchange values with them and as a result values become parts of a system of larger structures towards a reversible equilibrium of social exchange of values, where a necessary condition is a set of moral values. Cooperation is a system of equilibrated interactions, where the actions of different parties adjust to each other with new operations and actions (may be similar to each other, reciprocal or symmetrical, or complementary). In his theory of equilibrated social cooperations, Piaget (1945/1995, De Vries, 1997) states the three characteristics which need to be present in an equilibrated social exchange; common frame of reference (shared language and symbols), shared conservation of propositions, and reciprocity of thought among partners.

Social relations of co-operation are necessary for the development of social exchange, thinking and knowledge of individuals. In cooperative relations there is equality between individuals, reciprocal points of view, and authentic intellectual exchange takes place (Psaltis, Duveen & Perret-Clermont, 2009) and in this sense it bears the characteristics of a reversible and stable form of equilibrium.

Piaget (1952a) believed that the ideal equilibrium is the reciprocal preservation of the whole and of the parts and is related with the individuals' process of autonomy by this cooperation. The imperfect equilibrium is altered in its parts in relation to the whole and is viewed as social constraint. Social constraint is characterized by the change of the whole and the lack of coordination between the parts.

Importantly, some of Piaget's ideas provide an opening into a largely unexplored field by Piaget himself, that of the role of social identities and intergroup dynamics in social interaction and cognitive development. There is of course in Piaget the idea of an imbalance when the individual conforms to the group, but as he suggests should a partner neglect the agreed-upon role and proposes a new role, the equilibrium no longer exists and a new negotiation begins, causing inequality in the interpersonal exchange, thus disequilibrium occurs. If exchanges are based on brief interests with impermanent equilibria as regulations, then cooperations will not be achieved. Progress in development can be viewed through the evolution of regulations into operations (Piaget, 1967/1971, De Vries, 1997).

Roles of course are defined in a particular society that shares common values and expectations in the form of social representations. Equilibrated exchanges among adults are those in which discussants share a common framework of reference (which may be political, literary, religious, etc.), conserve common definitions, symbols, etc., and coordinate reciprocal propositions. Piaget (1941/1995) spoke of "co-valorization" and "reciprocal valorization" by "co-exchangers" within a particular scale of values (pp. 108-109). Valorizations are affective as well as cognitive, and the feeling attached to valorization is respect. Disequilibrated exchanges among members of various groups in present day multicultural societies are now the rule than the exception, when discussants operate out of a different system of values, give different definitions to terms, and fail to coordinate their points of view. Piaget (1941/1995) also spoke of "devalorization," signalling inequalities or disequilibria in interactions (p. 111). Political or social revolutions, as well as a marriage in which two people no longer love each other, are examples given by Piaget of collectives in which the scale of values is no longer held in

common” (De Vries, 1997. p.11). From this perspective intergroup contact and the development of cross-ethnic ties could potentially be a source of disequilibrium. But, to the extent that co-operation can characterize both interpersonal and intergroup relations as an idea, it is important to thus further explore the role that social identities can play in the negotiation of knowledge in a way that both interpersonal and intergroup relations become an integral part of our theorisation about student’s development. Such an effort needs a stronger input from social psychological theories. The foundations for such an approach were in fact laid down forty years ago by a group of social psychologists who started working on Piagetian theory and specifically on the experimental exploration of the role of social interaction for cognitive development. Such theories were characteristic for the explicit adaptation of a social constructivist triadic subject-object-other epistemology that made possible raising questions already explored in Chapter 2, within the Piagetian framework.

### **3.2 Triadic Theories and Social Representations: Three Generations of Research**

The use of the triangle metaphor is prominent in developmental, cultural, and social psychological theories (Zittoun, Gillepsie, Cornish & Psaltis, 2007) used to express relationships between a psychological subject, another psychological subject as another, and the world (Fonagy, Gergely, Jurist, & Target, 2002), the relationship between three persons (Fivaz-Depeursinge & Corboz-Warnery, 2001) and the relationship between a person, ideas, and concrete objects (Carpendale & Müller, 2004).

Piaget’s analysis of operational development is strong to this day as it emphasizes the structural quality of intelligence organization developed beyond the specific empirical learning of the child who engages in particular forms of activity (Psaltis, Duveen, & Perret-Clermont, 2009; Berry, Poortinga, Segall, & Dasen, 2002; Cole, 1990). Psaltis, Duveen and Perret-Clermont (2009) argue that to preserve the strengths of a structural analysis it would be more profitable to attempt to reconcile the structural and contextual frames for understanding intelligence; they argue that though all thinking is formed through operational forms, it can also be shaped within the specific contexts of certain cultural locations exercising their own constraints on the construction and communication of thinking. For example, dialogue is an interactionist position and has structure, but is also affected by the complex context in which it occurs, extending from the large scale

language group to the microlevel of the certain demands of any act of speech (Psaltis, Duveen, & Perret-Clermont, 2009).

Piaget believed that social interaction was crucial to the development of humans as intelligent individuals, though there is some disagreement about the emphasis Piaget placed on the social in his work as we have seen earlier (Chapman, 1988; De Vries 1997, Duveen, 1997, Zittoun, Gillepsie, Cornish & Psaltis, 2007). For this reason it is yet to be clarified to what extent his work may be viewed as triadic. In contrast the three generations of research on social interaction and cognitive development that followed Piaget stressed the importance of the exploration of the consequences of a triadic understanding of cognitive development, which is the social and cultural understanding of cognitive development (Zittoun, Gillepsie, Cornish & Psaltis, 2007) in the framework of what could be termed *Genetic Social Psychology* (Psaltis, in press).

Zittoun, Gillepsie, Cornish and Psaltis (2007) examined the uses of the triangle metaphor in developmental psychology and explain their three most important uses as emotional, mediational and sociocognitive with Freud, Vygotsky and Piaget being identified as 'the first generation' authors of triangle models. These authors were interested in ontogenetic development with the focus on demonstrating how a function was constructed for the first time in the developing child.

### **3.2.1. The First Generation of research**

For Piaget the development of mental structures (especially operational structures) was a major area of study. He viewed operational structures as coordinated and interiorized actions in the world that can be reversed and believed that they can develop through the child's interactions with the world, though he did not observe empirically the social dimension in the development of operational structures and discusses the role of different types of social relationships in the development of knowledge (Zittoun, Gillepsie, Cornish & Psaltis, 2007).

The first generation of post-Piagetian studies consisted of the work of the troika of Doise, Mugny and Perret-Clermont (1976) referred to as Social Genevans, who identified the gap of empirical research on the role of social interaction as a causal agent for cognitive development in Piaget's model and as a reaction on the emphasis he placed on structure in his later work, they reevaluated the role of social interaction in development.

Their studies observed the role of the other in the construction of development and used a triangle to represent the subject-other-object relationship. Their triadic theory was in part stimulated by the work of Mead, Vygotsky, Bernstein, and Moscovici and a central theoretical notion they used was that of *sociocognitive conflict*; this idea is premised on the Piagetian idea that subject and other may have differing perspectives on the same object; if the opposing perspective conflict the need for coordination of perspectives is created which may lead to decentration. The coordinated new structure of knowledge subject interiorizes these differing perspectives, into a new cognitive elaboration making the cognitive coordination of social perspectives a very important developmental mechanism (Zittoun et al., 2007; Psaltis et al., 2009).

The Social Genevans believed that the sociocognitive conflict was necessary, but not a sufficient condition for learning; the epistemic resolution of sociocognitive conflict and not the relational resolution was considered to be a necessary and sufficient factor for cognitive development, though its achievement also relies on the cognitive prerequisites of the persons involved (Psaltis, Duveen, Perret-Clermont, 2009). The idea of sociocognitive conflict was a first attempt to open the ‘black box’ of social interaction and identify in an experimental manner the productive elements in social interaction that lead as a causal mechanism to cognitive development. In this work, interpersonal co-ordinations are described as preceding the interiorisation of intrapersonal co-ordinations, thus breaking the Piagetian position of identification between the interpsychological and intrapsychological and taking a more clearly sociogenetic stance that is largely Vygotskian.

This first generation of studies provided concrete experimental evidence, for the first time, of the kind of social interaction that can elicit cognitive development. It drew on a more dynamic conception of communication as a terrain of contested claims within social interaction, through the study of actual social interactions that moved beyond the abstracted and idealized notions of social relations of constraint and co-operation, which in Piaget’s account appeared as distinct and exclusive forms of social relations, despite his proviso that any actual relationship involved some mixture of these two forms, or that these are two end points of a continuum” (Psaltis, Duveen, Perret-Clermont, 2009, p. 300).

Mugny, De Paolis and Carugati (1984) identified a number of factors that may delay the production and resolution of socio-cognitive conflict and explained how socio-cognitive conflict can be resolved in different modalities, which are directly connected to theories of social influence (Psaltis, 2012). When socio-cognitive conflict is not regulated by relational modality (Doise, Mugny, & Perez, 1998) like conformity (Asch, 1952) or

compliance (Milgram, 1974), it will be ‘cognitively regulated by a new constructivist elaboration’ (Psaltis, 2012, p. 844).

Thus, *sociocognitive conflicts, as a more tangible form of relations of co-operation* are vital for the stimulation of cognitive development and suppose that when partners propose a different response to the same problem has proved to be beneficial (Doise, Mugny, & Pérez, 1998). Importantly, similar findings were found also in the exploration of moral reasoning (Damon & Killen, 1982; Kruger, 1992) Sociocognitive conflicts are often used by teachers in order to promote cognitive development and academic learning (Buchs, Butera, Mugny & Darnon, 2004). Moreover, peer interaction was almost always found to leads to more cognitive developmental progress than the progress of children working individually on the same task (Doise, W., Mugny, G., & Perret Clermont, 1975-1976). Experiments of the use of confrontations with incorrect response (Mugny, Doise, & Perret-Clermont, 1975-1976) demonstrate that sociocognitive conflict can stimulate development. This basic idea was also more recently used in the context of co-operative work with the use of academic controversy (Johnson & Johnson, 2007). It was found that the students’ participation in intellectual conflicts can entail both competitive and cooperative elements; the result is advancements in the motivational, interpersonal and cognitive domains and ‘enhances epistemic curiosity (i.e., motivation to understand and to acquire new knowledge) and a search for additional information. Moreover, controversy favors learning by stimulating the elaboration and the understanding of both perspectives (Buchs, Butera, Mugny & Darnon, 2004, p. 25). Moreover, socio-cognitive conflicts are constructive when the elaboration is of a sociocognitive nature, and less beneficial or even disruptive when the elaboration is relational (Mugny et al., 1984). This dual dynamic has been also addressed in the domain of social influence research, and this is relevant to the context of learning, since in most learning situations new knowledge is introduced through social communication and social interactions (Butera, Johnson, Johnson, & Mugny, 2002; Buchs, Butera, Mugny & Darnon, 2004).

When Piaget had the chance to comment on the findings from the first generation of research he wondered whether social interaction or communication is the source as a causal factor of the structure of operations or if it only facilitates or speeds up their development (Psaltis, Duveen, Perret-Clermont, 2009, p. 302). He concluded that the source of the structure is bio-psycho-socio-logical, thus cannot be reduced to the social. Therefore, Piaget viewed the *other* as being a facilitator. He observed an effort of dissociation of the social and the intellectual in the Social Genevan work, an effort which

he rejected by once more insisting that there are indissociable parts of a single process, the two sides of the same side.

Zittoun, Gillepsie, Cornish and Psaltis (2007) state that the first generation's research can be described in terms of four dimensions if the question in which way do social interactions contribute to the development of more complex operational structures is asked. In this case the *subject-other* relationship is embedded in the social fabric, where each subject constructs a representation of the object through personal interiorised actions. Finally, development in the first generation studies is viewed as linked to the interiorisation and coordination of conflicting perspectives in social interaction. However, it is important to note that in this paradigm or research, and despite the emphasis on the social construction of knowledge and operative structures, the proposed relationship between the development of individual cognitive structures and social interaction is one of a spiral. Social Interaction leads to more advanced individual structures that in their turn facilitate engagement in more co-operative social relationships (Doise & Mugny, 1984; Psaltis, in press).

### **3.2.2. The second generation**

The second line of post-Piagetian research emphasized the understanding of the 'social' dimension of the sociocognitive triangle, where the social takes a more institutionalized role and bears the hallmark of the work of Anne-Nelly Perret Clermont in the University of Neuchâtel in Switzerland (Psaltis, Duveen, & Perret-Clermont, 2009). The social refers to the fact that the entire *subject-other-object* scheme takes place in a social world which includes social positions, values, rules, and discourses (Zittoun, Gillepsie, Cornish & Psaltis, 2007). Moreover, the theorists of the second generation believe that gender, age, perceived status, and socio-economic status define social positions and the perspectives of the participants in an epistemic triangle creating expectations in the form of contracts (Experimental and Didactic) (Grossen & Perret-Clermont, 1994).

Findings from the second generation of research made clear that to understand what is happening in social interactions in solving cognitive tasks we need to recognize that these engagements between subject and other about a common problem take place within a field which is structured by a number of factors. There is, at play an experimental contract established through the pre-tests with each of the participants which frames the interaction between the children as a particular type of conversation. In this line of research it was also observed that preschool children and primary school children performed differently

according to the social status given to the adult (teacher or lady coming to play with them). The children performed better in the play situation and the primary school children with the person introduced as a teacher (Iannaccone & Perret-Clermont, 1993; Schubauer-Leoni, 1990).

According to Zittoun et al. (2007) the second generation paid close attention to the particular character of the object of knowledge, examining that different objects have different significances to the participants, which are usually formed by the institutional context of the interaction due to their symbolic value. As mentioned in Zittoun et al. (2007) in the 'second generation' the same theorists stated that it was obvious that the object had a key role as a mediation, which permits the specification of social positions where the individual is in the high position of asking the questions and that the previous bipolar subject-subject or peer-peer model clearly becomes tripolar. The *object* is more than a mediator between the self and the other as it is agentic, carrying an *institutionalized history* which defines the positions of self and others and the situation. The metaphor of a *meditational* triangle shifts to that of a *systemic* triangle.

In the same period another research also proposed a triadic theory. Chapman (1991) in particular, attempted to fill the gap of the social in Piaget and extended the *subject-other* relationship to a sociocognitive triangle by emphasizing the social side of Piaget's theory by drawing on Vygotskian insights (Zittoun, Gillepsie, Cornish & Psaltis, 2007). Chapman's work was linked with Vygotsky's work as he observed semiotic mediation as the basis of reflection and implied that interpersonal communication by means of language provides children with the motive and opportunity to coordinate these interiorized actions as a means of generating interpersonally valid justifications (Psaltis, Duveen, & Perret-Clermont, 2009). This formation of the *subject-other-object* triangle was called 'epistemic triangle' and constituted of two subsystems of binary relations of a) *subject-object* with the subject being active and the object simply conforming or not conforming to the expectations of the subject, thus having asymmetrical interactions and b) *subject-other*, with development emerging to be more symmetrical when both participants become capable of obtaining the same active roles taking turns. According to Chapman (1991), human knowing entails an irreducible epistemic triangle, which consists of an active *subject*, the *object* of knowledge, and a real or implicit interlocutor together with their mutual relations. The subject and the interlocutor have a direct relationship with the object by asset of their respective operative interactions with it and they acquire knowledge of one other and of each other's experience through communicative interaction. The ability of

agents to communicate with each other by means of a semiotic system (language) allows them to exchange knowledge of the object as well as to coordinate their actions in cooperative action.

Moreover, Chapman (1991) stated that operations develop through the interiorisation of operative interactions and also through the interiorization of the epistemic triangle as a whole. According to Chapman, operative interaction is interiorized in the form of cognitive operations and communicative action in the form of semiotic mediation. Chapman redefined operational competence as a whole cycle which conceives a need to defend an individual's claims 'in a manner independent of one's particular point of view' (Psaltis et al.,(2009) p. 303) , that uses the coordination of cognitive concrete operations in order to understand the relations of necessity which underlies an inference, and which finally constructs a justification on that basis. The justification constructed will provide appropriate evidence for the conceived competence.

Chapman (1988) offered a somewhat modified view of universality and attempted to explain that the known stages should be viewed as a classification of the systems of thinking described in the populations that Piaget studied. Moreover, Chapman discussed the possibility of different developmental pathways in different forms of experience and claimed that the information equilibrated in different cultures may differ significantly in ways where the process of equilibration will result in qualitatively different developmental pathways (Psaltis, Duveen, & Perret-Clermont, 2009). In addition, Chapman (1988) believed that within each culture equilibration may result in developmental progress, but might proceed in a different direction relative to other cultures.

In the 'second generation's' approach in Neuchâtel, the object of knowledge impacts the relationships between the participants and their interaction; the significance of the object is formed by the institutional context of its location and includes social expectations about how each participant will relate to that object (Zittoun, Gillepsie, Cornish & Psaltis, 2007). The second generation's empirical work in Neuchatel also revealed new theoretical constructs around the role and resistance of the specific objects discussed in social interaction and their role as adults in testing situations and the empirical investigation of experimental and didactic contracts in order to understand the institutional context of social interaction (Psaltis, Duveen, & Perret-Clermont, 2009). Psaltis et al (2009) mentioned the following:

Contextualization of the triangle is achieved by an investigation of the cultural and institutional *frame* in which a given interaction takes place: the rules, roles, and expectations on which people draw so as to guide their conduct as the

interaction unfolds. This shift opened the way to better grasp the role of *expectations* of different forms of interaction in the context of the adult-child experimental situation. For example, in an experimental contract the experimenter and not the experimental subject is expected to pose the questions. There are expectations of who has the correct answer and who does not. These representations need to be worked out by a pupil when faced, for example, with the questioning of a teacher. In order for the pupil to be able to formulate responses which are both cognitively satisfactory and relevant, that is, for such acts to be recognized as answers by the teacher, they need to be appropriately framed and organized within the given sociocognitive context. (p.304)

According to Psaltis et al (2009), the pupils understand simultaneously social situations and tasks, constructing representations of their actions. These elements remind the existence of *power games* present in most interpersonal relationships. More importantly they emphasize the role of knowledge as a mediator in the social relationship of the teaching situation; this knowledge that assumes a system of non-interchangeable social positions. "Relating to an object of knowledge implies relating to those who (re)present it and to the institutions that have set them in this role" (Psaltis, Duveen, & Perret-Clermont, 2009, p.304).

### **3.2.3. The third generation of research**

The third generation of research draws on an in-depth understanding of the ontogenesis of social representations and their interplay with social identities in social interaction and cognitive development. It is in this last, and more recent line of research that issues of social identity and various status asymmetries have been integrated into Piagetian theory that aims at the articulation of the four levels of analysis discussed by Doise (1986). To render student's development intelligible we need to achieve the articulation of Doise's (1986), levels of explanation in social and development psychology:

1. The intra-personal level (cognitive processes)
2. The inter-personal and situational level (relations established at a given moment by given individuals in a given situation)
3. The positional level (differences in social position and power that exist prior to the interactions between subjects).
4. The ideological level (systems of beliefs, social representations, values and norms which validate and maintain social order)

### *Social Representations Theory*

The Social Representations concept was introduced to social psychology by Serge Moscovici in 1961 and supports that knowledge of the world is not an individual property, but rather is organized as collective structures expressing the understanding of a community (Duveen, 2001). It is novel and significant due to the conceptual framework it introduces. Moscovici (1973) defines social representations as:

A system of values, ideas and practices with a twofold function: first to establish an order which will enable individuals to orient themselves in their material and social world and to master it; and secondly, to enable communication to take place among the members of a community by providing them with a code for social exchange and a code for naming and classifying unambiguously the various aspects of their world and their individual and group history. (p. xii)

According to Tateo and Iannaccone (2011), 'Social Representations can be understood as a framework for sense-making, a space for the negotiation of meaning linking the individual and the social'. According to these researchers firmly rooted in the tradition of genetic social psychology, the relationship between Social Representations, symbolic systems, practices and sense making is a circular process of co-construction and elaboration developing along a time axis, in the constant tension between individual and collective, through the communication processes (p. 58). According to Tateo & Iannaccone (2011):

The role of Social Representations in the articulation between individual thinking and culture consists in creating a framework for sense making, a space for the negotiation of meaning, in which the individual and collective mental activity, mediated intersubjective processes and the social practices take place along the synchronic and diachronic dimensions of culture. The synchronic dimension can be defined as the dynamic totality of endogenous social interactions, of material and symbolic artefacts at a given moment of the history of a human society. The diachronic dimension instead represents both the development of these interaction and artefacts over history. (p. 58)

Lloyd and Duveen (1992) define social representations as products or features of social groups which form organized systems of values, ideas and practices. These systems exist before birth, form the context of one's life and persist after his or her death. Through social representations, individuals are able 'to understand the structure of social life and to communicate with others' (Lloyd & Duveen, 1992, p. 20). According to Wagner, Duveen, Jovchelovich, Lorenzi-Cioldi, Markova, and Rose (1999), social psychological phenomena and processes can only be properly understood if they are seen as 'being embedded in

historical, cultural and macro social conditions' (p.95). Moreover, Wagner et al. (1999) consider a social representation to be the collection of thoughts and feelings 'in verbal and overt behaviour of actors which constitutes an object for a social group' (p.95).

The word *Representations* refers to anything which represents something else and its utmost purpose is that through them (representations) individuals make sense of the world they live in and it is representations which guide the individuals' actions in that world and interactions with other people. *Social* in front of representations implies at least three different notions. Representations can be considered social because they emerge within the frame of social relations and social interaction and are transformed through social processes or are organized as particular structures or one structure is organized into another.

Furthermore, representations are concerned with characteristics of the world the individual inhabits, have a bidirectional symbolic value for people in order to enable them to decide one way of thinking than another, believe something over another or locate a person within the social system (Duveen, 2001). Their meaning is bidirectional in the sense that when one refers to another as a communist or a racist, for example, they place a person at a certain point in their mental world, and at the same time they disclose a part of their personal position in the broader frameworks of cultural meaning. In addition, social representations are always the representations of something, someone, or some collective (Moscovici, 1984; Lloyd & Duveen, 1992). 'The interdependence between social representations and the collectives for which they function means that social life is always considered as a construction, rather than being taken as a given' (Lloyd & Duveen, 1992, p. 23). Social representations are concerned with the ways meanings are organized and structure, as well as the role of these structures in all communication. Communication and social exchange are crucial in the theory of social representations (Psaltis, 2011).

Duveen (2001) states that social representations are concerned with the way in which realities are conceived or defined and communicated. The elaborated object 'becomes social reality by virtue of the object's representation which the community holds' (Wagner et al., 1999, p. 95). The subject and the object are not considered to be functionally separate since an object is positioned in a context of activity as 'it is what it is because it is in part regarded by the person or the group as an extension of their behaviour' (Wagner et al., 1999, p. 95).

In the case of social representations, Moscovici (1984) states that they are not individual, but collective and shared organizations of meaning by which a community aspires to maintain a certain aspect of the world. Why do individuals form social

representations? Moscovici (1984) argues that the reason that social representations are formed is to make the unfamiliar, familiar. Familiarization and establishment of representations is achieved through *anchoring*, the locating of the foreign and unfamiliar to the familiar, a process of classification and naming and *objectification*, the process through which representations are projected outwards to the world to constitute the reality humans experience and the case most often is that individuals see what they know rather than know what they see. Moreover, through *objectification*, socially represented knowledge assumes its detailed form and an icon, metaphor or trope are constructed in order to stand for the new phenomenon or idea (Lorenzi-Cioldi, 1996; Moscovici, 1984). Anchoring and objectification are interdependent; a representation becomes securely anchored according to the level of its objectification and objectification cannot exist if a representation is not anchored (Lloyd & Duveen, 1992; Duveen, 2001).

Ideas emerging in the world of science followed by their entrance in every day common sense were a major interest for Moscovici, who referred to science and common sense as reified and consensual universes correspondingly; science attempts to experiment and test hypotheses and common sense relies on intuition, suggestion or participation (Lloyd & Duveen, 1992; Duveen, 2001). Moscovici owes to Piaget many of the basic characteristics which he applies to the concept of common sense (Duveen, 2001).

‘...the theory of social representations is a theory about the production and transformation of knowledge and in Piaget Moscovici found the echoes of what could be a theory of how knowledge is transformed as it moves from one structural form to another. In his account of structuralism Piaget clearly defined structures as systems of transformation, permanently changing as the processes of assimilation and accommodation regulate the relations between child and world. In many respects this conceptualisation can be seen in the theory of social representations. Social representations constitute evolving knowledge fields that through processes of communication use anchoring and objectification to make the unfamiliar familiar. How a knowledge field is transformed in social life as it undergoes processes of communication is the problem for the social psychologist...’ (Jovchelovich, 2007, p. 51).

It could be argued that adults become participants in the social world by engaging themselves in interaction with different social groups by either actually joining a group or symbolically entering a group like an ethnic group for example in an imagined way. One basic question from the perspective of genetic social psychology thus remains how children ontogenetically become participants in the social world they live in. How do children acquire the social representations of their communities, as well as the way these representations influence their own development.

Duveen (2001) studied the particular case of social representations of gender. Before birth, the expected child is the object of hope, fear, and aspirations of his or her parents and expectation about the gender exercises a powerful influence by their parents who are themselves members of social groups sharing certain representations of gender circulating around the expected child and enabling in structuring the parents' responses to the child upon his or her birth.

Social representations of gender structure the child's world in terms of gender. For example, toys and other objects do not own a clear gender signification; what has a significant role is the actions of the others recognizing the markings of objects. Around the age of eighteen months of age, a shift in the children's psychological development is observable with an emerging capacity for representation implying that the child is able to engage in activities such as language, as well as capable of regulating activity in terms of these representations. The result is that children begin to have a more active role in the control and regulation of their expression of gender (Duveen, 2001).

At an early stage children become agents in the field of gender as they project themselves their gendered expectations on others in the process of interaction, as well as in the processes of learning and cognitive development (Psaltis, 2011). Researchers explore the effects of gender and knowledge asymmetry (Psaltis, Duveen, & Perret-Clermont, 2009) to examine the pattern of conversations between peers, which seem to be influenced from gender asymmetry, as well as differences in knowledge between the more developmentally advanced and the less developmentally advanced (Psaltis, 2011). Lloyd and Duveen (1989; 1990; 1992; Duveen, 2001) reviewed gender studies which found asymmetry in boys and girls patterns when playing with gender marked toys and a sharp contrast with their performance on cognitive and linguistic tasks and found that even at a very young age, children use their knowledge to construct different identities. Identity can be viewed as an internalization of a social representation (Duveen & Lloyd, 1986) and does not refer to a simple categorization of the self as male or female (Duveen, 2001). In the sense of social representations, identity entails activities which are viewed as an expression of their social identity.

The image of gender in terms of the bipolar opposition of feminine and masculine is central to the social representations of gender in childhood, and social representations of gender are structured around the *figurative nucleus* of a bipolar opposition which offers a degree of clarity and simplicity, which is also consistent with children's limited capacity for any cognitive elaborations that might require greater sophistication (Duveen, 1993,

2001; Psaltis, 2012). Moreover, this image or *figurative nucleus* is an image acquired by children in their very early lives and for example they think of sexuality as a union of bipolar opposites through marriage and domestic life visible in their pretend play (Lloyd & Duveen, 1992). The *figurative nucleus* of a representation assumes the meaning of the phenomenon, 'makes it intelligible for people and weaves it into the fabric of the group's common sense' (Wagner et al, 1999, p. 97). The *figurative nucleus* supports a consideration of social life in two complementary categories (Psaltis, 2012): the conceptual structure influences how children interpret the world around them at the same time their participation in collective life provides them with a scaffolding awarding additional legitimacy to this structure. Importantly, behind the bi-polar opposition there is a different valorisation of society for each category since the male is valued over the female (Duveen, 1993; Psaltis & Duveen, 2006). The social gender representations which exist in the child's community initiate a complex developmental process where social representations assist his or her sense of the world they inhabit and to form identity through which participation in the social world would be made possible. Gender identifications linked to social representations are crucially influential on the children's future career choices and their social lives in general (Duveen, 2001) and such development makes no sense unless it is interpreted from the perspective of asymmetrical valorisations.

Lloyd and Duveen (1992) showed how such asymmetry valorises aspect of school life. They proposed that at the beginning of school life, specifically the first year of school, is crucial for the construction of children's social identities, while the contact that children have with social representations undergo reconstruction, elaboration, and development (Psaltis, 2012; Lloyd & Duveen, 1990, 1992). Children are aware about the gender marking of objects, activities and occupations. Gender differences in communication are observed early in life and continue to exist throughout life; On one hand, males seem to be more concerned with self assertion and dominance and on the other hand, females are seem to be more concerned with collaboration and responsiveness to others (Carli & Bukatko, 2000). Lloyd and Duveen (1989) found that by the age of two, children present a behavioural preference which is gender-marked and play more with gender appropriate toys. Psaltis (2012) stated the following:

Females and males share similar knowledge of the resources available for the expression of their social gender identities in the material culture of their classrooms (toys, story characters, pretend play), but when it comes to the expression of their social gender identities, it is found that their gender membership influences the social organisation and activities through its

effects on composition and size of self-organising groups and their positioning against the material culture. (p. 842)

The third generation studies on peer interaction and cognitive development initiated by Leman and Duveen (1999, 2003), demonstrated that ‘the pattern of conversation between pairs of peers, as they engage in a collective approach to a problem, is influenced by the gender composition of the pairs under conditions of conflicting or aligned asymmetries of gender and knowledge’ (Psaltis, 2012, p. 844). Moreover, gender composition of a pair affects communication and has a permanent influence on learning and cognitive development various cognitive tasks (Psaltis, 2011).

Of course the gender asymmetry to some extent is a reflection of the values of the adult world where there is an asymmetry in gender evaluation as the male sex group is privileged with intellectual, interpersonal and economic resources. This presents clearly the value placed on masculine pursuits and objects (Weinreich-Haste, 1979). For example, Henley (1977) states that in the work environment, the boss is usually a man with a larger office space and higher status than his female secretary, jobs filled with men usually attract larger remuneration and the academic field of sciences is usually described as masculine and is accorded greater honour than that of arts (Weinreich-Haste, 1979).

On the whole, the third generation of studies aimed at the incorporation of social representations and social identity dynamics into the study of cognitive development and learning while preserving the structural analysis of Piagetian constructivism (Psaltis, 2012). The framework of the third generation builds on Piagetian insights on the role of social relations in cognitive development (Piaget, 1932; Psaltis, 2012, p. 840) and the work of the ‘Social Genevans’ on peer interaction and cognitive development and at the same time expresses ‘these three levels of analysis (ideological/social representations) premised on the work and theoretical insights of late Gerard Duveen in Cambridge on the study of the ontogenesis of social representations of gender in childhood (Lloyd & Duveen, 1990, 1992; Duveen, 1993, 1997, 2000, 2001)’ (Psaltis, 2012, p. 842). Unlike the interpretation by mainstream developmental and some social psychologists, Duveen did not read nor interpreted Piaget as the scholar of the stages of intelligence and not as the theorist of the lonely individual’s intellectual development.

#### *Genetic social Psychology and Vygotsky*

Duveen (1993) agreed with Moscovici in that Vygotsky’s notion of internalization sounded “too good to be true” as it implies ‘an unmediated relation between social

practices and intrapsychological life that is too straightforward. All studies from the third generation of research (Psaltis & Duveen, 2006; 2007; Psaltis, 2011) on the contrary, show that the passage from the social to the individual sphere is mediated by the dynamics of gender identity. It is necessary to appeal to the mediation of social identity and how it is assumed by each child to understand the differences in the decisions they make when choosing a cultural object, such as a toy or solving a cognitive Piagetian task (Castorina, 2010). The third generation of studies has shown that the dyadic interaction between an expert and a novice is not enough to complete the objective of understanding of knowledge construction, learning and cognitive development. It is also constituted by social identity dynamics of asymmetry in social interaction, which is a product of the social representations children encounter while participating in a number of social practices (Castorina, 2010) and furthermore showed that the development of children's social identity can assist or hinder learning in the Zone of Proximal Development depending on the alignment or conflict of various societal asymmetries (Psaltis, in press; Duveen, 1998).

#### *The significance of the third generation of research*

From an epistemological perspective the work of Duveen (2001; Duveen and Lloyd, 1990/2003) and specifically the work of the third generation of research (Psaltis & Duveen, 2006,2007; Psaltis, 2005, 2011, in press) has stressed the social constructivist stand common to social psychology and Piaget's thinking, which resembles the processes responsible for the emergence and renegotiation of Social Representations. In broad terms, objectification and anchoring processes cannot be separated when it comes to shape social meanings and assimilate a specific object by including it in a group's network of meanings. What the world is "to us", or the object, is not a reflection of the outside world, but the result of a construction made by the social group and mediated by social relations that could take varying forms.

But not only is the object constructed; the same operations also constitute the subject, as they shape the social and individual identity. From this perspective a theory of dialectics is implied involving the stability and the transformation of Social Representations, where stability is just temporary, as Moscovici had formulated it, without the pitfalls of other analyses of dialectics presented in Chapter 2, like that of Riegel's (1976) that took Piaget as a straw man. *Genetic social psychology* interpreted Moscovici's formulations within a genetic structuralist framework (Lloyd & Duveen, 1992, p.25) and viewed a structure as a relatively enduring organization of a function and at the same time viewed the function as

implying its organization in a structure and discussed three types of transformations related to social representations a) *Sociogenesis* – the construction and transformation of social representations of social groups regarding specific objects, b) *Ontogenesis* – the development of individuals and how they relate to social representations and c) *Microgenesis* – the evocation and transformation of social representations in social interaction.

For their part, Duveen and his colleagues (1993,1997; Leman & Duveen, 1999; 2003; Psaltis & Duveen, 2006) studied the microgenesis of social representations in the context of resolving cognitive tasks but of course this theoretical framework could be expanded in the study of the psychosocial and cognitive development of university students. The third generation of research establishes a new kind of social psychological factors which are very crucial in understanding the dynamics of social interaction between subjects of different social identities over objects which may draw on social psychological theories of intergroup relations and incorporate ideological positions within the framework. Each subject is positioned in an environment of symmetrical or asymmetrical social relations of different categorizations such as gender, age, academic reputation, social class, therefore issues of status asymmetries are of main importance. By recognizing this fact, the theorists produced a research program of exploring how the distant representational and ideological factors are implicated in social interaction in order to explore the way conflicting and aligned expectations of control can constrain or assist the co-ordination of actions of cognitive problems and therefore cognitive development (Psaltis, Duveen, & Perret-Clermont, 2009).

This achieves the shift from the classical Piagetian theory where the child is viewed as merely an abstract epistemic subject to that of a more concrete view of the child as a social and psychological subject who participates in socially structured patterns of communication in certain institutions and cultures. This approach is also a contribution in relation to Chapman (1991) since he was not interested in framing the epistemic triangle in relation to social identities and social representations.

The application of the framework of genetic social psychology on student development requires revisiting the work of two of the major and foundational figures of the tradition of student and adult development. A first critique was made by Carpendale (2000) from the perspective of the epistemic triangle. After the presentation of this critique we extend the critique further in the last section of this chapter. This critique allows the formulation of various research questions that we will present in the end of the chapter.

### **3.2.4. Re-reading Kohlberg and Perry from a co-constructivist perspective**

According to Carpendale (2000), although Kohlberg emphasized the importance of perspective taking in moral reasoning, his view of stages seems to be inconsistent with this position since it describes reasoning as the application of moral principles to moral dilemmas to create solutions. The same sources state that if moral reasoning was based on perspective taking, consistency in reasoning would not be predicted. Rather, moral reasoning would be influenced by factors that either deter or aid perspective taking. Thus, Carpendale believes that two aspects of Kohlberg's theory, his conception of stages and his account of the process of reasoning, appear to be incompatible. The same argument could be made for Perry and his theory since in his theory offers structural descriptions of stages but is silent concerning the processes of change from one form of thinking to the other. For example how would a person move from the dualist stance to committed relativism? What is the role of the process of social interaction and the quality of social interaction in such shifts?

Kohlberg's and Perry's views of stages and the prediction of consistency in reasoning according to a particular structure is based on a structuralist reading of Piaget's (1960) theory of cognitive development. However, Chapman's more functionalist reading of the theory, viewed Piaget's theory in a different light and believed that thought originates in action, but does not lead to a prediction of consistency in reasoning. According to Carpendale, a follower of Chapman's theory, we would need to modify Kohlberg's theory in a way that would be consistent with Kohlberg's emphasis on perspective taking. Piaget viewed development of moral reasoning as a process of coordination of all perspectives involved in a moral dilemma.

Carpendale discussed Kohlberg's theory with evidence revealing difficulties with Kohlberg's theory and discusses ways in which Piaget's theory would resolve these problems. Both Piaget and Kohlberg believed that moral development is constructed as an alternative of being transmitted through conformity by the previous generations. Beyond this common belief, their theories differ considerably, especially in the view of stages and the development of moral reasoning despite the fact that Kohlberg cited Piaget in his criteria for stages (Crain, 1985; Carpendale, 2000).

According to Carpendale (2000), Kohlberg's understanding of stages based on Piaget's theory of cognitive development is different from Piaget's view of stages of moral reasoning in "The Moral Judgement of the Child" and Kohlberg discussed the differences of his theory from Piaget's work on moral judgment. Carpendale (2000) believed that Kohlberg adopted the most common interpretation of Piaget's stages, but according to Chapman (1988), this interpretation is not what Piaget meant when referring to the concept of a structure. Piaget stated that structures develop through the interiorization of action which is content specific; according to this view children are expected to develop with inconsistency in reasoning at different rates in different domains. According to Carpendale, the regular interpretation of Piaget's stages leads to predictions of consistency in reasoning and includes a view of the process of reasoning as mental logic. From the same point of view, reasoning involves applying logical principles to problems and moral principles in moral reasoning. Carpendale states that this might not be the way that Kohlberg wanted to conceptualize the process of moral reasoning though this assumption about the nature of reasoning is tied up with his criteria for stages resulting in predictions of consistency in reasoning in different content. According to Carpendale, an alteration of Kohlberg's view of stages drawing on a functionalist and truer reading of Piagetian theory would result in an examination of moral reasoning as a process of coordinating all perspectives involved in a moral dilemma. Though consistency can be viewed in individuals' moral reasoning in Kohlberg's Moral Judgment Interview, inconsistency can also be viewed in moral judgment in different moral dilemmas in everyday life.

Carpendale (2000) argues that this evidence of inconsistency of moral reasoning in different types of moral dilemmas is inconsistent with Kohlberg's theory and needs an explanation and modification of Kohlberg's explanation of stages by drawing on Piaget's earlier work on moral judgment and beyond the standard interpretation of Piaget's theory, even though it may appear paradoxical to resolve Kohlberg's theory difficulties using Piaget's theory insights, since Kohlberg's theory claims to be an extension of Piaget's theory. Carpendale furthermore explains that even though Kohlberg's theory was inspired by Piaget and drew many of the views regarding the nature of development from Piaget's theory, it rejected some of its important aspects.

Instead of basing his theory on Piaget's moral judgment theory, and we would add placing proper emphasis on the distinction between relations of constraint and relations of co-operation, Kohlberg based his view of stages on Piaget's later structuralist theory of cognitive development and drew on the way it is usually interpreted, assuming that

individuals progress through stages based on general structures and applied across different content with consistency (Carpendale, 2000). Kohlberg himself stated that although the stage concept is important in his theory, the specific stage model that he adopted is subject to revision, and this is the stage model and model of reasoning that Carpendale believes that it requires revision.

Piaget, as discussed in the beginning of this chapter, did not claim consistency in reasoning across different content and expectations of consistency in reasoning are not based on Piaget's theory (Chapman, 1988). Piaget described general stages but clearly stated that he did not find evidence for such general stages irrespective of content. According to Chapman, in contrast to the most common interpretations of Piaget's theory, Piaget did not believe in general developmental stages based on developmental synchrony across content and this interpretation of stage development cannot be derived from the concept of *structures d'ensemble*, which refers to developmental synchrony resulting from a confusion of Piaget's specific concept of *structures d'ensemble* (Lourenco & Machado, 1996) and the view of structural unity across domains of content, something that Piaget specifically denied, making the evidence of inconsistency in reasoning not a challenge for Piaget's theory. Piaget viewed the structures of the whole to be "causally active" in the mind of the subject (Piaget, 1941, p. 217) and sustained that "each stage is characterized by a given structure of-the-whole as a function of which it is possible to explain the *typical* [cognitive ] behaviors of the respective stage (Piaget & Inhelder, 1966/1973, p. 121).

If we see structures of the whole as levels of organization or formal causes and take into account, as Piaget claimed (e.g., Piaget & Szeminska, 1941/1980, p. 193 ), that there is always a multitude of heterogeneous factors intervening in each task, then "the contradiction disappears" (p.152). This contradiction is something that can be located in both Kohlberg and Perry. As Chapman (1988) rightly argues, the notion that *structures d'ensemble* suggests 'developmental synchrony across content areas is based on a confusion between formal analogies and functional totalities" (p. 346) and that issues of homogeneity-heterogeneity and synchrony-asynchrony are not relevant for testing the empirical implications of the Piagetian theory because the theory itself left space for developmental asynchrony (Lourenco & Machado, 1996).

According to Carpendale (2000), Kohlberg explained that what Piaget meant with his view of the way that children understand moral rules as sacred as a deep reverence for the adult world order and argued based on his own research that it is simpler to view the understanding of young children of morality as the desire to avoid punishment in a basic

hedonistic right or wrong view. But what Piaget meant was a view of moral rules as completely external to the child and viewed in this way due to their relationships of adult constraint not being able to understand the purpose of the rules. Moreover, Piaget found that young children do change rules (for example the rules of the marbles game) continually and did not put them in practice in a systematic way.

Education and cognitive development relate to moral reasoning as we have seen in Chapter 1 (Pascarella and Terezini, 1991; Evans, Forney, & Guido-DiBridio, 1998). The college or university may provide a number of social, intellectual, and cultural experiences for students, therefore fostering moral development. But any university is part and parcel of a particular society with its own social representations as a system of values, ideas and practices about various objects and others.

Even studies that were based on a theory like Kohlberg's, which made claims of universality, found that cultural differences reflecting the values and socialization of these cultures could be related to autonomous versus heteronomous judgment; for example individuals from Asian cultures demonstrated more altruism and concern for the law and individuals from Western cultures demonstrated more individualistic values (Evans, Forney, & Guido-DiBridio, 1998). Kohlberg's theory was applied to educational programs in universities through moral discussions in academic courses and through personal development programs like group counseling (Pascarella and Terezini, 1991; Evans, Forney, & Guido-DiBridio, 1998). Both stage theories of Piaget and Kohlberg are very important in understanding moral development, yet they are not readily open in studying cultural variation, as they emphasize universal sequences (Garbarino & Bronfenbrenner, 1976). Still, the issue of universality of structures should not be rejected on this basis. As Piaget argued once the constraint in a society was lifted the direction of the structure of logic should be predictable since the more advanced structure depends on reflection on the previous one.

Even discussions of post-formal thinking can be accommodated into this way of thinking as it was done by Edelstein & Noam (1982). They argued that adults often when presented a problem as a complex conflictual experience are forced to transcend the formal operational structure since it cannot be accommodated by the current structure (Edelstein & Noam, 1982). As a result, a postformal mode of reasoning may emerge in the case when two contradictory statements are both true or once a statement is true and not true concurrently. Riegel's dialectical operations (1973; 1976) refer to Hegel's (2010) dialectical ontology examining the unity of contradictions and negation, and negation of

negation. Should structure d'ensemble be reorganized, it should entail a unity of contradictions through negation in the sense of elimination, conservation and transition to higher stage; this unity makes reflection possible 'as the (re)organizing principle of hierarchical subsumption in the logical and the social-evolutionary process' (Edelstein & Noam, 1982, p.409). '...structural transition to a higher stage is accompanied by, or operated through, two processes. In the first, the formal characteristics of the cognitive operations that define a given stage become the *content*, or object, of the more advanced cognitive structure. Thus, for example, the grasping scheme becomes the content of consciousness in a later stage. In the transition from a formal to a post-formal stage the propositional logic or the principled reasoning of postconventional morality becomes the object of a higher, adult, reflexiveness. In the second process, the functional pull of equilibration moves the system towards a more overarching totality unifying a greater set of subsystems under a better equilibrated and more encompassing superordinate system. So if there is transition from a formal operational stage to a post-formal stage, the functional pull of equilibration must work towards reintegrating what has become the content of reflective adult thought in the higher order *structure d'ensemble* (Edelstein & Noam, 1982, p.409).

Edelstein & Noam (1982) state that intelligence and affectivity reunite, in order to balance the prerequisites of intrapersonal and interpersonal reality, though the transition and the functional properties of the self in interaction can be described in the context of moral reasoning; moral reasoning is in essence practical reasoning, therefore moral principles can be applied to interactional contexts. The functionality of principled moral judgments, in the same way with practical reasoning emerges by a double constraint, the equilibrated self's obligation for maintaining consistency and its obligation for preserving the conditions of genuine communication with other selves. When either one or both of these activities fails, then the functional adequacy of a principled moral judgment, like that of practical reasoning is exposed (Edelstein & Noam, (1982) as these authors, largely influenced by Piagetian theory state:

Perhaps adult development can best be described in terms of the construction of rules which serve to balance these constraints. The regulatory structures of the self, in this perspective, function as a 'metalogic' of communication - *about* things, *with* others, and *within* the self. (p. 414)

An understanding of these regulatory structures that span the personal and interpersonal as argued on the basis of the third generation of research can only be made

possible by an integration of social representations and social identities into a theory of social interaction in cognitive and psychosocial development that expands into the intergroup/positional and representational/ideological levels of analysis which allows to treat individuals not as epistemic but as social psychological subjects (Psaltis, 2012).

### **3.2.5. The social-psychological subject and intergroup relations**

As we saw in the case of the ontogenesis of social representations of gender social gender identities are internalised as positions in the representational field of gender. This is a process taking place in each society with local variations in the gender culture, but of course there are also other various forms of social identification of importance to the social psychological subject. In the case of Cyprus an important social identification, and directly relevant to the process of education (Makriyianni & Psaltis, 2007) , due to the unresolved state of the Cyprus issue is that of ethnic and national identity.

A recent research from the perspective of Genetic social psychology by Psaltis (2011) examined social representations of the Cyprus conflict in relation to social interaction between Greek Cypriots and Turkish Cypriots, intergroup trust and prejudice. In a geographically divided society, for almost half a century, across ethnic lines with linguistic and religious differences, as in the case of Cyprus, social representations of the Cyprus problem evolved in both communities through the planned and politically driven educational system (Psaltis, 2011; Makriyianni & Psaltis, 2007). Moreover,

‘...within each community the struggle for power and ideological influence was always related to the formation of diverse interest groups and political parties, which created diversified dynamics and ideological tensions (Markova, 2000, 2003) with their own versions of the past and collective memory (Wertsch, 1997,2002). These ideological tensions are often related to different policies, political and micro-political agendas, strategies and tactics how to resolve the Cyprus issue that valorise contact and trust in varied ways’ (Psaltis, 2011, p. 89).

An important aspect of the application of the perspective developed through the third generation of research on issues of intergroup relations is that social interaction is explored as an opportunity for the microgenesis of new social representations of the in-group, the outgroup and the conflict itself. In addition this work allowed the exploration of various dimensions that tap the quality of intergroup relations. In particular, Psaltis (2011) studied a sample from the Greek Cypriot community (N = 800) and the Turkish Cypriot community (N = 853) in order to observe the quality and quantity of contact between the two communities, national identification, trust and attitudes towards outgroup members, forgiveness, threats, intergroup anxiety, perspective taking and intergroup salience. The quantitative analysis of the Greek Cypriots could be divided in three clusters. The first cluster (Pro-reconciliation critic of ethno-nationalism - 33,4% of the sample) represented the perspective of peace activists, bi-communal NGOs, and left wing trade unions promoting an all-inclusive Cypriot national identity including Greek Cypriots and Turkish

Cypriots. Participants of this cluster appeared to be very positive towards Turkish Cypriots regarding trust, contact, forgiveness, perspective taking and positive feelings, while was the lowest of the three clusters regarding threats and intergroup anxiety.

The second cluster (Communitarianism – 37.7% of the sample) resulted in the lowest of the three clusters on trust, contact, perspective-taking and forgiveness. Both the first and second cluster view the self more as Cypriots rather than as Greeks, including Turkish Cypriots in the formation of civil identity and are affiliated with the centre and left wing ideologies. The second cluster presents a higher level of attachment to Hellenic symbols than the first cluster and resists the idea of Greek Cypriots and Turkish Cypriots using common national symbols, which is related as a behavior to the high levels of threats from the Turkish Cypriots and lower levels of trust, of quantity and of quality of contact.

The third cluster (Ethno-nationalism – 28.9% of the sample) can be viewed as individuals affiliated to right and extreme right wing parties based on Greek ethno-nationalism. Distrust, high levels of realistic and symbolic threats, intergroup anxiety and salience, as well as negative feelings towards Turkish Cypriots paint the picture of this group. These findings underline the importance of the strength of identification with more or less inclusive categories.

#### *Social Identity as categorisation*

Individuals classically value ingroups more than outgroups and that is one of the most well-established phenomena in social psychology since the time of Tajfel (1978) and his Social Identity Theory (SIT). The role of categorisation is apparent in many areas such as general group evaluations, group attachment, trust, and conformity to group norms (Brewer, 1999). SIT suggested that group members differentiate positively their own group from that of outgroup to accomplish a sense of positive identity (Tajfel & Turner, 1979). Importantly, cooperative interdependence within groups often requires trust and cooperation with ingroup members and wariness, anxiety or distrust of outgroup members (Brewer, 2001).

As sustained by Otten & Moskowitz (2000), emotionally, people experience spontaneously more positive affect toward other members of the ingroup than those of the outgroup. At the same time, cognitively, people maintain information in more detail for ingroup members than for outgroup members (Park & Rothbart, 1982). Moreover, behaviourally people are more helpful toward ingroup than outgroup members (Dovidio et al., 1997). In regards to ethnic groups, Barth (1969) showed that the basic objective is to

understand clearly the differences between one's group with the others and make the distinction between them clear and obvious in a form of a contrastive model. Origin, content, and form of ethnicity mirror the choices of individuals and groups in the way they view the self and others in ethnic ways (Nagel, 1994). Ethnicity is formed by language, religion, culture, appearance, ancestry, and regionality. Two fundamental blocks of ethnicity are identity and culture, which are basic to the construction of boundaries and the production of meaning as ethnic identity is the outcome of the choices of individuals and of the ascriptions of others. Ethnic identity is subjective and involves two mental processes, the search for the self and the construction of boundaries between one's own group and that of the others (Mach, 1993). Moreover, 'ethnic boundaries and meaning are also constructed from within and from without, propped up by internal and external pressures' (Nagel, 1994, p. 167). Often, social relations involve conflict, where the differences of people are sharpened with the sides of the conflict being polarized into two different domains, being ascribed different values, becoming enemies (Mach, 1993). In this sense, like gender ethnic identity can indeed be a challenge to the establishment of co-operative relations with others belonging in other ethnic groups and especially with specific enemy other in the context of protracted, unresolved conflicts like Cyprus. Still, from a genetic social psychology the prospect of microgenetic change through social interaction is always present. In the study of intergroup relations this was explored through the study of the role of intergroup contact in the reduction of prejudice.

#### *The importance of social interaction as intergroup contact for cognitive and psychosocial development*

The extension of the framework of Genetic social psychology to the study of intergroup relations carries with it the promise for further theoretical integration between the third generation of research and social interaction beyond gender to ethnic identity in the study of learning and cognitive development across the life-span. In particular, there are some empirical findings from the field of the study of intergroup relations that could be explored from a social constructivist perspective. First, there is the work on contact hypothesis (Allport, 1954).

Allport (1954, 1958) is well known for introducing the Contact Hypothesis, which supports that intergroup contact could reduce prejudice. It has been utilized to examine participants of various ages with a targeted variety of diverse groups like elderly, physically disabled and mentally ill, various situations, and societies (Pettigrew & Tropp,

2006). Moreover, it has examined issues like ethno-political conflicts (Chiro & Seligman, 2001) and the typical education of ill and disabled children (Harper & Wacker, 1985). The contact theory supposes that the mere contact between groups is not adequate to enhance group relations.

Allport (1954) believed that for contact and acquaintance programs to be successful, they should guide to a sense of equality in social status, should take place in commonplace purposeful pursuit and avoid artificiality, and enjoy the sanction of the community where they occur. Moreover, the deeper and more genuine the association, the greater its effect will be; the gain will be greater if the members of different ethnic groups regard themselves as part of a team rather than be placed side by side on a task. This hypothesis was based on earlier relevant work. Lett (1945) suggested that interracial experiences could lead to mutual understanding and regard and Bramfield (1946) stated that when groups are isolated from one another, prejudice and conflict might grow like a disease. Mere contact is not enough, there needs to be a common task, individuals to work jointly on it, achieved through full cooperation of two groups to improve relations between the two (Watson, 1947; Williams, 1947).

The results of Pettigrew and Tropp's meta-analysis study (2006) based on 515 studies found that structured contact predicted stronger contact-prejudice effects establishing Allport's optimal conditions in the contact situation and that even unstructured contact is associated with reduced prejudice. As mentioned in Psaltis (2011), Allport's work on prejudice (1954) was 'widely hailed for its theoretical inclusiveness as it weaved historical, economic, sociological, and psychological perspectives together into coherent themes and explanations across the book' (p.83).

Pettigrew and Tropp (2006) found that Allport's four preconditions are not in fact essential for intergroup contact to lead to positive outcomes. They found that samples not attached to Allport's conditions presented significant relationships between contact and prejudice and theorize that Allport's conditions should not be taken into consideration as necessary in order to produce positive contact outcomes. Pettigrew and Tropp (2006) view them as facilitators enhancing the tendency for positive contact enabling it to emerge and that the optimal conditions for contact should be best viewed as functioning together to facilitate positive intergroup outcomes instead of acting as entirely separate factors.

Importantly, the recent developments in the field make clear that emotions are greatly involved in mediating the effect of contact on prejudice reduction. Lee (2001) assumes that research on the relationship between familiarity and liking presents that the reduction of

uncertainty is an important mechanism underlying these relationships. Anxiety is a characteristic of interactions between groups and can generate negative reactions to other group members; reducing intergroup anxiety, the feelings of threat and uncertainty experienced by people in intergroup contexts (Pettigrew & Prott, 2006) might reduce prejudice from contact (Stephan et al., 2002) and threat and anxiety regarding future cross-group interactions (Paolini, Hewstone, Cairns, & Voci, 2004; Blascovich, Mendes, Hunter, Lickel, & Kowai-Bell, 2001). Brown and Hewstone (2005) show that positive contact outcomes can be achieved to the extent that anxiety is reduced. Furthermore, intergroup prejudice can be reduced if individuals are asked to imagine contact, but works better when constrained to positive imagination (West, Holmes & Hewstone, 2011).

It should be stressed that all these years of research converge on the finding that a good quality of contact, either actual or imagined, that is premised on mutual respect is one of the stronger predictors of the reduction of prejudice as originally proposed by Allport. It is worth mentioning here that Allport (1954) was aware of Piaget's work and in fact we can find references to his work in his 1954 classic book on prejudice. Thus his insistence on the importance of equality of status could have been directly influenced by the Piagetian idea of relations of co-operation. Brewer and Kramer (1985) and also attribute great importance to equality of status. Moody (2001) assumes that it is furthermore important for the equal status to continue to exist in the contact situation and not just exist in society outside the immediate interactive setting. Moreover, cooperative interdependence was found to have an important role in the success of intergroup contact (Blanchard, Weigel & Cook, 1975). Cooperative interdependence is a direct mediator of changes in the attitude and behavior (Sherif et al., 1961). This perspective holds that positive interdependence or cooperation generates more favorable attitudes toward outgroup members and reinforcing outcomes (Worchel, 1986) whilst negative interdependence or competition produces more unfavourable attitudes. The work of other renowned figures in the field of studying intergroup contact like Dovidio, Gaertner, and Kawakami (2003) suggests that when intergroup contact is favourable, psychological processes associated with the restoration of cognitive balance and the reduction of dissonance produce more favourable attitudes toward members of the other group. In addition, the opportunity for personal acquaintance between members who do not support stereotypic expectations (Miller & Brewer, 1984) and the development of intergroup friendships (Pettigrew, 1997, 1998; Hamberger & Hewstone, 1997) are important for intergroup contact to be successful.

Affective factors play a critical role as mediators of the result that contact will have on reducing bias (Pettigrew & Tropp, 2000) by enhancing empathy towards members of the other group, which is able to reduce bias in two ways; first, it can lead individuals to feel more positively about others and second, empathy influences the motivations of people to behave more supportively towards others regardless of how much they like it (Pettigrew & Tropp, 2006).

Positive contact is often also found to increase trust from the members of the out-group. Trust is viewed as the positive bias when processing imperfect information about the partner's intentions and assumes the expectation that the personal vulnerability will not be exploited and that others will attempt to cooperate (Psaltis, 2011).

Trust or distrust could be discussed as an organising principle of intergroup relations and contact. Thinking and contact are governed by trust and distrust, acting as normative regulations that control, verify, and direct cognitive operations (Doise et al., 1993) in the past-present-future transition (p. 89).

Learning new information and more generally changing social representations have been identified as important factors related to the contact hypothesis. Learning new information sustains that learning about others is critical in the way intergroup contact advances intergroup relations and increasing knowledge about others might enable individuals to view them in individuated and personalized ways (Pettigrew, 1998). In addition, the higher level of knowledge of others may reduce uncertainty for interacting with others and in turn reduce avoidance of members of other groups and discomfort (Gaertner & Dovidio, 1986).

One important recent development in this field of studies is the exploration of secondary transfer effects of contact. This is the phenomenon that contact with a primary outgroup that reduces prejudice towards this same outgroup is often also found to reduce prejudice for other out-groups unrelated to the contact situation. Tausch et al. (2010) observe whether the effects of intergroup contact generalize to new contact situations, to the entire outgroup and to other outgroups independent of the certain contact experience. Generalization forms are central in the broad effectiveness and practical value of intergroup contact. In their study, Tausch et al. (2010) examined the secondary transfer effects over and above contact with the secondary group, individual differences in desirable social responding and prior attitudes. Moreover, they attempted to observe the processes that underlie secondary transfer effect with focus on ingroup reappraisal and attitude generalization. The study of Tausch et al. (2010) on the Cyprus issue suggested

that attitude generalization and ingroup reappraisal mediate the effects of contact on the reduction of prejudice towards the secondary outgroup, that in this case was Turks and Greeks from the mainland.

All these findings thus converge on the importance to study the interplay of social representations in the context of communication and a detailed exploration of the quality of social relationships and social interaction for both cognitive and psychosocial development to the extent that prejudice is an important dimension of a particular moral stance and self-other relations in general. Such relations are expected to be influenced by ideological positions relating to the power structure of relations between groups in society. It was also even claimed that there are personality characteristics of persons that directly relate with such views of society. This is clearly shown for example in studies exploring the role of Social Dominance Orientation (SDO) in intergroup relations. This concept was introduced by Sidanius and Pratto (1993; 1994; 2001) and was the major measure of their Social Dominance Theory (SDT). SDO is proposed as a personality trait that predicts the social and political attitudes of individuals and measures their preferences for hierarchy within social systems. Social dominance theory is applicable across cultures and across historical periods because it assumes that ideologies can work to enhance or to attenuate social hierarchy if they are related to the central values of a culture and are consensually known (Pratto, Liu, Levin, Sidanius, Shih, Bachrach, & Hegarty, 2000).

Group-based hierarchies found in stable societies have one hegemonic group and at least one subordinate group (Brown, 1991) where the hegemonic group owns an unequal amount of social status, power, money, highly esteemed roles and better living situations, whereas the oppressed group owns refuse and poor health (Pratto et al., 2000; Mosca, 1896/1939). In these societies with group-based inequality, women are subordinate to men and it is of importance to note that though the nature and history of group hegemonies as well as sexual inequality differ across cultures, the pattern occurs frequently and suggests that ordinary psychological, social and cultural factors add to it (Sidanius & Pratto, 1993).

People supportive of group dominance usually acquire social roles and political positions which permit them to improve or preserve social hierarchy (Blumer, 1960) and group dominance is sustained by systematic institutional discrimination (Feagin & Feagin, 1978). Moreover, individuals who score high on the SDO usually support group hierarchy, maintain ideologies which legitimize group inequality (Pratto et al., 1994) and suppose that social groups differ and should indeed differ in value (Pratto et al., 2000). Contrasting, individuals low on SDO consider group equality and resist group differentiation based on

status and power and are supportive of ideologies and social policies which would eliminate group inequality (Pratto et al., 1994; Pratto et al., 2000). People high and low on SDO hold occupations in institutions which are compatible with their inclination to discriminate, maintain or eliminate group hierarchy (Pratto, Stallworth, Sidanius, & Siers, 1997; Sidanius, Liu, et al., 1994).

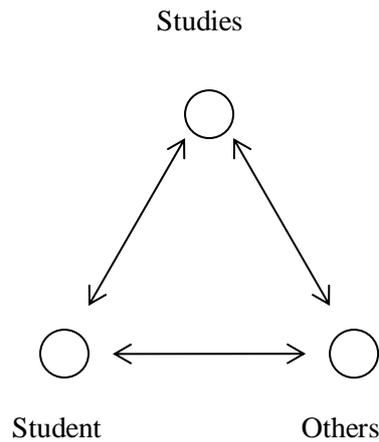
All in all, the relation of group identification, contact with various others and prejudice should be incorporated into the Theory of Social Representations in a way that a better understanding of how the socio-cultural context relates to the quality of social relations as they take more or less co-operative form.

## **Towards a socio-culturally situated triadic model of university student development: the case of Cyprus**

One of the main aims of this thesis is to contribute to the theoretical development of a socio-cultural theory of university student's cognitive and psycho-social development by moving away from classical binary subject-object epistemologies to a systemic triadic epistemology in order to understand the contextually situated nature of human development building on the work of both Piaget and Moscovici (Psaltis, 2011; Psaltis, 2005b; Zittoun et al., 2007). The systemic triadic epistemologies generally are 'sensitive to genetic change of the socially constructed forms of representation, and the articulation of different levels of analysis' (Psaltis, 2011, p.85).

The triadic epistemology of *subject-object-other* suggests that variables at different levels of analysis 'can indeed change the dynamics of communication since any change of relationship between *subject-other-object* changes communicative expectations' (Psaltis, 2012, p.846). As Mead (1934/1967) convincingly argued self consciousness and selfhood development implicates a process whereby the individual is becoming an object to the self through taking others' attitudes towards him or her 'within an organized setting of social relationships' (Psaltis, 2012, p. 846). In fact all the findings from the study of intergroup relations presented and Piagetian theorising about the role of the quality of social relations converge on the same hypothesis. That there are two basic dynamics in social interaction with contrasting consequences for both the cognitive and psycho-social development of the person. These can be thought of as triadic configurations of control and social recognition (Psaltis & Duveen, 2007) in social interaction that largely define the orientation of the subject on the object and others. In the case of students in the University it is thus expected that the two basic orientations of mutual and unilateral respect can be identified and measured for various others, and that such orientations are expected to directly influence both the cognitive and psycho-social development of students.

In the case of activity in the university setting, the triadic epistemology of *subject-object-other* includes the student as a *subject*, their courses and cognitive tasks they have to face as an *object* and the other students, professors and parents as the *other*. The subject exists in relation with both the other and the subject at the same time in a dynamic system that is not a static reality but rather a constantly changing structure formed within social groups' (Psaltis, 2005b, p.7). The triadic epistemology structure looks like Figure 2.



**Figure 3.7.1. The triadic model of student development**

Duveen (1997) argued that further to Piaget’s question about how is knowledge possible, the question for whom is knowledge possible should be added in order to introduce a third term in Piaget’s binary distinction and that the social psychological subject for whom the ‘for whom knowledge is not the product of an abstract universal but the expression of a social identity’ (Psaltis, 2005b, p.8). Moreover, according to Psaltis (2005b):

The social psychological subject is in a dialectical relationship with the psychological and the epistemic subject and should not be conceived as a step towards a proliferation of Cartesian dualisms but rather as shedding light on the human psyche with its synthesizing powers from a social perspective. From this perspective, logical structures are social representations themselves. This means that the process of social representation can describe cognitive development. (p.8)

The university as an educational institution is essentially a system of social relationships constrained by activities taking place in a more or less ritualised form. Activities are structured in terms of divisions of gender (Lloyd & Duveen, 1992) which affects every aspect of learning and development. Ethnic and national identity is also expected to play a role in orienting students towards otherness in a more general sense as well as other social psychological variables like social dominance orientation that specifically tap the quality of relations between groups. The university’s structure, similar to that of any other institution is organized in relation to various potential “authorities” (academics and administration staff) and fellow students but of course the way an authority is epistemologically approached should be directly related to the quality of social relations of an individual as we have seen in chapter 1.

The activities taking place in universities are organized on the basis of specific goals. One of the most basic goals and functions of a university today is to endow students with fundamental capabilities for their future professional life, as well as expertise in their domains of studies (Mandl et al., 1996). But of course the way this is attempted from a pedagogical perspective (constraint or co-operation) makes a sea of difference. Learning and performance within and outside instructional settings may be at variance significantly (Gardner, 1991) and therefore instruction does not prepare the students for the future lifelong learning demands that the modern society will impose upon them as a result of lack of emphasis on excellence in real-world realms. In traditional university settings, students often acquire inert knowledge, which is used in instructional settings, but cannot be transferred to everyday or professional life problems (Mandl et al., 1996). All these point to the need not only for the cultivation of formal operational thinking but more importantly, for the cultivation of deep learning skills, critical thinking, and the ability to encounter alterity and the unpredictable in a productive spirit as an enriching factor of life. Learning in instructional settings like the university is not always structured as learning in the professional world and the effort to bridge this gap and make the transition is important.

Resnick (1987) identified four significant differences between the types of learning within and outside instructional settings. The first, *individual versus shared cognition* refers to the difference between the individual learning in traditional settings, where instructions and tests are individual and cooperation is condemned; in professional life, the individual is expected to cooperate as it is often necessary in order to solve problems. The second, *pure mentation versus tool manipulation* acknowledges that in traditional instruction pure thought activities are considered to be paramount and students are asked to perform without books, notes or calculators, especially in exams. Quite the opposite in professional expertise, a foremost factor is the proficient use of tools. The third difference, *symbol manipulation versus contextualized reasoning* examines the abstract manipulation of symbols as typical in traditional instruction and the way students are usually unsuccessful in matching symbols and symbolic processes to real world processes, whereas in real life tools and reasoning processes are an integral part of interaction. *Generalized learning versus situation-specific competencies* observes the abstract character and teaches general widely usable skills and principles as schools do not know what professions their students will follow in the future, but in professional life situation-specific skills must be obtained and the university is expected to play the role of in between. For this reason various skills and demands are put on students depending on their major and such pressure

should be expected to channel particular forms of thinking and relating depending on the major of the study.

Following the post-vygotskian insights reviewed in chapter 2 of Cole, Wertsch, and Rogoff it could be argued with Lave (1992) that the university can also be thought of as situated activity with the main characteristic of a process named legitimate peripheral participation, which contains the process of new learners or newcomers becoming enculturated into a community of practice, the practice of their future profession. The basic arrangements of practice influencing learning are ‘the relations between newcomers and old-timers, the relations among newcomers, the typical activities in the community, and the artifacts of the domain’ (Mandl et al., 1996, p.401). What the post-vygotskian tradition failed to explore in detail as we saw is the role of the quality of social relationships, a failure that hails back to the theory of Vygotsky as their predecessor as we have seen in Chapter 2. The proposed framework can thus enrich our understanding and potential problems with apprenticeship models. Collins et al. (1989) suggested the *cognitive apprenticeship* model which refers to the importance of explicating or reifying cognitive processes during learning. This model is based on a special instructional sequence, which employs authentic tasks applied in authentic situations, directing the student to the attainment of knowledge that will be pertinent in certain categories of situations. The sequence moves from expert modeling to scaffolded practice and finishes at independent problem solving. In this approach, the expert is a model and a coach, who provides scaffolding, but the student begins to take an increased active role, decreasing that of the expert gradually, who promotes articulation and reflection. The student utilizes strategies that are compared to that of the expert and the other students and through interaction they come to know different perspectives on concepts and problems of a particular domain (Mandl et al., 1996).

As we have seen in Chapter 1 the issue of articulation and reflection should be important for promoting self-authorship and commitment to future plans. From this perspective relevant motivational theories like self-determination that often allude to the “human nature” of striving towards a unified self could be seen in a new light as the outcome of social relations of co-operative form. The work on Self – Determination by Ryan and Deci (2000) for example was used in the past to capture variations of peoples’ functioning in a self-determined way and the sense of having perceived choice in one’s actions.

They argue that most people show considerable effort, agency and commitment in their lives, which “appears in fact, to be more normative than exceptional, suggesting some very positive and persistent features of human nature’ (Ryan & Deci, 2000, p. 68). Furthermore, SDT is an approach to human motivation utilizing traditional empirical methods along with an organismic metatheory highlighting the importance of the human evolvment’s inner resources which enable personality development and behavioral self-regulation (Ryan, Kuhl & Deci, 1997). The goal is the investigation of growth tendencies and psychological needs, which affect self motivation and personality integration. The Self-Determination Scale examines individual differences in terms of the way people function in a self-determined way and is an aspect of people’s personalities which reflects being more aware of personal feelings and sense of self and feeling a sense of choice regarding their behavior.

SDT furthermore examines the social environments which are positive or antagonistic towards what they see as the three basic psychological needs (competence, relatedness and autonomy) and how they affect intrinsic motivation, the natural activity and curiosity. Conditions which support autonomy, competence enable intrinsic motivation, whereas conditions which control behavior weaken it. This theory suggests that if the individual’s environments respond to his or her basic psychological needs, an active and assimilative nature can develop, whereas excessive control, non-optimal challenge and low degree of connectedness result to lack of initiative, of responsibility (Ryan & Deci, 2000), develop materialistic orientations (Kasser, Ryan, Zax, & Sammeroff, 1995) and may cause psychological distress (Sheldon & Kasser, 1998).

Since the focus of the SDT is to specify the conditions that tend to support peoples’ natural activity compared to vulnerability and passivity, the focus of the present thesis on the quality of social relationships in the context of the interplay of social identity and social representations could shed light on the socially constructed nature of needs and motivation. There is certainly a need to understand the relationship of what many theories present as basic psychological needs with collective activity. Self Determination Theory (SDT) (Deci & Ryan, 2000), may be thus put in dialogue with Social Representations theory and CHAT due to their recognition of individuals as active, growth-oriented organisms who adjust to the environment (Leont’ev, 1981; Deci & Ryan, 2000), and offer a more dialectical approach to explain the notion of needs (Vygotsky, 1978; Deci, 2004) by rejecting the notion of the existence of need for certain objects a priori (Leont’ev, 1978; Deci, 2004).

The proposed framework, with its distinction and attributed importance to essentially two contrasting forms of social relations, can also avoid the pitfalls of relativism and sociological reductionism that can be found in relevant works like that of Roth (1991) and von Glaserfeld (1985) who assume that the kind of knowledge that is contained in a community is merely a shared belief system. This radical constructivism perspective assumes that knowledge is simply the attainment of learning the way to accept socially shared beliefs and practices. In contrast, the acquirement of expertise is a social process of enculturation by ‘becoming a full participant in a community of practice, able to cope with the problems typical of the perspective domain in a flexible manner’ (Mandl et al., 1996, p. 402).

The present thesis, thus will explore the various relationships between the poles of the *subject-other-object* triad and explore whether the two basic triadic configurations of constraint and co-operation can indeed be identified. Beyond the description of the current state of affairs on the stance of students in relation to these variables the role of gender and socio-economic background of the students will be explored as well as the ideological position of students on alterity in relation to the triad configurations. Finally, the issue of change towards or away from specific configurations will be explored.

## Chapter 4: Methods

In chapter 3 a socio-culturally situated and social constructivist model of cognitive and psycho-social development was proposed that attempts to offer a holistic model spanning all four levels of analysis as proposed by Doise (1986). One of the major problems of this field as reviewed in chapter 1 has to do with the absence of a valid and reliable questionnaire that measures the various aspects of students cognitive and psycho-social development. Furthermore, there is a lack of research that explores the process of change itself through quantitative methods. This thesis attempts to redress these problems first, through the construction of such a questionnaire in the Greek language and second the design of a longitudinal study. Longitudinal studies provide a wealth of information that could not be obtained readily with other types of research designs, but are often expensive, difficult to conduct, and often face the problem of large percentages of drop outs. There are many problems in conducting a longitudinal study, most of which revolve around the long-term commitment required. Longitudinal analysis also requires more complex statistical analyses, like that of cross-lagged correlations but the benefit of such more complicated analysis is that more confidence can be obtained in regards to the directionality of relationships between the variables compared to cross-sectional designs. However, to the limitations of the period available to collect data for the PhD only a two way longitudinal design was feasible with a time lag of 1 year.

The five research questions that this thesis attempted to answer were: a) Offer a description of the profile of Greek Cypriot undergraduate students, b) Explore possible differences in terms of gender, socioeconomic status (SES) and year of studies on the variables measuring aspects of the psychosocial and cognitive development of students across their academic studies and c) Explore longitudinal changes in a period of 1 year shift on the variables measuring aspects of the psychosocial and cognitive development of students, d) Identify patterns of interrelationship between the variables e) Explore the empirical support for constructing a social constructivist model of the role of the quality of social relationships for learning and cognitive development that gives social relationships a causal role in both the cognitive and psycho-social development of the students.

In order to answer the research questions, a questionnaire was designed. Measures of the study of psychosocial development are based on the theoretical framework of Perry's Scheme (1998), Piaget's psychological theory (Piaget 1932; Piaget 1977/1995), Chickering and Reisser's vectors of identity (1993). Questions were created based on the theories used

in this thesis on the relevant subjects of the two areas of development to be examined and were pilot tested twice for comprehension and reliability before their use in the final version of the questionnaire. Furthermore, questions were adapted from the Student Developmental Task and Development Assessment (SDTLA) (Winston, Miller & Cooper, 1999) the Self Determination Scale (SDS) (Ryan & Deci, 2000), the Revised two-factor Study Process Questionnaire (R-SPQ-2F), the Rosenberg Self Esteem Scale(SE) (Rosenberg, 1965), parts of the Comprehensive Test of Cognitive Development (CDCT) (Demetriou & Kyriakides, 2006), as well as questions used in an earlier study of Psaltis (2011) on intergroup relations between Greek Cypriots and Turkish Cypriots that tapped intergroup relations between Greek Cypriots and various other groups.

As a basis for constructing the questionnaire in Greek the Student Developmental Task and Lifestyle Assessment (SDTLA) (Winston, Miller, Coopers, 1995) was used that already covered a number of areas of concern and was one of the most widely used questionnaires in the field. According to the creators of the Student Developmental Task and Lifestyle Assessment, its purpose is to provide an assessment tool to be used with young adult college students to measure “development of life purpose, mature interpersonal relationships, and academic autonomy as well as the establishment of healthy lifestyles (Winston, Miller, Coopers, 1995, p.4)”. However, as stated by the authors of the questionnaire various of the subscales included in the 140 item questionnaire exhibit low reliability (Cultural Participation, Tolerance, and Emotional Autonomy). For this reason specific items were either developed for the purpose of this thesis or used on the basis of well established social psychological theories and research that managed to measure in reliable ways these dimensions. Additionally the lifestyle items were not used as they fell outside the scope of the present thesis.

The questionnaire observes college students of ages seventeen to twenty-four with a various number of statements examining different areas of development. The questionnaire consists of three developmental tasks; Establishing and Clarifying Purpose, which involves four subtasks (Educational Involvement, Career Planning, Lifestyle Planning, and Cultural Participation), Developing Autonomy, which also includes four subtasks (Emotional Autonomy, Interdependence, Academic Autonomy, and Instrumental Autonomy), and Developing Mature Interpersonal Relationships, with two subtasks (Peer Relationships and Tolerance). Finally, the test uses two scales (Salubrious Lifestyle and Response Bias). This current research used in a first pilot study the items of 7 subscales: Establishing and Clarifying Purpose, Educational Involvement, Career Planning, Emotional Autonomy,

Interdependence and Peer Relationships. Additionally, due to the well known problem with the Cultural Participation, Tolerance,, and Emotional Autonomy scales these aspects were enriched by some additional scales that measured very similar constructs and proved reliable in previous research.

Firstly, five selected items of The Self – Determination Scale (SDS) by Ryan and Deci were used in the questionnaire designed for this research. All ten questions of the scale were initially used in the pilot study and were tested for their reliability in the context administered. The SDS scale is designed to assess the variations of peoples’ functioning in a self-determined way. Its first subscale is concerned with the awareness of oneself whereas the second subscale is perceived choice in one’s actions. Both subscales were used in this questionnaire.

The theory behind the Self Determination scale, Self determination theory, places special emphasis on the social-contextual conditions that affect self-motivation and psychological development and identifies the three basic psychological needs; competence, autonomy, and relatedness (Ryan & Deci, 2000). A basic need, according to Ryan and Deci is an “energizing state that, if satisfied, conduces toward health and well-being but, if not satisfied, contributes to pathology and ill-being” (Ryan & Deci, 2000, p.68). The focus of the SDT is to specify the conditions that tend to support peoples’ natural activity compared to vulnerability and passivity.

Furthermore, SDT is an approach to human motivation and personality, which uses “traditional empirical methods while employing an organismic metatheory that highlights the importance of humans’ evolved inner resources for personality development and behavioral self-regulation” (Ryan & Deci, 2000, p.68). The goal is the investigation of growth tendencies and psychological needs, which affect self motivation and personality integration. SDT also examines the social environments which are antagonistic towards the three basic psychological needs. SDT identified various types of motivation with each being effective for learning, performing, personal experience, and well-being. This theory was used in this current study as its items examine motivation and personality, competence, autonomy, and relatedness; the relationships between them and with the other variables of the study might explain how and why they might contribute or affect the psychosocial development of the students. Furthermore, they might explain why and how they affect Formal operations overcoming the problem of low reliability in the SDTLA questionnaire.

The issue of Tolerance was of central importance for the thesis as it directly tapped the position of the participants in the ideological level of analysis as they relate with self-other

relationships at the collective level. For this reason as discussed below a number of variables from relevant social psychological work performed in Cyprus were used (see Psaltis, 2011). One of the major outcomes of students development as reviewed in Chapter 1 is the orientation of the students to their learning and their epistemological stance. The STDA did not cover these areas either so the *Revised two-factor Study Process Questionnaire (R-SPQ-2F)*, was used to produce a measurement for identifying the learning approaches in two domains, the surface and deep (Biggs, 2001). According to the author, surface motives include fear of failing and surface strategies include reproductive or rote learning, as well as minimalistic learning, which is the least possible effort to meet the course requirements. In addition, according to the same sources, deep approaches seek to understand and relate to other taught subjects and develop personal meaning.

Finally, the SDTA did not include any reliable measure of cognitive development. For this reason a measure of formal operational thinking was also used that directly related to the Piagetian framework presented in chapter 1 (see Demetriou & Kyriakides, 2006).

#### **4.1. The First Pilot Study**

A pilot study is a smaller version of a proposed research study, conducted to refine the methodology of the later one. It should be as similar to the proposed study as possible, using similar subjects, the same setting, and the same techniques of data collection and analysis. The first version of the questionnaire consisted of one hundred and eighty items and was administered to 106 undergraduate students at the University of Cyprus and at the Cyprus University of Technology in October, 2009. The items forty four to one hundred and thirty one were items that were not tested for reliability before, unlike the first part of the questionnaire (Demetriou & Kyriakides, 2006) , which is the cognitive abilities part. Items 44-131 were Factor analysed, analysed for Bivariate Correlation and Reliability in SPSS, version 16. The results concluded that a number of items needed to be removed due to low reliability.

A second version of the first pilot test was also produced after many scales suffered from low reliability and problems with the comprehension of various items. This second version of the questionnaire was given randomly in October 2009 to forty nine Psychology students at the University of Cyprus in Nicosia, and at the Cyprus University of Technology in Limassol to Hotel and Tourism Management, Electric Engineering, and Mechanical Engineering students, including all four years from freshman to senior year for

a first pilot study. The process of answering the questionnaire took approximately one hour.

The students' answers were analysed in SPSS 16 for Factor Analysis, Reliability, and Bivariate Correlation. Items with low Cronbach alpha were not used to create scales, thus a number of items were deleted. In regards to the scales and items that were not used, new items replaced them to form new scales or were added in low reliability scales to design the second pilot test. Furthermore, the original questionnaire was too lengthy that tired students and for this reason it had to be reduced for the purposes of this research.

#### **4.2. The Second Pilot Study**

The second Pilot Study was administered to forty five students in a Social Psychology class of the University of Cyprus in February, 2010 and consisted of 186 items. Its results were also analysed with Factor analysis and Reliability Analysis to assist in forming the third and final version of the questionnaire (see Appendix III). The questionnaire attempted to cover General Demographic Information, Cognitive and Academic Development of Deep learning skills, Psychosocial Development, and Social Identity and Tolerance and they examine various aspects that may be important to the students' development. Students answered all items on a 5 point Likert-scale ranging from 1 (absolutely disagree) to 5 (strongly agree) and include the choice of Don't Know/ Don't Answer. The questionnaire also included a number of questions in Yes or No format. Participants were asked to choose an answer stating their stance towards a statement. The questionnaire was designed to discover the degree of relationships between the variables in the above mentioned areas of interest. Through the collection of demographic information it also attempted to clarify variations on all variables between academic year, gender, socio-economic status and academic field of studies (to be treated as independent variables) and to assess the relation between intellectual and psychosocial development. The students needed about forty five minutes for its manual completion.

The questionnaires were factor analysed and their Reliability was examined. Items with high loadings on the same factor in Factor analysis were used to create scales, which were in turn tested for the level of their internal consistency. The results allowed for the vast majority of the scales to remain for use in the final questionnaire (see Appendix III ). The scales, which had to be deleted from the questionnaire were the one measuring Dogmatism ( $\alpha=0.25$ ) and Stand towards Homework ( $\alpha=0.24$ ) due to their low reliability.

The scales, which remained in the final version of the questionnaire as a result of the second pilot study were the following:

*Formal operations, Critical Stand towards Professors, Excitement Studying, No interest in deep learning, Analytic thinking, Relativism, Realism, Relativism in history, Realism in history, Constructivism in history, Liberalism, Social agency, Religiosity, Mutual respect, Egalitarianism, Quality of contact with parents, Quality of contact with fellow students, Quality of contact with professors, Quality of contact with Turkish Cypriots, Support for coexistence with Turkish Cypriots, Quantity of contact with Turkish Cypriots, Autonomy, Self esteem, Relations of constraint, Support for gender equality, Negative view of professors, Agreeability, Identification with Greek Cypriot identity, Tolerance, Commitment on future plans, Macchiavellianism, and Self determination.*

### **4.3. The Final Questionnaire**

Following the administration of the various pilot studies, the final version of the questionnaire was designed. The final questionnaire was scripted to allow for Computer-Assisted Web Interviewing (CAWI).. Due to the limited possibilities to have this service in Cyprus, the test was sent to the Nipo Software Company in the Netherlands. Because of language barriers, since questionnaire was written in Greek and the company's main language is Danish, the questionnaire was translated in English to assist the engineers in understanding the form of the questions and the layout of the web page design (see Appendix IV). The questionnaire was later scripted and located on the link <http://194.42.8.237:8080/OdinServlet/Interview?SurveyID=10695FC1FF&Language=Greek>.

This thesis is a longitudinal study and the questionnaire was answered by the same participants twice for comparison of the results. The students, who answered the first questionnaire in May, 2010 were emailed the same questionnaire in September, 2011. The link was emailed to all undergraduate students of the University of Cyprus in late May, to all undergraduate students of the Cyprus University of Technology, and those of the Nicosia University after permission was granted from the universities' authorities. The rest of the universities did not reply to the request for permission. Furthermore, to ensure a large sample of participants of all academic years and majors and from more universities, the link was advertised in a social network website. To ensure that the participants only participated one time per research year and for matching purposes, the questionnaire asked for the digits of their date of birth, as well as for their last four digits of their telephone number. The link was resent to all the participants in September, 2011.

### **4.4. Statistics of students at the University of Cyprus and the Cyprus University of Technology**

There were 4691 undergraduate students enrolled at the University of Cyprus in the academic year of 2010-2011. Of these students, 70.8% were female students, whereas 29.2% were males. Moreover, 27.4% were freshmen, 24.6% were sophomores, 21.7% were juniors, and 26.2% were seniors. Of these students 8.6% studied Humanities, 18.8% studied Pure and Applied Sciences, 23% were enrolled in Social sciences and Education majors, 22.3% studied Economics and Management, 16.1% were enrolled in Polytechnic majors, and 11.5% studied Philosophy majors. There were two thousand and nine hundred and eighty four

undergraduate students at the Cyprus University of Technology in the academic year of 2010-2011. Females accounted for the 68% of the undergraduate students and males for the 32% .The freshmen were the 23.94% of the students, 25.4% were sophomore students, 24.44% were junior students, and finally 25.7% were senior students. 13.26% of the undergraduate students studied Pure and Applied sciences,13.61% studied Economics, Management, and Shipping, 14.01% studied Applied arts and Communication, 24.80% studied Polytechnic majors, and 33.77% studied Health Sciences majors.

#### 4.5. Participants of First Wave Research

There were four hundred and thirty two ( $N=432$ ) volunteer participants from Greek Cypriot universities who answered the online questionnaire of the first wave of the research in the Spring semester of 2010. The proportion of males was 20% ( $N=122$ ) and for females 72% ( $N=310$ ), which is representative of the gender split in Cyprus universities. The participants were informed that a second wave research would take place in approximately one year, where they would have to answer the same questionnaire for the second time. They were also informed that should they answer both questionnaires of the two waves, they would be entering a draft to win a laptop computer. A 30.8% of the participants were Freshmen, 24.3% were Sophomores, 22.7% were Juniors, and 22.2% Seniors. Furthermore, 4.60% of the participants studied Humanities, 4.6% Pure and Applied Sciences, 23.8% were students of the Social sciences and Education fields, 21.8% studied in the field of Economics, Management, and Shipping, 28.2% studied in the fields of Engineering, 4.2% studied letters, 1.6% studied in the area of Geotechnical and Environmental studies, 5.8% studied a major of the Health Sciences, 4.2% studied Applied arts and Communication, and 1.2% studied to receive a practical diploma.

**Table 4.5.1**  
Descriptives of participants per academic year

Academic Year	N	Percentage
Freshman	133	30.8%
Sophomore	105	24.3%
Junior	98	22.7%
Senior	96	22.2%

$N=432$

**Table 4.5.2**

Descriptives of participants per major of study

Major	N	Percentage
Humanities	20	4.60%
Pure & applied sciences	20	4.60%
Social sciences & Education	103	23.80%
Economics / Management/ shipping	94	21.80%
Engineering	122	28.20%
Letters	18	4.20%
Geotechnical/Environmental	7	1.60%
Health Sciences	25	5.80%
Applied arts and Communication	18	4.20%
Practical Diplomas	5	1.20%

N=432

#### 4.6. Participants of Second Wave Research

The second wave online questionnaire was answered by 201 students in the Fall semester of 2011 after one year and a half of the administration of the first wave of the research questionnaire. These participants had already answered the questionnaire of the first wave research. The proportion of males was 28% and for females was 72%.

Participants of wave 1 were sent an email invitation with a link to the second questionnaire. The percentage of 11.5% of the participants were Freshmen, 24.4% were Sophomores, 29.4% were Juniors, and 34.4% were Seniors. Furthermore, 4.5 % of the participants studied Humanities, 5.47% Pure and Applied Sciences, 25.4% were students of the Social sciences and Education fields, 18.4% studied in the field of Economics, Management, and Shipping, 29.4% studied in the fields of Engineering, 7.4% studied Letters, 1% studied in the area of Geotechnical and Environmental studies, 5% studied a major of the Health Sciences, 3% studied Applied arts and Communication, and 0.5% studied to receive a practical diploma.

**Table 4.6.1**

Second wave descriptive of participants per academic year

Academic Year	N	Percentage
Freshman	24	11.50%
Sophomore	49	24.40%
Junior	59	29.40%
Senior	69	34.40%

N=201

**Table 4.6.2**

Second wave participant descriptives per major

Major	N	Percentage
Humanities	9	4.50%
Pure & applied sciences	11	5.47%
Social sciences & Education	51	25.40%
Economics / Management/ shipping	37	18.40%
Engineering	59	29.40%
Letters	15	7.40%
Geotechnical/Environmental	2	1.00%
Health Sciences	10	5.00%
Applied arts and Communication	6	3.00%
Practical Diplomas	1	0.50%

N=201

#### 4.7. Demographics

Of the participants 65.7% were students of the University of Cyprus, 15.7% of the Cyprus University of Technology, 7.4% studied at Frederick University, 7.4% at Nicosia University, and 3.7% at the European University Cyprus. Their parents' education ranged from elementary to graduate school with the fathers' educational level to be 14.4% elementary school graduates, 13.9% to have graduated from junior high school (gymnasium), 43.3% to be senior high school graduates, 23.1% to have a Bachelor's degree, 4.2% to hold a Master's degree and 1.2% to have a Ph.D. Regarding their mothers' education, 12% were elementary school graduates, 11.8% graduated from junior high school, the vast majority, 51.4%, were senior high school graduates, 22.5% held a Bachelor's degree, and 2.3% a Master's degree.

The financial status of the participants' families was average for the most part with 5.6% reporting to come from households with poor economic status and 62.5% to have average economic status. The percentage of students characterized by very good economic situation was 28.2%, whereas only 3.7% have a very high level of economic status. Almost the whole group of participants, 96.8%, were single, which shows that Cypriot students at Cypriot universities are getting married at a later stage of their lives and probably after graduation. Only 3.2% of the participants were married.

Another issue that is notable is that more than half of the participants, 53.2%, still lived with their parents and not alone or with roommates as seen in most of the western countries. This might be due to financial reasons or to controlling and old fashioned parents, or to the

students' preference to remain at the security and warmth of his or her home. The second highest percentage of 24.3% of the students reported living alone, 17.6% living with a roommate, 4.6% living alone at the university halls, and only 0.2% reported living with a roommate at university halls.

Almost the whole sample of the participants, 97% is Orthodox Christian. A very small percentage of only 2.1% reports to be Atheist, and only 0.9% reports to believe in another form of religion. This is notable since Cyprus holds one of the lower levels of atheism in the world. More than half of the students, 52.8%, study one to two hours per day, whereas 25.7% study three to four hours per day. Hard working students, the ones who study for four and a half hours or more every day were the 14.1% of the sample. A 7.4% of the students reported that do not study at all. The great point average at the time of the research was excellent (9-10/10) for 10.5% of the students, very good (8-8.9/10) for 25.1% of the participants, good (7-7.9) for 28.2%, average (5.6-6.9) for 24.1%, poor (5-5.5) for 6.7%, and very poor (below 5) for 5.4% of the participants in this research.

#### **4.8. Materials**

The material used was the questionnaire designed for this thesis through the long and laborious process described earlier. The Questionnaire is a Likert-scale survey with responses from 1(Absolutely Disagree) to 5 (Completely Agree or Completely Satisfied) and includes the choice of Don't Know/ Don't Answer, Yes or No answers, and items in which the participants were asked to choose an answer stating their position towards a statement.

#### **4.9. Measures**

The first part, General Demographic Information, consists of nineteen items of general information to be provided by the student. The items were then be coded as Gender (1=Male, 2=Female), Year (1=Freshman-4= Senior), University (1= UCY, 2= CUT, 3= OUC, 4= Frederick, 5= University of Nicosia, 6= European University), Country (1=Cyprus, 2=Greece, 3=Other), and Parents' Education divided into Part A (Father's Education) and to Part B (Mother's Education) and ranked to six degrees (1= Elementary Education – 6= Doctoral Education). Further items are Family Economic Status (1= Bad – 4= Very Good), Marital Status (1= Single, 2=Married), Housing Status (1=With Parents, 2= With Roommate, 3= Alone, 4= Single Room on University Campus, 5= With Roommate on University Campus), Religion (1= Christian, 2= Other), Area of Study (1=Humanities, 2=Pure and Applied

Sciences, 3=Social and Education Sciences, 4=Economics and Management, 5=Engineering, 6=Letters, 7=Geotechnical/Environmental, 8=Health Sciences, 9=Applied arts and Communication, 10=Practical Diploma), Distance from Home (1= 0-20km, 2=21-50km, 3=50-100km, 4=100km+), grades of high school leaving certificate, past and current great average cumulative (GPA), and hours spent on studying and exam preference. This part also explored present and past academic grades. Not all variables from this section were analyzed in further analysis as they did not directly relate to the research questions of the study (for example distance from home, preference for type of examination, hours of study) but they were entered as informative for use by counselors in case the questionnaire would be adopted for practical evaluation of students development in the future.

#### **4.10. The Scales in detail**

##### *Formal operations*

In the second part of the questionnaire the scale of *Formal operations* consists of ten items. They include figural formations (Raven-like matrices), verbal analogies, algebraic reasoning, causal relations, hypothesis testing, interpretation of evidence, mental rotation image manipulation, and propositional reasoning. The items were derived from the *The comprehensive test of cognitive development* developed and applied in the study of students of secondary education in Greek Cypriot schools by Demetriou and Kyriakides in 2006. The comprehensive test of cognitive development (CTCD) was designed to identify “the functional and developmental status of an individual in regard to all of the processes and abilities involved in each of the three levels of the mind, as mentioned in their theory of the architecture and development of the human mind”. The students were asked to solve the problems and their answers were coded accordingly. They were given points according to whether their chosen answer was correct (3), very close to the correct answer (2), close to the correct answer (1), or totally wrong (0).

The reason this scale was used was to examine the possible developmental change of the students’ *Formal operational thinking* longitudinally during the lapse of one year (16 months to be precise). It was also measured in order to test possible differences in the Formal operational level of students of different academic years and majors, as well as the possible correlations of this scale with other self scales at various levels of analysis. In other words it was used with the intention for it to be used as the main variable capturing the cognitive developmental level of the students. *Formal operations* in turn is probably the most

documented variable as predictor of cognitive performance (Busato, Prins, Elshout & Hamaker, 2000). Intellectual abilities, it is also often claimed, provide the cognitive background for the formation of interests, preferences, attitudes, and orientations to different types of activities that differentiate between personalities (Demetriou & Kazi, 2001).

In a third part of the questionnaire measuring Psychosocial Development consists of 150 questions. This part observes the students' view on a number of societal issues, gender issues, his or her place in society, engagement with various social activities, like blood donation, volunteer work, community functions, social relations, social recognition, and respect for others and for diversity. It furthermore consists of items observing the students' view on the way they perceive the taught courses, their outlook on their professors' abilities and way of teaching, quality of relationships with other people, their national identity and the views about coexistence with Turkish Cypriots and level of prejudice towards Turkish Cypriots, Turks and Immigrants so as to tap the construct of Tolerance.

In particular the scales used in the third and final part were:

### **Psychosocial Measures**

A first set of variables aimed at capturing aspects of the orientation of the psychological subject towards the object of knowledge. This subject-object orientation could be captured by various orientations and motivation towards learning and epistemological stances as well as the knowledge proposed by the professors during classes.

#### *Excitement about studying*

The scale *Excitement about studying* examined the motivation and behavior of the students towards studying in fulfilment of their academic responsibilities. Excitement about studying was assessed using five items. Participants were asked to what extent they agree (ranging from totally agree to totally disagree) with these five items. The items enquired whether they sometimes find that studying gives a deep sensation of personal satisfaction, if they feel that almost every subject is very interesting when they pay attention to it, if they find that most new subjects are extremely interesting and usually spend extra time trying to find more information about them, if they find that studying of some academic subjects can be as exciting as a good book or a movie, and if they examine themselves in important subjects until they understand them completely. The Cronbach alpha of the first wave

was .75 and of the second wave .82. This measure was first used by Biggs (2001) and all the items were derived by the Revised two factor study process questionnaire (R-SPQ-2F).

#### *No interest in Deep learning*

This scale examined the students' absence of interest in deep learning and what is more, the reasons that university students might exhibit diminished interest in learning. *No interest in deep learning* was assessed with seven items with responses ranging from totally agree to totally disagree. Participants were asked if they learn some things by rote learning, doing a lot of repetitions until they learn them by heart even if they don't understand them; if they find that they manage most exams by memorizing important parts than trying to understand them; if they generally study only what is clearly important since they believe that it is not necessary to do something more; if they find that it is not helpful to study subjects in depth; whether studying is confusing and waste of time since all that is needed is to pass classes and know the subjects; whether they believed that the professors should not expect the students to spend an important amount of time on subjects everyone knows will not be examined and whether they see the reason to learn material that will not be examined. The Cronbach alpha for the first wave was .71 and for the second wave .79. This measure was first used by Biggs (2001) and all of the items were also derived by the Revised two factor study process questionnaire (R-SPQ-2F).

#### *Self reported use of Analytic thinking*

This scale examined the self perception of the students regarding having analytical skills and the level that the students may be able to separate a whole into parts to be able to study the parts and their relations and if they solve problems scientifically. *Analytic thinking* was assessed with four items. The participants were asked if they had analytic thought, if they try to improve their logical thought, if they are able to solve problems, and if they can search for evidence to solve problems. The Cronbach alpha for the first wave was .76 and for the second wave .75. The items of this scale were devised for refinement and influenced by Perry (1998) and Astin (1993).

#### *Realism*

From the perspective of Perry's theoretical framework it was important to explore the epistemological stance of the students. The dualistic and less developed perspective according to Perry is a form of a realist epistemological stance of a belief in absolute truth. *Realism* was assessed with two items. The participants were asked if they agreed with the statement "Since the truth is not obvious to all, some people have correct views and others

have wrong thoughts” and if they agreed that “in some areas the truth is not obvious from the beginning, even for the professors, but the correct information will clear things some day”. There was no Cronbach’s alpha since Reliability analysis could not be run with only two items. The Pearson’s  $r$  was .37,  $p < .0001$  for the first wave and .39 for the second wave,  $p < .0001$ . The items were influenced by literature of Perry, (1998) and by literature of King and Kitchener (1994) and were refined for the purposes of this thesis.

### *Relativism*

When students advance to the stance of *relativism*, they believe that everyone is entitled to their own opinion and that everything, even their professors’ knowledge and thoughts are relative. Theories to them are metaphors for interpreting experience and evaluate knowledge. *Relativism* was assessed with three items examining whether the participants believed that all views are valid and that knowledge depends on which angle you look at the issue from, if the truth relative and whether the truth of one individual equals the lie of another and if all views are of the same value because each perspective has its own truth. The Cronbach’s alpha for the first wave was .64 and for the second wave .69. The items were influenced by literature of Perry, (1998) and King and Kitchener (1994) and were refined from the work of the last authors the purposes of this thesis.

A general scale of constructivism that would reflect the more advanced position from Perry framework was attempted to be created but this was not possible. However a full set of the three epistemological positions from realism to constructivism through relativism was achieved in the specific field of historical knowledge. This specific field of knowledge was selected as it was expected to tap on the sensitivities of some of the students in relation to the ideological struggle with the other community (Turkish Cypriots) since previous research suggested that these positions are related to the ideological orientation of adults (see Psaltis, Lytra, and Costache, 2011). This content specific measurement would allow for an examination of discrepancies between the general epistemological stance and the context specific one of historical knowledge thus exposing lack of integrity of thinking, possibly due to embedding in an ethnic collectivity.

### *Relativism in history*

*Relativism in history* was assessed with two items. The participants were asked if the historic truth is in fact an issue of interpretation and if they agree that it is not possible to support that a specific interpretation of history is more valid than another since they are

always subjective. There was no Cronbach alpha since Reliability analysis could not be run with only two items and the Pearson's  $r$  was .31,  $p < .0001$  for the first wave and  $r = .44$ ,  $p < .0001$  for the second wave. The items of this scale were derived by Maggioni and Parkinson (2008) and Psaltis, Lytra, and Costache (2011).

#### *Realism in History*

*Realism in history* was assessed with two items: "In history facts talk for themselves and need no interpretation" and if the "historic truth is given and we can always discover it". Since the items were only two, they were analysed for their correlation. The Pearson's  $r$  was .48,  $p < .0001$  for the first wave and  $r = .55$ ,  $p < .0001$  for the second wave. The items of this scale were derived by Maggioni and Parkinson (2008) and Psaltis, Lytra, and Costache (2011).

#### *Constructivism in history*

*Constructivism in history* was assessed with four items. The participants were asked if the discovery of the truth needs to succeed the discussion of conflicting interpretations; if when they study historic texts, it is important to ask questions about the credibility of the writer's arguments; if it is possible for one interpretation to be more valid in relation to another; if the historic knowledge is open to review as it is subject to new discoveries and new elements. The Cronbach's alpha for the first wave was .64 for the first wave and .70 for the second wave. The items of this scale were derived by Maggioni and Parkinson (2008) and Psaltis, Lytra, and Costache (2011).

#### *Critical Stand towards Professors*

*Critical stand towards professors* examines the stand the students have towards their professors. This scale was assessed with five items. Participants were asked: if they evaluate and contemplate what they hear from their professors before they accept something; whether University professors know everything (reverse coded); if they usually disagree with the professor's view; if they view and compare something from their point of view and sometimes doubt it when they study something; if they usually tend to doubt what they hear from their professors in the courses they attend (from totally agree to totally disagree). The Cronbach's alpha for the four items was .53 for the first wave and 0.57 for the second wave study. The items of this scale were influenced by the SDTLA questionnaire and in turn premised on Perry (1998), Belenky, Clinchy, Goldberger and Tarule (1986), and Baxter-Magolda (1992).

### *Negative view of Professors*

This scale studied the negative view that the students might have towards their professors and was assessed with three items: if Professors usually act as if they are too smart, if most university professors try to prove how much more than me they know, and if professors seem to make courses more difficult than they should. The Cronbach alpha for the first wave was .78 and for the second wave .83. These items were developed by the influence of the literature by Evans, Forney, and Guido – DiBrito (1998).

A second set of variables directly referred to variables from Doise's (1986) fourth level of analysis of social representations and ideology. However, this set of variables were selected to directly tap not only a liberal or conservative orientation but additionally the quality of orientation towards otherness, which in the case of Cyprus directly implicated inter-communal relations with Turkish Cypriots and Turks as measured by prejudice and support for co-existence as well as identification with the communal identity of being proud of being a Greek Cypriot.

### *Liberalism*

*Liberalism* examines the level of open mindedness of the students towards a number of social issues and was assessed with three items: if the participants agree that if two people really like one another, it is acceptable to proceed to sexual intercourse irrespective of how well they know each other; if Marijuana should be legalized; if abortion needs to be legalized. The Cronbach's alpha was .62 for the first wave and .63 for the second wave. Items for this scale were influenced by Astin (1993) and devised for refinement.

### *Support for gender equality*

This scale examined the view the students have towards the equality between the two genders. It was assessed with four items. Participants were asked if they agreed that men are equally smart to women, if men and women are equal, If they supported the equality of men and women, and if they agreed with the item that woman's activities should be limited at home (reverse coded). The Cronbach's alpha for the first wave is .73 and for the second .72. Items for this scale were taken by Astin (1993) and influenced by his literature and devised for this research.

### *Social agency*

*Social agency* examined the students' belief in a progressive orientation and specifically their ability to influence societal change through their activities. This scale was assessed with three items. The participants were asked if with their involvement they influence community issues and if they influence the development of new social values; if through their activities they can contribute to the change of society and if they can influence with their activity the local political structure. The Cronbach's alpha for the first wave was .80 and for the second wave was .83. Items for this scale were influenced by Astin (1993) and adapted to the purposes of this study.

### *Religiosity*

*Religiosity* measured the levels of religiosity and attendance to religious activities and was assessed with three items. The participants were asked if religion is an important aspect of their lives, if they believed in God and if they go to church often. The Cronbach's alpha for the first wave was .86 and for the second .85. The items of this scale were influenced by Astin again (1993).

### *Egalitarianism*

*Egalitarianism* was one of the variables derived from social psychological theories measuring intergroup relations. It was selected as it directly tapped support or disapproval of symmetrical and equal relationships between the groups in society. It was assessed with five items. Participants were asked if they agree with the statement that they need to do anything possible to strengthen their community even if it meant the oppression of the weak groups (reversed coded); if the lower groups should remain at their position (reverse coded); if social equality has to be promoted; and the item "we overdid it with the support of social equality in this country" (reverse coded); and "winning is more important than playing the game" (reverse coded). The Cronbach alpha for the first wave was .73 and for the second wave .69. The items of this scale were based on the egalitarianism subscale of Social Dominance Orientation (SDO) by Sidanius and Pratto (2001).

### *Identification with Greek Cypriot identity*

*Identification with Greek Cypriot Identity* was assessed with three items examining if the participants were generally happy to be Greek Cypriots, with the recoded item if they usually

wish they were not Greek Cypriot and if they are proud to be Greek Cypriot. The Cronbach's alpha for the first wave was .80 and for the second wave .86. The items for this scale were taken by Lufthanen and Crocker (1992).

### *Tolerance*

*Tolerance* was assessed with three items. Participants were asked how they generally feel (cold/negative to warm/positive) towards Turkish Cypriots, how they generally feel towards Turks, and how they generally feel towards foreign workers. The Cronbach's alpha for the first wave was .72 and for the second wave .77. This thermometer type scale was adapted from Converse and Presser (1986) and it is probably the most widely used measure of Prejudice in social psychology.

### *Support for coexistence with Turkish Cypriots*

This measure was assessed with three items. Participants were asked if they would like a solution of the Cyprus problem where all (Greek Cypriots and Turkish Cypriots) will coexist peacefully, if the peaceful coexistence between Greek Cypriots and Turkish Cypriots is feasible, and if they could have members of the Turkish Cypriot community for neighbours. The Cronbach alpha for the first wave was .89 and for the second wave .93. Items for this scale were taken by Psaltis (2011).

Another set of variables explored the quality of social relationships of the participant with various others tapping both the intergroup level of analysis and the interpersonal level of analysis proposed by Doise (1986). Two variables attempted the measurement of adherence to relations of constraint and relations of mutual respect directly inspired from the original Piagetian framework of Piaget (1932) and his distinction of social relations of constraint and relations of co-operation that are premised on mutual respect.

### *Relations of Mutual respect*

*Mutual respect* was assessed with five items: if participants view their parents as adult to adult; if they view their peers as equal to them; if they respect others' autonomy; if they accept and appreciate the changes among people; if they try to understand the different ways of thinking. The Cronbach's alpha for the first wave was .74 and for the second wave .79. These items were based on the Piagetian idea of relations of cooperation (1932) and by Chickering and Reisser (1993). They were devised by the researcher for the purposes of this

thesis since they previously used measures failed to tap on the status symmetry or asymmetry of social relationships had by students.

#### *Relations of constraint*

In constraint relations, there is a de facto power and coercion, where authority figures enforce social agreement and inequality which is expected to hinder the development of equilibrated thinking. *Relations of constraint* was assessed with two items examining if the participants agreed with the statements “Only the non-critical acceptance of the views of the professors can lead to the student’s true learning” and “the more a professor behaves as an authority, the more his/her students learn”. A Pearson’s  $r$  was between the two items was .40,  $p < .0001$  for the first wave and  $r = .37$ ,  $p < .0001$  for the second. These items were influenced by Piaget (1932) and were devised by this researcher and used here for the first time.

#### *Quality of contact with parents*

Quality of contact with parents was assessed with the question how the participants found the contact when they met their parents. The question was used as seven separate items and the participants had to state if they found it to be pleasant, superficial (recoded), cooperative, positive, based on mutual respect, whether they felt superior (recoded), and whether they felt underestimated (recoded). The Cronbach alpha was .86 for the first wave and .86 for the second wave. Items for this scale were influenced and devised for this thesis by Psaltis (2011) that were in turn influenced by Islam & Hewstone’s (1993) studies on contact hypothesis. The same format of questioning was then applied to measuring the quality of contact with fellow students, professors in the university and Turkish Cypriots.

#### *Quality of contact with fellow students*

The measure *Quality of contact with fellow students* was assessed with the question how the participants found the contact when they met their fellow students. The question was used as seven separate items and the participants had to state if they found it to be pleasant, superficial (recoded), cooperative, positive, based on mutual respect, whether they felt superior (recoded), and whether they felt underestimated (recoded). The Cronbach alpha was .83 for the first wave and .85 for the second wave.

### *Quality of contact with professors*

The measure *Quality of contact with professors* was assessed with the question how the participants found the contact when they met their professors. The question was used as seven separate items and the participants had to state if they found it to be pleasant, superficial (recoded), cooperative, positive, based on mutual respect, whether they felt superior (recoded), and whether they felt underestimated (recoded). The Cronbach alpha was .80 for the first wave and .83 for the second wave.

### *Quality of contact with Turkish Cypriots*

The measure *Quality of contact with Turkish Cypriots* was assessed with the question how the participants found the contact when they met their professors. The question was used as seven separate items and the participants had to state if they found it to be pleasant, superficial (recoded), cooperative, positive, based on mutual respect, whether they felt superior (recoded), and whether they felt underestimated (recoded). The Cronbach alpha was .82 for the first wave and .86 for the second wave.

### *Quantity of contact with Turkish Cypriots*

This measure was used given the specific interest for the outgroup of Turkish Cypriots and further exploration of the contact hypothesis discussed in the previous chapter as a prime process for the reduction of prejudice and this promotion of a tolerant attitude. It was assessed with three items. Participants were asked how many times have you visited the occupied part of Cyprus, how many people of the Turkish Cypriot community they have met, and with how many members of the Turkish Cypriot community they have become friends. The Cronbach alpha for the first wave was .59 and .65 for the second wave. Items for this scale were taken by Psaltis (2011).

Finally, a final set of scales aimed at capturing self-related traits and characteristics at the intrapersonal level of Doise's (1986) analysis. All of them entailed an element of self-reflection and evaluation of the self for its abilities, clarity of planning and commitment for the future and self-determination as well as dimensions of personality that recently attempted to capture a moral aspect of evaluation of the self which is very important for the present thesis.

### *Autonomy*

This measure was assessed with three items: if students personally believe that something is right, they do not get influenced by their friends' point of view which might differ from theirs; they are difficultly influenced by the views of others; and if they have an internal feeling of guidance which keeps them on track, even when they are being judged. The Cronbach alpha for the first wave was .73 and for the second .77. The items of this scale were derived from the Student Developmental Task and Development Assessment (SDTLA) and after various changes through pilot testing achieved a good level of internal consistency (Winston, Miller & Cooper, 1999).

### *Self esteem*

*Self esteem* was assessed with five items: if the participants in general had the tendency to feel like a failure, if they felt that they did not have many things to be proud of, if they wished they had more respect for themselves, if they feel worthless sometimes, and if, sometimes, they feel like they are not good at all. The Cronbach alpha for wave one was .83 and for wave two .88. The items for this scale were derived from the well established Rosenberg Self Esteem Scale(SE) (Rosenberg, 1965). Self-esteem refers to the sense of a person's value or worth, or the extent to which a person values, approves of, appreciates, prizes, or likes the self (Blascovich & Tomaka, 1991). Rosenberg (1965), whose scale influenced the questionnaire's items stated that self esteem is a favorable or unfavorable attitude toward the self.

### *Agreeableness*

*Agreeableness* is one of the big-five dimensions of one of the more widely held personality theories. It taps on a dimension of cooperativeness in interpersonal behavior and represents the characteristic quality of interaction "along a continuum from compassion to antagonism" (Costa & McCrae, 1985, p. 2). *Agreeableness* was found to influence the self-image and helps to shape social attitudes and philosophy of life. *Agreeableness* was assessed with four items. Participants were asked if they are social as persons, if they like having many people around them, if they have many friends, and with the recoded item if they are a lonely person and prefer to be alone. The Cronbach alpha for the first wave was .83 and for the second wave .81. Items for this measure were derived by the Big Five Factor theory by McCrae and Costa (1987).

### *Macchiavellianism*

*Macchiavellianism* is a personality characteristic that to some extent is expected to be negatively correlated with the personality characteristic of agreeableness as it represents an antagonistic and manipulative interpersonal orientation towards others and it was assessed with twelve items: if the students tried to be kind to everyone they meet (reverse coded); if they usually fight with their family and colleagues; if they believe that some people think that they selfish and coquettish; if they prefer to cooperate with others than be antagonistic (reverse coded); if they tend to be cynic and sceptic towards others' intentions; if they believe that most people will take advantage of them if they let them; if most of the people they meet like them (reverse coded); if they think that some people are cold and reckoners; if they are stubborn and obstinate about their beliefs; if they generally try to be careful and discreet (reverse coded); if they show other people that they don't like them and if they would be willing to manipulate people to get what they want. The Cronbach alpha for the first wave was .64 and for the second wave .70. The items of *Macchiavellianism* used in this thesis were taken by the *Macchiavellianism* scale by Christie and Geis (1970).

### *Commitment on future plans*

*Commitment on future plans* was assessed with five items: if in the present time they deal with one or more activities which they find helpful for deciding on what they will do with the rest of their lives; if they have an internal guidance regarding their professional direction which guides them through their choices; if when they think of the kind of life that they wish to have in the next five years, they have a clear picture; if their plans for the future are in line with their personal values; if they develop targeted cognitive skills and personal habits which will confirm that they will continue to learn after the completion of their formal education. The Cronbach alpha for the first wave was .78 and for the second wave .73. The items were taken from the Student Developmental Task and Lifestyle Assessment (SDTLA) by Winston, Miller and Cooper (1999).

### *No Self determination*

The Self-Determination Scale (SDS) examines individual differences in the extent to which people tend to function in a self-determined way. The scale *No Self determination* was assessed with five items. Participants were asked if they always do what they choose or if they sometimes feel like they are not the one who chooses; if they choose what they need to

do or if they do what they need to do, but I do not feel like it is really their choice; if they do what they do because they like it or if they do what they do because they have to; if they are free to do whatever they have to or if they usually do things that they did not choose to do; if they feel free enough to do whatever they choose or if they usually do the things they do not choose to do. The Cronbach alpha for the first wave was .83 and for the second wave .87. The items of this scale were derived by the Self Determination Scale (SDS) (Ryan & Deci, 2000).

Two scales with a total of six items were not used in the analyses of the results chapter due to low reliability. The scale *Work the least possible* while studying at the university asked the participants if their goal was to pass their classes with as little work as possible, if they study seriously only what is mentioned in the class or the syllabus, and if they don't find their studies interesting and therefore they work the least possible. The Cronbach alpha for the first wave was .57 and for the second wave .53. The other scale that was deleted was *Problem solving abilities* asking the participants if they believed that the best thing about science courses was that most problems have only one answer, if they believed that working on problems that do not have the possibility to be solved with one clear answer was a waste of time and if they agreed that for most questions there is only one answer, given that person can gather all the facts. The Cronbach alpha for the first wave was .58 and for the second it was .69. Two further variables were not used in the analyses as they were originally included not for answering any of the research questions but again as an extra source of information on the student's participation in various specific volunteering groups or the Erasmus programme, to be used in the case this questionnaire is eventually adopted by student counsellors in universities of Cyprus.

## Chapter 5: The Results

In this chapter I present the data analytic strategy I followed to answer my main research questions and the relevant findings. The five research questions that this thesis attempted to answer were: a) Offer a description of the profile of Greek Cypriot undergraduate students, b) Explore possible differences in terms of gender, socioeconomic status (SES) and year of studies on the variables measuring aspects of the psychosocial and cognitive development of students across their academic studies and c) Explore longitudinal changes in a period of 1 year shift on the variables measuring aspects of the psychosocial and cognitive development of students, d) Identify patterns of interrelationship between the variables e) Specifically explore a social constructivist account of the role of the quality of social relationships for learning and cognitive development.

### 5.1. The profile of Greek Cypriot University students' views

In order to answer the first research question descriptive statistics of all the variables were produced for both waves which can be found in Table 5.1 below. Since means often do not convey the variability of the views expressed by the participants I also offer a more detailed description for each scale based on frequency distributions after the Table 5.1 below.

**Table 5.1**  
Descriptive statistics of Scales Wave 1 and Wave 2

Scales	Wave 1		Wave 2	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
1 Formal operations	1,86	0,40	1,93	0,41
2 Excitement about studying	3,07	0,78	3,16	0,80
3 No interest in deep learning	2,20	0,71	2,20	0,78
4 Relativism	3,58	0,82	3,60	0,83
5 Realism	3,67	0,62	3,60	0,59
6 Relativism in history	3,38	0,73	3,27	0,78
7 Realism in History	2,75	0,90	2,56	0,89
8 Constructivism in History	3,96	0,55	4,00	0,54
9 Analytic thinking	3,98	0,57	3,98	0,53
10 Autonomy	3,57	0,77	3,51	0,80
11 Self Esteem	3,49	0,90	3,40	0,96
12 Agreeableness	3,87	0,82	3,73	0,77
13 Identification with Greek Cypriot identity	4,11	0,78	3,98	0,82
14 Commitment on future plans	2,78	0,73	2,67	0,70
15 No Self determination	1,31	0,70	1,37	0,81
16 Critical stand towards the professors	3,53	0,49	3,54	0,47
17 Mutual respect	4,28	0,53	4,30	0,50
18 Quality of contact with parents	4,11	0,76	4,21	0,70
19 Quality of contact with fellow students	3,91	0,70	3,83	0,73
20 Quality of contact with professors	3,62	0,70	3,53	0,71
21 Quality of contact with Turkish Cypriots	3,00	0,84	3,06	0,88
22 Quantity of contact with Turkish Cypriots	1,76	0,74	1,81	0,78
23 Negative view towards professors	3,33	0,86	3,28	0,88
24 Tolerance	4,03	1,69	4,11	1,62
25 Macchiavellianism	2,20	0,54	2,13	0,48
26 Liberalism	2,17	0,90	2,25	0,96
27 Social agency	3,28	0,80	3,22	0,83
28 Religiosity	3,66	1,00	3,54	1,00
29 Egalitarianism	3,95	0,73	4,03	0,67
30 Support for coexistence with Turkish Cypriots	3,18	1,15	3,40	1,18
31 Relations of constraint	2,41	1,00	2,20	0,90
32 Support for gender equality	4,20	0,65	4,27	0,63

### *Evaluation of performance on formal operational tasks*

The scale *Formal operations* had a mean of 1.86 on a scale from 1-3 which suggests that most of the students performed moderately in solving formal operational tasks. But more detailed examination revealed that the items of the scale were of varying difficulty for the students. For example, on the first item of the scale, the paperfold problem (spatial rotation), the participants were asked to imagine how the shape of a folded piece of paper will emerge if it is first folded in a particular way shown by an arrow. The majority of the participants, 62.3%, answered the question correctly (score 3), 15.3% came close to the correct answer (score 2), and 22.4% did not find the answer (score 1 and score 0). Regarding the item *couple similarities*, asking the participants to find if the shapes are similar or not similar, 87.7% found the correct answer and 12.3% answered it wrong. The first clock task item (spatial rotation) asked the participants to imagine how the figure would look like when the clock hand pointing to 12:00 rotated and positioned on the top of the other hand. Of the participants, 40% found the correct answer, 25.5% came close to the correct answer and 34.4% chose the wrong answer. The second clock rotation task asked the participants the same as the previous task. Of the participants, 25.9% found the correct answer, 21.3% came near to the correct answer, and 52.8% did not find the correct answer.

The cake task examined the students' abilities in recognizing the basic types of causal relationships. In this task the participants were asked to examine various combinations between sugar and water and to decide in which of the two trials the cake would be sweeter. Of the participants 56.3% found the correct answer, 24.3% came close to the correct answer and 19.4% did not find the correct answer. On algebraic reasoning students performed much better. The participants were asked to solve an equation where they had to find the value of  $\omega$  if  $\chi + \psi = 5$ ,  $\chi + \omega = 3$  και  $\psi + \omega = 2$ . The correct answer was found by 85.9% of the participants, whereas 6.9% came close to the answer and 7.2% did not find the correct answer. On hypothesis testing most of the students performed moderately. For example, on the *medicine task* they were presented with three medicines used to treat pain in patients. The participants were asked to decide which medicine or which possible combination of the medicines the researcher had to perform for his hypothesis to be correct. The correct answer was found by 45.8% of the participants, 22.9% came close to the answer and 31.3% did not find the correct answer. Similarly, in the *plant task* that also explored hypothesis testing the participants were presented with two types of seeds and they were asked to choose the combination of seeds, light condition and type of soil and examine if the comparison of experiments 1 and 3

allowed to examine the affect on the plant, the soil, the light or on none. Thirty one point seven percent of the participants found the correct answer, 42.1% came close to the correct answer, and 26.2% did not find the correct answer.

When it came to the evaluation of pragmatic reasoning the participants were presented with a dialogue and they were to come to their own conclusion. The participants had to find the ring if the person always making true statements said “if the ring is in the purse or on the nightstand, then it is with the bracelet” and if the person always making false statements stated “the ring is with the bracelet”. The choices of answers were a) not on the nightstand, b) in the purse, c) neither in the purse nor the nightstand, and d) either on the nightstand or in the purse. Seventy six point three percent of the participants found the correct answer, 0.5% came close to the answer, and 25.9% did not find the correct answer.

#### *Study related variables*

A number of variables directly tapped the study habits and motivation of students and the presence or absence of a critical stance towards the teaching staff. Starting from the last variable, as revealed by a mean of 3.53 on a 5-likert scale on the scale *critical stance towards professors* the majority of the sample exhibited a healthy critical stance of scrutinising the words of their professors before accepting them as true. For example 78,1% of the sample agreed with the statement “I measure and contemplate what I hear from my professors before I accept them”, 17,9 % neither agree nor disagreed and only 4% disagreed with this statement. Also, 36,2% of the participants agreed with the statement “I usually disagree with the professor’s view”, 47% neither agreed nor disagreed and 16.8% disagreed with this statement.

Beyond the measurement of a critical attitude on issues related to learning another relevant aspect was the student’s perception of the pedagogical attitude held by professors themselves towards their students. The scale *Negative view of professors* had a mean of 3.33 on a 5-likert scale, which implies that the majority of the participants had a somewhat negative view of their professors with 34.4% on this issue agreeing with the statement “Most university professors try to prove how much more than me they know”, 31.3% neither agreeing nor disagreeing, and 34.3% disagreeing. 44.8% agreed with the statement “Professors seem to make courses more difficult than they should”, 36.2% neither agreed nor disagreed, and 19% disagreed.

Many students also seemed motivated with their studies but there was more variation on this variable compared to the previous one. The scale *Excitement about studying* had a mean of 3.07 on a 5-likert scale. For example 49.5% of the sample chose the answers always, almost always or often for the item “I find that most new subjects are extremely interesting and I usually spend extra time trying to find more information about them”, 45.3% answered that the above is true half of the times and sometimes, and 12.9% that it hardly ever or never is true. Also, a minority of the students, 33% answered that always, almost always or often for the item “I find that studying some of the academic subjects can be as exciting as a good book or a movie” Most students (54.1%) stated that that this is true half of the times and sometimes, and 12.9% that it is hardly ever or never true.

This picture of moderate to positive levels of motivation for their studies was also revealed by the mean score on the scale *No interest in deep learning* with a mean 2.20 on a 5-likert scale which suggested that most of the students were indeed engaged in deep learning and avoided superficial engagement with their studies. For example, this scale included items like “I don’t see the reason to learn material that will not be examined”, “I find it is not helpful to study subjects in depth”, “It is confusing and waste of time since all that is needed is to pass classes and know the subjects”. For example, only 8.1% of the participants agreed with the statement “I don’t see the reason to learn material that will not be examined” either always, almost always or often with the statement, 45.6% stated that this was half of the times or sometimes true, and 46.3% answered that it is hardly ever or never true.

The scale *Self perception of Analytic thinking* had a mean of 3.98 on a 5-likert scale which suggested that most of the participants perceive themselves as having good analytic thinking skills. For example, 72.3% of the sample agreed with the item “I have analytic thought”, 24.3% neither agreed nor disagreed, and only 3.3% disagreed with the statement. Moreover, the rather large percentage of 72.4% of the participants agreed with the statement “I am able to solve problems”, 24.7% neither agreed nor disagreed, and only 3.8% disagreed.

#### *Epistemological stance of students*

The *Relativism* scale had a mean of 3.58 on a 5-likert scale which suggested that the majority of the participants believe generally in the relativity of truth. 51.3% of the sample agreed with the item “All views are valid. It depends on which angle you look at the issue from”, 24.6% neither agreed nor disagreed, and 22.3% disagreed. Moreover, the majority of the

participants, 63.5%, agreed with the statement “All views are of the same value because each perspective has its own truth”, 24.6% neither agreed nor disagreed, and 12% disagreed.

The specific measurement of relativism in the context of history *Relativism in history* ( $M=3.38$ ) was significantly lower than the general epistemological stance on relativism,  $t(420) = -4.58$ ,  $p < 0.001$ , suggesting that the majority of the participants still believed that history is subjective and that there are no absolute facts or interpretations of history but to a lesser extent compared to knowledge in general. For example, 52.2% of the participants believed that “The historic truth is in fact an issue of interpretation”, 31.4% neither agreed nor disagreed, and 16.4% disagreed. The vast majority of the participants, 59%, agreed with the statement “It is not possible to support that a specific interpretation of history is more valid than another since they are always subjective”, 27.3% neither agreed nor disagreed, and 13.7% disagreed.

The *Realism* scale was unexpectedly moderately high with a mean of 3.67 on a 5-point likert scale which suggested that the majority of the sample believed that what they know about something exists independently of their mind and perceptions of it. For example, 51.5% of the participants agreed with the item ‘Since the truth is not obvious to all, some people have correct views and other have wrong thoughts’, 26.4% neither agreed nor disagreed, and 22.2% disagreed. A very significant percentage, 80.4%, agreed with the item “In some areas the truth is not obvious from the beginning, even for the professors, but the correct information will clear things someday, 15.8% neither agreed nor disagreed, and only 3.8% disagreed.

*Realism in history* was a scale with a mean of 2.75 on a 5-point likert scale suggesting that a little more than half of the participants believe that history consists in a belief’s correspondence to reality. 18.5% of the participants agreed with the statement “In history facts talk for themselves and need no interpretation”, 25.5% neither agreed nor disagreed, and the large proportion of 56% disagreed. Also, 33.3% agreed with the statement “The historic truth is given and we can always discover it”, 32.9% neither agreed nor disagreed, and 33.8% disagreed.

The *Constructivism in history* scale had a mean of 3.96 on a 5-point likert scale suggesting that the majority of the sample believes in the construction of knowledge with 78.9% agreeing with the item “The discovery of the truth needs to succeed the discussion of conflicting interpretations”, 17% neither agreeing nor disagreeing, and only 4% disagreeing with the statement. Furthermore and importantly, 83.7% agreed with the statement “When we study

historic texts, it is important to ask questions about the credibility of the writer's arguments", 14.4% neither agreed nor disagreed, and only 1.9% disagreed. The high levels of relativism and constructivism show that there seems to be a confusion on the epistemological stance of the participants Especially when the questions are asked in a general form about knowledge in general and not a specific domain. However, the levels of acceptance of three stances on history where the whole set of stances of *realism, relativism and constructivism* was available revealed a ranking of acceptance (realism<relativism<constructivism) that would be predicted for students who reached higher levels of psychosocial development even of there were still many students who accepted all positions and thus exhibited confusion about these epistemological stances.

#### *Ideological position of students*

*Liberalism* was a scale with a mean of 2.17 on a 5-likert scale, suggesting the majority of the participants lower tendency for liberal views. For example, only 23.7% agreed with the statement " If two people like one another, it is acceptable to proceed to sexual intercourse irrelevant of how well they know one another", 25.6% neither agreed nor disagreed, and 50.7% disagreed. Furthermore, only 10.3% agreed with the statement "Marijuana should be legalized", 17.1% neither agreed nor disagreed, and 72,6% disagreed. This rather conservative stance of the students was in line with their high levels of *Religiosity*. This scale had a mean of 3.66 on a 5-point likert scale suggesting that the majority of the sample had a positive view and tendency towards religion and was highly religious. 65.2% of the participants agreed with the statement "Religion is an important aspect of my life", 20.3% neither agreed nor disagreed, and 14.4% disagreed. Moreover, the largest proportion of the participants, 85.6% agreed with the statement "I believe in God", 7.5% neither agreed nor disagreed, and only 6.9% disagreed.

Interestingly, their general conservative orientation, for many went hand in hand with a belief in their ability to promote change in society. The scale *Social agency* had a mean of 3,28 on a 5-point likert scale. For example, 59.4% agreed with the statement "With my involvement I influence the community issues and the development of new social values", 40% neither agreed nor disagreed, and 17.1% disagreed. Also, 59.4% agreed with the statement "Through my activities I can contribute to change the society", 27.8% neither agreed nor disagreed, and 17.1% disagreed.

*Identification with Greek Cypriot identity* was a scale with a mean of 4.11 on a 5-point likert scale, suggesting that the vast majority of the participants felt happy and proud for their Greek Cypriot identity. In particular, 75.8% agreed with the statement “Generally I am happy to be Greek Cypriot”, 21.6% neither agreed nor disagreed, and 2.6% disagreed. Moreover, 75.7% agreed with the statement “I am proud to be Greek Cypriot”, 21.7% neither agreed nor disagreed, and 2.7% disagreed.

The scale *Tolerance* that was a measure of prejudice towards Turks, Turkish Cypriots and Foreign workers had a mean of 4.03 on an 11-likert scale, suggesting that the majority of the participants had a negative attitude towards these groups. For example, 20.4% expressed positive feelings towards Turkish Cypriots, 43.1% expressed neither positive nor negative feelings, and 36.6% expressed negative feelings towards Turkish Cypriots, answering to the question “How do you generally feel towards Turkish Cypriots?”. Only 7.2% had positive feelings towards Turkish, 17.8% had neither positive nor negative feelings, and 75% had negative feelings towards Turkish, answering the question “How do you generally feel towards Turkish?”

#### *Social Relations and their quality*

The perceived equality in the social relationships of the students with various “others” was examined in the thesis. Various others were either fellow students, teachers or parents. *Mutual respect* was a scale with the highest mean of the study of 4.28 on a 5-likert scale suggesting that the largest proportion of the participants felt that their relationships were on equal footing with others. For example, 68% of the participants agreed or totally agreed with the statement “I see my parents as adult to adult”, only 18% neither agreed nor disagreed and 14% disagreed.

On a similar question that concerned how legitimate the students saw inequality between groups the mean score was also high. The scale *Egalitarianism* had a mean of 3.95 on a 5-point likert scale suggesting that the majority of the sample showed a preference for egalitarianism within the social system. Only 17.8% of the sample agreed with an item that exhibited social dominance orientation “We need to do everything possible to strengthen our community, even if this means the oppression of the weak groups”, 18.4% neither agreed nor disagreed, and 63.9% disagreed. Also, only 6% agreed with the item “The lower groups should remain at that position”, 9.5% neither agreed nor disagreed, and 84.6% disagreed.

The vast majority of the students also *supported equality between the two genders*. The scale *Support for gender equality* was a scale with a mean of 4.20 on a 5-likert scale, which might mean that a large proportion of the sample supports the equality of men and women. In particular, 84.1% of the participants agreed with the statement “Men and women are equal”, 11.4% neither agreed nor disagreed, and 4.4% disagreed. What is more, 89.8% agreed with the statement “I support the equality of men and women”, 7.7% neither agreed nor disagreed, and only 2.5% disagreed.

On the contrary, the view of students about Piagetian relations of constraint showed that most of them disagreed with the view that knowledge can be gained from authorities through authoritarian means. The scale *Relations of constraint* had a mean of 2.41 on a 5-likert scale suggesting that less than half of the participants agree with such dated pedagogical methods. For example, 60.4% percent of the participants disagree with the statement “Only the non-critical acceptance of the views of the professors can lead to the students’ true learning”, 21.6% neither agreed nor disagreed, and 18% agreed. Moreover, 57.2% agreed with the statement “The more authoritarian a professor is, the more his or her student will learn”, 19.5% neither agreed nor disagreed, and 23.4% disagreed.

A more extreme form of possible negative relationships was the notion of establishing and valuing instrumental forms of relationships for self-interested ends in a society where the rule of the jungle prevails. The scale of *Macchiavellianism* had a mean of 2.20 on a 5-likert scale suggesting that only a minority of the participants denied the relevance of morality in their everyday life and believed that craft and deceit are justified in pursuing and maintaining power. In particular, a percentage of 19.9% agreed with the statement “I believe that most people will take advantage of you if you let them”, 41.5% neither agreed nor disagreed, and 38.7% disagreed. In addition, 5.3% agreed with the statement “If it is necessary, I am willing to manipulate people to get what I want”, 35.2% neither agreed nor disagreed, and 59.4% disagreed.

Beyond their perception of actual and ideal interpersonal and intergroup relations the actual quality of their contact with various others was measured. The *Quality of contact with parents* was a scale with a 4.11 mean on a 5-point likert scale suggested that the students mostly reported good quality of contact with their parents. In particular, 68.5% of the participants replied that they find their contact with their parents very positive, 21.8% that they find it positive, 7.3% that they find it somewhat positive, and only 2.3% replied that do not have a positive contact with their parents.

The scale *Quality of contact with fellow students* had a mean of 3.91 on a 5-likert scale suggesting that most of the students of the sample have good quality of contact with their fellow students. For example, only 1.7% of the sample felt being underestimated to a great extent by their fellow students, 2.4% felt somewhat underestimated, 6.4% feel that they are underestimated only slightly, and 89.6% did not feel that they are underestimated by their fellow students at all.

*Quality of contact with professors* was a scale with a 3.62 on a 5-likert scale suggesting that the majority of the sample has positive contact with their professors. On the item asking the participants to evaluate how positive their contact was with their professors 36.1% stated that they have a positive to very positive social interaction with their professors, 43.2% that they have a somewhat positive social interaction with their professors, and about 20% having little to not at all positive social interaction with their professors.

As expected, due to the geographic separation in Cyprus between the two communities, the unresolved Cyprus issue and the cultivation of national identity and patriotism for years in the elementary and secondary schools of the Greek Cypriot community, the score of the corresponding scale for Turkish Cypriots was much lower. *Quality of contact with Turkish Cypriots* was a scale with a mean of 3.00 on a 5-likert scale suggesting that the greater part of the participants report social interaction of a rather lukewarm quality with Turkish Cypriots. For example regarding the item “When you meet with Turkish Cypriots, do you find the contact to be pleasant?”, 12.4% replied that they find the contact pleasant to very pleasant, 25.8% to be somewhat pleasant, 28.6% just a bit pleasant, and 33.2% not at all pleasant. 20.6% found the contact between them and Turkish Cypriots to be cooperative, 27.7% found that contact to be adequately cooperative, 23.1% to be fairly cooperative, and 28.6% not to be cooperative at all.

The findings about the quality of contact with Turkish Cypriots should in fact be read in conjunction with the findings about the quantity of contact with Turkish Cypriots. *Quantity of contact with Turkish Cypriots* was a scale with a mean as low as 1.76 on a 5-likert scale suggesting that the majority of the students of the research have a low degree of contact with Turkish Cypriots in the first place, which is in line with the low levels of contact reported in Psaltis (2011). For example, regarding the item “How many times have you visited the occupied part of Cyprus?”, 35.9% replied never, 44.7% replied once or twice, 12.3% three or four times, 2.8% five to seven times, and 3.9% more than seven times. It is also worth noting that 44.6% of the participants, replied “no one” as an answer to the item “How many Turkish

Cypriots have you met?”, 25.7% that they met one or two Turkish Cypriots, 15.0% that they met three or four, 7.0% that they met five to seven, and 7.7% that they met more than seven Turkish Cypriots.

#### *Self-related scales*

The scale *Autonomy* had a mean of 3.57 on a 5-likert scale, which suggests that the majority of the sample feels that they are self-dependent. In particular, 45.7% agreed with the item “I am not easily influenced by the views of others”, 34.4% neither agreed nor disagreed, and 19.8% disagreed. What is more, 63% agreed with the statement “I have an internal sense of guidance which keeps me on track, even when I am being judged”, 26.9% neither agreed nor disagreed, and 9.9% agreed.

The scale *No self-determination*, which was the reverse of having a strong sense of self determination had a mean of 1.31 on a 4-likert scale suggesting that most of the participants were on the contrary motivated and self-driven. A percentage of 53.7% replied that they always choose what they want, 32.2% that they usually choose what they do, 11.1% that they sometimes choose what they do, and only 3% that they do not choose what they do only a few times.

*Commitment on future plans* had a mean of 2.78 on a 5-likert scale, implying a lot of variety on this item regarding the participants’ commitment on their future plans regarding their professional and personal development. Of the participants 15.7% agreed with the statement “When I think of the kind of life that I wish to have in the next five years, I have a clear picture”, 42.4% neither agreed nor disagreed, and 41.9% disagreed. Moreover, 21.1% agreed with the statement “My plans for the future are in line with my personal values”, 55.6% neither agreed nor disagreed, and 23.3% disagreed. Thus, there is a rather unclear view of the future. This is to some extent expected given the fact that the data were collected in the beginning of the financial crisis and rising unemployment that most hits the youth.

The scale *Self esteem* had a mean of 3.49 on a 5-likert scale suggesting that the majority of the sample has a positive view of their selves. In particular, 20% agreed with the statement “I feel that I do not have many things to be proud of”, 19.5% neither agreed nor disagreed, and 60.6% disagreed. Moreover, 27.0% agreed with the statement “ I sure feel worthless sometimes”, 22.5% neither agreed nor disagreed, and 50.5% disagreed.

The scale *Agreeableness* had a mean of 3.87 on a 5-likert scale implying that the majority of the participants consider themselves sociable. For example, 74.1% agreed with the statement “I am a social person”, 24.9% neither agreed nor disagreed, and 16.1%

disagreed. Furthermore, 58.9% agreed with the statement “I have many friends”, 24.9% neither agreed nor disagreed, and 16.1% disagreed.

## 5.2. The Role of Socio-economic Status (SES) and Gender in Relation to the Variables

As expected, the mother's and father's educational level were moderately correlated,  $r(430)=.581$ ,  $p < .01$  and both of the parents' education levels were correlated with the family's financial situation at  $r(430)=.318$ ,  $p < .01$  for the father and  $r(430)=.361$ ,  $p < .01$  for the mother.

Not many variables, out of the 32 significantly correlated with these variables, but the ones that did correlate all pointed towards the same pattern of findings. Higher socio-economic level was positively related to variables suggesting a more developed position and negatively with the ones suggesting a less developed position on both cognitive and psychosocial variables. For example, *Formal operations* was correlated with their father's educational level,  $r(430)=.185$ ,  $p < .01$  and mother's educational level,  $r(430)=.106$ ,  $p=.027$ . The critical stand that the students had towards their professors was also correlated with their parents' educational level,  $r(429)=.105$ ,  $p=.029$  for the father and  $r(429)=.111$ ,  $p=.021$  for the mother. The father's educational level was negatively correlated with the scale of realism in history,  $r(417)=-.163$ ,  $p=.001$ . The mother's educational level was negatively correlated with the student's religiosity level,  $r(427)=-.116$ ,  $p=.016$ . A positive correlation,  $r(418)=.102$ ,  $p=.037$ , was found between the father's education and the student's *support of coexistence with Turkish Cypriots*. Moreover, the mother's education is correlated with the student's self esteem,  $r(422)=.118$ ,  $p=.015$ . Both of the parents' level of education were negatively correlated with the scale *Relations of Constraint*,  $r(419)=-.156$ ,  $p=.001$  for the father and  $r(419)=-.114$ ,  $p=.019$  for the mother. Moreover, the mother's educational level was correlated with the students' *support for gender equality*,  $r(427)=.112$ ,  $p=.020$ . Finally, the mother's educational level was correlated with the students' positive feelings towards Turks, Turkish Cypriots and foreigners,  $r(430)=.111$ ,  $p=.021$ , while the father's was not.

A similar picture was revealed by the correlations with the financial status of the family of the student. The family's financial situation seems to affect a number of aspects of the student's life while at the university. There was a positive correlation between *quality of contact with parents* and the family financial situation,  $r(425)=.186$ ,  $p < .01$  and *quality of contact with fellow students*,  $r(425)=.121$ ,  $p=.012$ . A moderate correlation between *Self*

*esteem* and the family financial status was also found to be positively correlated at  $r(422)=.245$  and a small negative correlation between this scale and *Relations of constraint*  $r(419)=-.108$ ,  $p=.027$  existed. Finally, a negative correlation was found between family financials and *No self determination*,  $r(430)=-.162$ ,  $p=.001$ .

### 5.3. Gender and Psycho-social and Cognitive Development

An independent samples t-test comparing the mean of men and women on the scales revealed that regarding *Formal operations*, males scored significantly higher ( $M=1,93$ ,  $SD=.043$ ) than females ( $M=1,82$ ,  $SD=0,37$ ), ( $t(208.19)=2,60$ ,  $p=.001$ ) which was probably due to the overrepresentation of men in STEM subjects.

Moreover, the mean of men and women on the scale *Support for Gender equality* revealed that females scored significantly higher ( $M=4,28$ ,  $SD=0,62$ ) than males ( $M=4,01$ ,  $SD=0,69$ ), ( $t(440)=-3,71$ ,  $p<0.001$ ). Their mean on the scale *Egalitarian* revealed that women scored significantly higher ( $M=4,04$ ,  $SD=0,66$ ) than men ( $M=3,71$ ,  $SD=0,82$ ), ( $t(187,792)=-3.94$ ,  $p=.002$ ), whereas their mean on the scale *Quality of contact with parents* revealed that women scored significantly higher ( $M=4,19$ ,  $SD=0,68$ ) than men ( $M=3,88$ ,  $SD=0,88$ ), ( $t(180,813)=-3.57$ ,  $p<0.001$ ). Further comparison between on the scale *Quality of contact with fellow students* revealed that males scored higher ( $M=3,81$ ,  $SD=0,68$ ) than females ( $M=3,95$ ,  $SD=0,69$ ), ( $t(219.55)=-1.98$ ,  $p=.005$ ).

Comparing the means of men and women on the scale *Perspective of having Analytic thought* revealed that men scored significantly higher ( $M=4,07$ ,  $SD=0,63$ ) than women ( $M=3,94$ ,  $SD=0,53$ ), ( $t(195,743)=2,30$ ,  $p=0.03$ ) and comparing the means of men and women on the scale *Relativism* revealed that women scored significantly higher ( $M=3,69$ ,  $SD=0,94$ ) than men ( $M=3,36$ ,  $SD=0,94$ ), ( $t(189,52)=-3.05$ ,  $p<0.001$ ). Higher scores were also seen in women in *Relativism in history* ( $M=3,43$ ,  $SD=0,70$ ) than in men ( $M=3,27$ ,  $SD=0,81$ ), ( $t(431)=-1.87$ ,  $p=.004$ ). Moreover, the means of men and women on the scale *Liberalism* revealed that men scored significantly higher ( $M=2,55$ ,  $SD=0,95$ ) than women ( $M=2,02$ ,  $SD=0,82$ ), ( $t(441)=5,88$ ,  $p=.057$ ), whereas an independent samples t test comparing the means of men and women on the scale *Religiosity* revealed that women scored significantly higher ( $M=3,83$ ,  $SD=0,88$ ) than men ( $M=3,17$ ,  $SD=1,14$ ), ( $t(184,55)=-5,84$ ,  $p<0.001$ ). Finally, an independent samples t test comparing the means of men and women on the scale *Macchiavellianism* revealed that men scored significantly higher ( $M=2,34$ ,  $SD=0,59$ ) than women ( $M=2,14$ ,  $SD=0,51$ ), ( $t(443)=3,59$ ,  $p<0.001$ ).

On the whole these gender differences concerned the quality of social relations with others and adherence to conservative views. Females compared to males were generally more likely to report better quality social relationships with peers and parents, less *Machiavellianism* and also more *support for equality between the genders* and relationships between groups. It is worth noting however that on the more epistemologically oriented scales of social relationships closer to the Piagetian perspective (*mutual respect* and *relations of constraint*) there was no significant difference. The fact that females were also more religious and less liberal than males suggests that females were more likely to conform to the dominant values of their society. In this sense, the tendency to identify more with their subgroup identity of being Greek Cypriot suggests that females have better relationships with various ingroupers, probably other females, but such openness is not necessarily translated to better relations with alterity. The higher scores on relativism (both general and history related) of females compared to men might be indicative of a more empathetic stance of other points of view but on condition that the norms of the ingroup are not violated.

The scores for both males and females on all 32 variables can be seen in Table 5.3 below.

**Table 5.3.1**  
Gender differences on all variables

		Gender				t(df)	p
		Male		Female			
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
1	Formal operations	1.93	0.43	1.82	0.37	2.60(208.19)	0.01
2	Critical stand towards professors	3.60	0.52	3.51	0.47	1.86(442)	0.06
3	No interest in deep learning	2.20	0.78	2.18	0.68	0.24(205.90)	0.81
4	Egalitarianism	3.71	0.83	4.04	0.66	-3.94(187.78)	0.001
5	Quality of contact with parents	3.88	0.89	4.20	0.69	-3.58(180.81)	0.001
6	Quality of contact with fellow students	3.81	0.68	3.95	0.69	-1.98(219.55)	0.05
7	Quality of contact with professors	3.57	0.77	3.65	0.68	-1.25(190.77)	0.21
8	Quality of contact with TCs	2.95	0.82	3.02	0.86	-0.76(344)	0.87
9	Self esteem	3.05	0.95	3.47	0.90	0.34(435)	0.53
10	Support for gender equality	4.01	0.69	4.28	0.62	-3.71(440)	0.001
11	Excitement about studying	3.03	0.72	3.09	0.81	-0.68(427)	0.51
12	Analytic thought	4.08	0.64	3.94	0.53	2.30(439)	0.03
13	Agreeableness	3.77	0.92	3.89	0.77	-1.21(186.43)	0.18
14	Identification with Greek Cypriot identity	4.01	0.86	4.15	0.73	-1.73(185.05)	0.08
15	Relativism	3.36	0.94	3.65	0.76	-3.05(189.52)	0.001
16	Realism	3.62	0.72	3.69	0.58	-1.32(182.30)	0.18
17	Relativism history	3.27	0.81	3.43	0.70	-1.87(431)	0.04
18	Realism history	2.68	0.92	2.76	0.89	-0.85(430)	0.96
19	Constructivism history	3.92	0.63	3.96	0.51	-0.69(185.87)	0.49
20	Liberalism	2.53	0.95	2.01	0.83	5.26(194.26)	0.001
21	Social agency	3.33	0.93	3.25	0.75	0.85(180.65)	0.35
22	Religiosity	3.17	1.14	3.83	0.88	-5.84(184.55)	0.001
23	Mutual respect	4.22	0.65	4.29	0.49	-0.71(178.88)	0.47
24	Support for coexistence with TCs	3.34	1.25	3.12	1.10	1.76(201.75)	0.08
25	Quantity of contact with TCs	1.73	0.68	1.75	0.76	-0.30(741)	0.77
26	Autonomy	3.60	0.87	3.55	0.72	0.60(176.77)	0.55
27	Relations of constraint	2.31	1.01	2.44	0.98	-1.15(432)	0.54
28	Negative view towards professors	3.36	0.91	3.32	0.83	0.45(437)	0.21
29	Tolerance	3.87	1.72	4.12	1.68	-1.43(443)	0.35
30	Macchiavellianism	2.34	0.59	2.14	0.51	3.59(443)	0.001
31	Commitment on future plans	2.77	0.79	2.78	0.71	-0.17(430)	0.87
32	No Self Determination	1.27	0.69	1.32	0.71	-0.61(443)	0.54

#### 5.4 The role of major of studies and the role of year of studies

A one-way analysis of variance was conducted to explore the impact of Major (Field of studies) on scales. Participants were divided into three five groups according to their field of studies. The first group was Letters/Humanities/Arts, the second group consisted of students studying Social sciences and Education, the third group included Economics/Management/Shipping students, the fourth group contained Health sciences students and finally the fifth Group included STEM students. There was a statistically significant difference at the  $p < .05$  level in *Formal operations* scores for the five major of studies groups,  $F(4, 427) = 5.00$ ,  $p < .001$ . Post-hoc comparisons using the Bonferoni test indicated that the mean score for STEM ( $M = 1.97$ ,  $SD = 0.43$ ) was significantly higher from Letters/Humanities/Arts ( $M = 1.76$ ,  $SD = 0.37$ ), as well from Social sciences and Education ( $M=1.82$ ,  $SD=0.38$ ) and Economics/Management/Shipping ( $M=1.79$ ,  $SD= 0.35$ ). The Health sciences students ( $M = 1.76$ ,  $SD= 0.36$ ) did not differ significantly from the first, second, third or fifth group.

Furthermore, the analysis of variances showed a significant effect of the Major of studies on *Critical stand towards professors*,  $F(4,426)=4.99$ ,  $p=0.001$ . The Post hoc analyses using Bonferoni criterion for significance differences between major of studies indicated that the mean of *Critical stand towards professors* was significantly higher for the Letters/Humanities/Arts students ( $M=3.62$ ,  $SD=0.42$ ) than the Health sciences students ( $M = 3.30$ ,  $SD= 0.50$ ). Furthermore, the mean value of *Critical stand towards professors* for STEM students was significantly higher both for Economics/Management/Shipping students ( $M=3.42$ ,  $SD=0.45$ ) and Health sciences students ( $M = 3.30$ ,  $SD= 0.50$ ).

In addition to the above, the one-way analysis of variance suggested a statistically significant difference at the  $p < .05$  level on the scale *Agreeableness* ,  $F(4,425)=3.59$ ,  $p=0.01$ . Post-hoc comparisons using the Bonferoni test indicated that the mean score for Social sciences and Education students ( $M = 4.03$ ,  $SD = 0.77$ ) was significantly higher compared to the mean score for the Letters/Humanities/Arts students ( $M = 3.59$ ,  $SD = 0.97$ ).

Additionally, the one-way analysis of variance suggested a statistically significant difference at the  $p < .01$  level in the *Excitement about studying* scores for the five groups of majors,  $F(4,424)=5.24$ ,  $p=0.001$ . Post-hoc comparisons using the Bonferoni test indicated that the mean of *Excitement about studying* score for Economics/Management/Shipping students ( $M = 2.79$ ,  $SD = 0.74$ ) was significantly lower from the mean score for the Social sciences and Education ( $M = 3.19$ ,  $SD = 0.75$ ), the Health sciences students ( $M = 3.38$ ,  $SD =$

0.69) and the STEM studies ( $M = 3.12$ ,  $SD = 0.76$ ). On the other hand, there were no significant differences on the mean *Excitement about studying* between the Letters/Humanities/Arts students ( $M = 3.05$ ,  $SD = 0.85$ ) with any other group of the majors of studies.

The analysis of variance showed a significant effect of the major of studies also on *Relativism*,  $F(4,420)=2.81$ ,  $p=0.03$ . However, the Bonferoni post-hoc criterion revealed no significant differences on the mean of *Relativism* and any of the major of studies groups. Similarly, the analysis of variances showed a significant main effect of the major of studies on *Constructivism in history*,  $F(4,416)=2.77$ ,  $p=0.03$ , where the post-hoc Bonferoni test did not indicate that mean scores were significantly different among any combination of the five major categories.

The one-way analysis of variance suggested a statistically significant difference at the  $p < .001$  level in Relations of constraint for the five major of studies groups:  $F(4,416)=6.10$ ,  $p=0.0001$ . Post-hoc comparisons using the Bonferoni test indicated that the mean score of *Relations of constraint* for the Letters/Humanities/Arts students ( $M=2.14$ ,  $SD= 1.02$ ), and the Social sciences and Education students ( $M = 2.18$ ,  $SD = 0.97$ ) scored lower than the rest of the majors except the STEM students ( $M = 2.40$ ,  $SD = 1.02$ ) who occupied the middle ground as the mean score of *Relations of constraint* for the STEM students ( $M = 2.40$ ,  $SD = 1.02$ ) did not differ significantly from either the Economics/Management/Shipping students ( $M = 2.74$ ,  $SD = 0.86$ ) or Health sciences students ( $M = 2.77$ ,  $SD = 1.01$ ). Thus, it can be suggested that the mean values in *Relations of constraint* for the groups Letters/Humanities/Arts and Social sciences and Education were significantly different and lower from the mean values for the groups Economics/Management/Shipping and Health sciences/Practical diplomas.

Finally, the one-way analysis of variance indicated a statistically significant in *Commitment on future plans* for the five groups of majors  $F(4,427)=4.55$ ,  $p=0.0001$ . Post-hoc comparisons using the Bonferoni test indicated that the mean score of *Commitment on future plans* for the Letters/Humanities/Arts students ( $M=2.58$ ,  $SD=0.75$ ) and the Economics/Management/Shipping students ( $M = 2.59$ ,  $SD =0.69$ ) did not differ significantly, whereas the mean values of the previous two major groups were significantly different and lower from the STEM students ( $M = 2.91$ ,  $SD = 0.79$ ).

It should be noted that the significant findings remained significant even after controlling with ANCOVA for Gender, SES and Examination Entry Grade. The only difference that

became non-significant after controlling for these variables was Formal Operations that was mostly accounted by the Examination Entry Grade.

Fotini Kranou Kyriakides

**Table 5.4.1**

ANOVA of Major of study and Scales

		Major (Field of studies)										<i>F(df)</i>	<i>p</i>
		Letters/ Humanities/Arts		Social sciences & Education		Economics /Management /Shipping		Health sciences/ Practical diplomas		STEM			
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
1	Formal operations	1.76 <sup>a</sup>	0.37	1.82 <sup>a</sup>	0.38	1.79 <sup>a</sup>	0.35	1.76 <sup>a,b</sup>	0.36	1.97 <sup>b</sup>	0.43	5.00(4,427)	0.00
2	Critical stand towards professors	3.62 <sup>a,c</sup>	0.42	3.52 <sup>a,b,c</sup>	0.52	3.42 <sup>a,b</sup>	0.45	3.30 <sup>b</sup>	0.50	3.62 <sup>c</sup>	0.49	4.99(4,426)	0.00
3	No interest in deep learning	2.12	0.80	2.10	0.66	2.26	0.73	2.33	0.73	2.21	0.70	1.11(4,425)	0.35
4	Egalitarianism	3.94	0.80	4.02	0.70	3.90	0.72	3.87	0.79	3.95	0.72	0.46(4,420)	0.76
5	Quality of contact with parents	3.85	0.97	4.19	0.69	4.20	0.70	4.13	0.73	4.10	0.73	2.33(4,422)	0.06
6	Quality of contact with fellow students	3.70	0.73	4.00	0.73	3.92	0.63	4.05	0.62	3.90	0.69	2.06(4,422)	0.08
7	Quality of contact with professors	3.74	0.70	3.64	0.70	3.58	0.63	3.77	0.75	3.55	0.73	1.21(4,420)	0.31
8	Quality of contact with Turkish Cypriots	3.04	0.86	3.00	0.85	2.92	0.78	2.91	0.94	3.06	0.86	0.44(4,333)	0.78
9	Self esteem	3.28	0.83	3.68	1.01	3.51	0.87	3.46	0.87	3.42	0.86	2.14(4,419)	0.07
10	Support for gender equality	4.29	0.60	4.31	0.64	4.05	0.63	4.21	0.81	4.20	0.64	2.22(4,424)	0.07
11	Agreeableness	3.59 <sup>a</sup>	0.97	4.03 <sup>b</sup>	0.77	3.96 <sup>a,b</sup>	0.67	3.94 <sup>a,b</sup>	0.81	3.77 <sup>a,b</sup>	0.84	3.59(4,425)	0.01
12	Identification with GC identity	4.04	0.88	4.20	0.74	4.15	0.70	4.29	0.67	4.02	0.82	1.44(4,417)	0.22
13	Excitement about studying	3.05 <sup>a,b</sup>	0.85	3.19 <sup>a</sup>	0.75	2.79 <sup>b</sup>	0.74	3.38 <sup>a</sup>	0.69	3.12 <sup>a</sup>	0.76	5.24(4,424)	0.00
14	Analytic thinking	3.89	0.57	3.92	0.55	3.91	0.64	4.11	0.52	4.06	0.53	2.03(4,423)	0.09
15	Relativism	3.74	0.82	3.68	0.76	3.55	0.76	3.72	0.70	3.41	0.90	2.81(4,420)	0.03
16	Realism	3.49	0.77	3.63	0.62	3.65	0.62	3.84	0.60	3.72	0.55	2.24(4,422)	0.06
17	Relativism History	3.15	0.81	3.42	0.74	3.46	0.70	3.51	0.65	3.36	0.73	1.96(4,415)	0.10
18	Realism history	2.71	0.92	2.61	0.93	2.80	0.83	3.02	0.81	2.76	0.94	1.29(4,414)	0.27

19	Constructivism history	3.96	0.64	4.05	0.46	3.85	0.47	3.77	0.53	3.99	0.59	2.77(4,416)	0.03
20	Liberalism	2.16	0.97	2.20	0.98	2.13	0.81	1.91	0.81	2.21	0.89	0.75(4,425)	0.56
21	Social agency	3.35	0.88	3.28	0.83	3.24	0.73	3.43	0.68	3.25	0.83	0.44(4,411)	0.78
22	Religiosity	3.67	1.02	3.65	0.91	3.76	0.94	3.93	1.08	3.52	1.09	1.45(4,424)	0.22
23	Mutual respect	4.26	0.57	4.32	0.49	4.20	0.58	4.33	0.47	4.28	0.51	0.74(4,422)	0.56
24	Support for coexistence with TCs	3.19	1.29	3.24	1.09	3.13	1.12	2.76	1.18	3.24	1.13	1.25(4,415)	0.29
25	Quantity of contact with TCs	1.82	0.75	1.82	0.81	1.78	0.72	1.79	0.77	1.66	0.69	0.96(4,425)	0.43
26	Autonomy	3.62	0.78	3.57	0.82	3.48	0.76	3.70	0.66	3.56	0.73	0.6(4,414)	0.66
27	Relations of constraint	2.14 <sup>a</sup>	1.02	2.18 <sup>a</sup>	0.97	2.74 <sup>b</sup>	0.86	2.77 <sup>b</sup>	1.01	2.40 <sup>a,b</sup>	1.02	6.10(4,416)	0.00
28	Negative view of professors	3.13	0.95	3.27	0.78	3.37	0.78	3.38	1.03	3.42	0.87	1.4(4,421)	0.23
29	Tolerance	4.14	1.97	4.18	1.64	3.90	1.73	3.97	1.58	3.98	1.60	0.42(4,427)	0.79
30	Macchiavellianism	2.29	0.49	2.12	0.58	2.19	0.51	2.11	0.46	2.23	0.56	1.28(4,427)	0.28
31	Commitment on future plans	2.58 <sup>a</sup>	0.75	2.81 <sup>a,b</sup>	0.69	2.59 <sup>a</sup>	0.69	2.99 <sup>a,b</sup>	0.47	2.91 <sup>b</sup>	0.79	4.55(4,427)	0.00
32	No Self Determination	1.41	0.68	1.31	0.74	1.34	0.72	1.17	0.59	1.29	0.70	0.68(4,427)	0.61

#### 5.4.2. Comparisons across the year of studies

The one way analysis of variances showed a significant effect of the year of studies on *Quality of contact with professors*,  $F(3,421)=2,97$ ,  $p=0.03$ . Post hoc analyses using Bonferoni post criterion was not able to indicate significant differences on *Quality of contact with professors* in any year of study.

Once again, the analysis of variances revealed an effect of the year of studies on *Identification with Greek Cypriot identity*,  $F(3, 418)=5,70$ ,  $p=0.01$ . The Post hoc analyses using Bonferoni criterion for significance differences between years of studies indicated that the mean of *Identification with Greek Cypriot identity* was significantly higher for first year students ( $M=4,31$   $SD=0,74$ ) than the fourth year students ( $M=3,89$ ,  $SD=0,77$ ), whereas there were no significant differences between other groups of students.

Furthermore, the analysis of variances showed a significant effect of the year of studies on *Liberalism*  $F(3,426)=2.98$ ,  $p=0.03$ , whereas the Bonferoni post criterion did not indicate significant differences on the mean of *Liberalism* between any combinations of year of study. Finally, an analysis of variances showed a significant effect of the year of studies on *social agency*,  $F(3,412)=3.24$ ,  $p=0.02$ . Post hoc analysis revealed that the mean of *social agency* was higher for the third year students ( $M=3,41$ ,  $SD=0,74$ ) than in fourth year students ( $M=3,09$ ,  $SD=0,87$ ).

It should be noted that the significant findings remained significant even after controlling with ANCOVA for Gender, SES and Examination Entry Grade.

**Table 5.4.2 ANOVA year of studies and scales**

		Academic Year								<i>F(df)</i>	<i>p</i>
		Freshman		Sophomore		Junior		Senior			
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
1	Formal operations	1.83	0.38	1.89	0.42	1.83	0.37	1.86	0.41	0.31(3, 428)	0.67
2	Critical stand towards professors	3.51	0.47	3.47	0.49	3.56	0.55	3.59	0.45	0.90(3,427)	0.44
3	No interest in deep learning	2.21	0.73	2.20	0.69	2.20	0.67	2.16	0.75	0.08(3,426)	0.97
4	Egalitarianism	3.97	0.77	3.98	0.74	3.87	0.72	3.97	0.65	0.54(3,421)	0.65
5	Quality of contact with parents	4.15	0.75	4.09	0.79	4.05	0.79	4.14	0.69	0.43(3,423)	0.73
6	Quality of contact with fellow students	4.02	0.68	3.88	0.72	3.87	0.68	3.84	0.68	1.55(3,423)	0.20
7	Quality of contact with professors	3.70	0.66	3.71	0.67	3.54	0.72	3.48	0.75	2.97(3,421)	0.03
8	Quality of contact with Turkish Cypriots	2.92	0.83	3.04	0.80	3.03	0.87	3.04	0.89	0.468(3,334)	0.70
9	Self esteem	3.50	0.96	3.56	0.95	3.37	0.89	3.48	0.80	0.77(3,420)	0.51
10	Support for gender equality	4.28	0.70	4.22	0.65	4.20	0.63	4.11	0.60	1.30(3,425)	0.28
11	Agreeableness	3.95	0.85	3.92	0.84	3.83	0.79	3.71	0.76	1.82(3,426)	0.14
12	Identification with GC identity	4.31 <sup>b</sup>	0.74	4.07 <sup>ab</sup>	0.80	4.12 <sup>ab</sup>	0.74	3.89 <sup>a</sup>	0.78	5.70(3,418)	0.01
13	Excitement about studying	3.12	0.80	3.17	0.76	2.97	0.82	3.0	0.71	1.50(3,425)	0.21
14	Analytic thinking	3.09	0.58	3.97	0.61	3.93	0.59	4.02	0.48	0.36(3,425)	0.78
15	Relativism	3.66	0.83	3.53	0.88	3.58	0.75	3.48	0.81	0.99(3,421)	0.40
16	Realism	3.65	0.73	3.67	0.61	3.63	0.62	3.72	0.57	0.40(3,423)	0.75
17	Relativism History	3.41	0.73	3.27	0.78	3.48	0.69	3.35	0.73	1.40(3,416)	0.24
18	Realism history	2.84	0.96	2.74	0.86	2.72	0.91	2.66	0.88	0.80(3,415)	0.50
19	Constructivism history	3.91	0.54	4.00	0.53	4.03	0.51	3.88	0.60	1.99(3,417)	0.12
20	Liberalism	1.97	0.93	2.20	0.87	2.24	0.89	2.29	0.86	2.98(3,426)	0.03
21	Social agency	3.37 <sup>ab</sup>	0.87	3.21 <sup>ab</sup>	0.81	3.41 <sup>b</sup>	0.74	3.09 <sup>a</sup>	0.87	3.24(3,412)	0.02
22	Religiosity	3.83	1.01	3.57	1.01	3.64	0.99	3.52	0.99	2.13(3,425)	0.10
23	Mutual respect	4.30	0.55	4.23	0.52	4.30	0.51	4.26	0.52	0.49(3,423)	0.70
24	Support for coexistence with TCs	3.08	1.16	3.23	1.12	3.27	1.11	3.15	1.20	0.64(3,416)	0.59
25	Quantity of contact with TCs	1.73	0.72	1.73	0.75	1.91	0.82	1.68	0.66	1.91(3,426)	0.13
26	Autonomy	3.58	0.74	3.66	0.78	3.59	0.81	3.41	0.71	1.79(3,415)	0.15
27	Relations of constraint	2.39	0.98	2.51	1.08	2.43	1.02	2.32	0.96	0.60(3,417)	0.62
28	Negative view of professors	3.23	0.90	3.27	0.87	3.45	0.83	3.40	0.79	1.60(3,422)	0.19
29	Tolerance	3.95	1.77	4.20	1.77	3.93	1.58	4.06	1.59	0.58(3,428)	0.63
30	Macchiavellianism	2.14	0.59	2.21	0.55	2.27	0.50	2.17	0.49	1.10(3,428)	0.35
31	Commitment on future plans	2.83	0.81	2.75	0.71	2.75	0.68	2.76	0.71	0.31(3,428)	0.82
32	No Self Determination	1.28	0.74	1.31	0.72	1.32	0.68	1.36	0.67	0.21(3,428)	0.89

## 5.5 Interrelationships between the Variables

As discussed earlier, the variables could be conceptually grouped in relation to aspects of the *subject-object-other* triad. There are variables that describe the subject-object relationship like the motivation to study, and engage with the object of study. The epistemological orientations of the subject also concern this aspect of the triad. There are also more self-oriented scales concerning the evaluation of the self, its *autonomy* and *self-determination* that are expected to be correlated between themselves provided they point towards greater control, self-monitoring and evaluation of the self. Similarly, there are scales that concern the self-other relationship in its various forms and finally there are questions tapping the ideological stance of the students as they relate to ideal configurations or worldviews of the subject-object-other triad as a whole.

But one of the central aims of this thesis, in line with the third generation of research presented earlier is first to understand the interrelationships between these various types of variables and then render intelligible the change or transition from a particular configuration of the *subject-object-other* to a new one. In this section we explore whether such interrelationships between the variables and in the following section we move into issues of exploring developmental change and possible mechanisms behind such developmental changes.

### *Subject-Object variables*

Performance on *formal operations* tasks as expected related to a number of other variables that also touched on the *subject-object* relationship like *Commitment to future plans*  $r(420)=-.09, p = .046$ , and with *No Interest in deep learning*,  $r(430)=-.19, p < .001$ , *analytic thinking skills*,  $r(428)=.14, p = .002$ , and could be seen as major developmental outcomes. Importantly it also correlated with variables touching on social relational aspects of the *subject-other-object* triad like *Relations of Constraint*  $r(421)=-.28, p < .001$  which was in fact the higher correlation of formal operation with any other variable. Also, with *Critical stance towards professors*,  $r(431)=.13, p = .006$  which is expected given that this variable is measuring a notion that counteracts relations of constraint. As shown on the first column of Table 5.2 this variable also correlated negatively with epistemological stances like *Relativism*,  $r(425)=-.19, p < .001$ , *Relativism in history*,  $r(420)=-.15, p = .002$ , *Realism in History*,  $r(419)=-.20, p = .002$  and *Constructivism in history*,  $r(421)=.16, p = .001$ , as well as *personality characteristics* like *Agreeableness*,  $r(430)=-.13, p = .008$ , *Self esteem*,  $r(424)=.14, p = .003$ , and *ideological characteristics* like *Religiosity*,  $r(429)=-.11, p = .023$ , *Liberalism*,

$r(430)=.12, p = .01$ , *Egalitarianism*,  $r(425)=.18, p < .001$ , and *Support for co-existence with Turkish Cypriots*,  $r(420)=.14, p = .003$ . All these correlations, with the exception of commitment to future plans that was the lowest correlation and marginally significant, pointed to the hypothesized direction. It is worth noting that with the exception of *Liberalism* and *Religiosity* all these correlations remained significant even when the effects of gender and educational level of the parents were partialled out.

The two remaining variables that concerned the subject-object relationship characterized the orientation of students towards their studies (*No interest in deep learning* and *Excitement about studying*). Despite their expected small negative correlation,  $r(427)=-.116, p=.016$  *No interest in deep learning* proved to be a variable better suited to capture aspects relating not only to the cognitive development of students as it negatively related to *formal operations* but also to a series of variables that showed bad quality of social relations with a generalized other that went beyond ingroup members. *Egalitarianism*,  $r(423)=-.33, p < .001$ , *Machiavellianism*,  $r(428)= 0.22, p < .001$ , *Quality of Contact with parents*,  $r(423)=-.11, p=.02$ , *with professors*  $r(423)=-.16, p=.001$  and *with Turkish Cypriots*  $r(336)=-.17, p=.001$ , and *support for gender equality*. In other words it appeared to be a variable that could potentially be an outcome of changes in the *subject-object-other* configuration.

Finally and important developmental outcome of psychosocial development as we have seen in chapter 1 is the self-related sense of authoring and management of control that we tried to tap by measuring variables like *Self-determination*, *Commitment to future plans* and *Autonomy*. As expected such variables were correlated between them. In particular, *Commitment on future plans* was correlated with *Autonomy*  $r(417)= .24, p < .01$  suggesting that the more committed a student is, the more autonomous they are. Finally, there was a small negative correlation between *No self-determination* and *Autonomy*  $r(417)= -.15, p=.002$ , suggesting that the more not determined a student is, the more autonomous they are. *Commitment on future plans* was also correlated with the scale *No self-determination*,  $r(430)= -.22, p < .01$  suggesting that the more self-determined a student is, the higher level of commitment on future plans he or she expresses in their lives.

*Autonomy* was also related to the personal characteristic of *Self esteem*,  $r(416)= .18, p < .01$  suggesting that the more autonomous a person is, the higher self esteem they have. Furthermore, there was a small positive relationship between *Agreeableness* and *Autonomy*  $r(417)= .10, p=.040$  suggesting that the more autonomous a person is, the more sociable they are. *Autonomy* was also correlated with *Identification with Cypriot identity* with a small

positive correlation,  $r(412) = .15, p = .002$  suggesting that the more autonomous a person is, the more attached he or she is with their Greek Cypriot identity.

There was also a moderate positive correlation of *Self esteem* and *Agreeableness*,  $r(422) = .314, p < .01$  suggesting that the more social involvement a student presents, the higher self esteem they have. What is more, *No self-determination* and *Self esteem* were negatively correlated in a moderate degree,  $r(422) = -.40, p < .01$  suggesting that the more self determination a student has, the higher self esteem they have. There also was a correlation between *Self esteem* and *Formal operations*  $r(422) = .14, p = .003$ , suggesting that the higher self esteem of a student, the more advanced intellectual abilities they might have.

What is more, *Commitment on future plans* resulted in a small positive correlation with *Agreeableness*  $r(428) = .19, p < .01$  suggesting that the more committed a student is, the more sociable a student is. *No self-determination* resulted in a small moderate negative correlation with *Agreeableness*  $r(428) = -.231, p < .01$  suggesting that the more self-determined a student is, the more sociable a student is, and vice versa.

*Agreeableness* and *Formal operations* resulted in a small negative correlation,  $r(428) = -.13, p = .008$ , suggesting that the more sociable a student is, the lower performance they show on formal operational tasks. Furthermore, *Self Esteem* and *Agreeableness* were correlated,  $r(422) = .31, p < .01$  suggesting that the higher self esteem a student has, the more sociable a student is.

An important observation regarding the bivariate correlations of self related variables of this nature is their relationship with communal identification. *Identification with Greek Cypriot identity* was positively correlated with *Self esteem*  $r(416) = .17, p < .01$  suggesting that the more attached a student is to their Greek Cypriot identity, the higher self esteem they have and might be striving to achieve a positive sense of self by enhancing social identity as suggested by Tajfel's SIT theory (Tajfel, 1978). Similarly, *Agreeableness* was also correlated with *Identification with Greek Cypriot identity*,  $r(420) = .34, p < .01$  suggesting that the sociability of students is mostly contained to the cultivation of ingroup ties with other Greek Cypriot students; Identification with being Greek Cypriot was also correlated with the scale *No self determination*,  $r(420) = -.14, p = .005$ , suggesting that the sense of self determination might be predicted by ingroup relationships that strengthen identification with the ingroup. Supportive of this hypothesis was the finding that *Identification with Greek Cypriot identity* was also correlated with *Commitment on future plans*,  $r(420) = .14, p = .004$  suggesting that the

more committed a student is on their future plans, the more attached he or she is with their Greek Cypriot identity.

The exclusionary nature of *Identification with Greek Cypriot identity* was clearly seen also from the pattern of correlations of this variable with variables that indicated positive contact or attitude towards Turkish Cypriots and foreigners that were in all cases negative.

#### *Subject-Other related Scales*

The scale *Relations of constraint* was negatively correlated with *Formal operations as shown in the previous section*. Moreover, students believing in relations of constraint were likely to have a negative attitude towards their professors  $r(418) = -.26, p < .01$ , and more likely to show *no interest in deep learning*  $r(419) = .22, p < .01$ . A small positive correlation was found between *relations of constraint* and *realism*  $r(419) = .14, p = .004$  and a bigger positive correlation was found with the scale *realism in history*  $r(413) = .28, p < .01$ . Furthermore, between *relations of constraint* and *constructivism in history* a small negative correlation was found  $r(415) = -.16, p < .01$ . *Relations of constraint* resulted in a small negative correlation also with *liberalism* suggesting that students who believe in constraining relationships are not likely to be liberal  $r(419) = -.11, p = .003$ , whereas it resulted in a small positive correlation with *religiosity*  $r(419) = .18, p < .01$  suggesting that these students are most likely religious. An expected negative moderate correlation was found between *relations of constraint* and *egalitarianism*  $r(419) = -.32, p < .01$ ; this suggests that when characteristics of constraint describe the students' negative views towards symmetry in relationships, characteristics of egalitarianism are not likely to be present also at the intergroup level.

*Relations of constraint* was also negatively correlated with a number of scales like *quality of contact with Turkish Cypriots*  $r(332) = -.11, p = .004$ , *support for coexistence with Turkish Cypriots*  $r(410) = -.16, p = .002$ , *self esteem*  $r(417) = -.23, p < .01$ , *gender equality*  $r(419) = -.20, p < .01$  and with *tolerance*,  $r(419) = -.13, p = .009$  which suggested that this scale was capturing a stance with detrimental consequences both for social relationships with more general otherness and self.

On the contrary the pattern of relationships of all variables with the scale *Mutual Respect* in many cases was in the opposite direction of that for *Relations of Constraint* as expected. However, this variable proved not to be a good variable to differentiate on general

epistemological stances, and it proved not to be the opposite of relations of constraint in the perceptions of the participants as it was unrelated to *Relations of Constraint*.

In particular, *Mutual Respect*, as expected had one of the highest positive correlations with those with *Constructivism in history*  $r(418)=.37, p < .01$  and *Analytic thinking*  $r(422)=.29, p < .01$ . *Mutual respect* was also correlated with *Quality of contact with parents*  $r(423)=.27, p < .01$ , *Quality of contact with fellow students*,  $r(423)=.31, p < .01$ , *Quality of contact with professors*  $r(422)=.207, p < .01$ , *Quality of contact with Turkish Cypriots*,  $r(335)= .26, p < .01$ . It is thus important to note that this variable captured a more generalised attitude towards otherness that went beyond the interpersonal level to intergroup relations with Turkish Cypriots. In line with this argument, *Tolerance* was also positively correlated with *Mutual respect*  $r(425)= .114, p=.018$ , as well as *Quantity of contact with Turkish Cypriots*  $r(416)=.14, p=.002$ . *Mutual respect* and *Macchiavellism* resulted in a moderate negative correlation with respect to others  $r(425)= -.339, p < .01$  suggesting that the more a student denies the relevance of morality in his or her relationships with others and believes that craft and deceit are justified in pursuing and maintaining power, the less respectful a student is towards the others. *Support for gender equality* was also closely related to this variable,  $r(427)= .44, p < .01$ . Finally, it is also worth noting that it correlated with previously mentioned self-related variables, for example it correlated negatively with *absence of self determination*,  $r(430)= -.15, p=.003$  and *Identification with Greek Cypriot identity*,  $r(420)= .27, p < .01$ .

Another variable that captured a unique aspect of social relations, that of intergroup relations and was in fact correlated with *Formal Operations*  $r(423)= .19, p < .01$  and *No interest in deep learning*,  $r(423)= -.33, p < .01$  and was *Egalitarianism* which was a dimension of social dominance orientation. Such a variable was as expected, related to the ideological orientation of the students. In particular, *Egalitarianism* was positively correlated with *Tolerance*,  $r(423)= .25, p < .01$  and *Support for coexistence with Turkish Cypriots*,  $r(414)= .26, p < .01$  suggesting that the more willingness to coexist or live with Turkish Cypriots a person has, the lower the preference of a student for hierarchy within a social system. *Support for gender equality* was also correlated with *Egalitarianism*,  $r(423)= .36, p < .01$  suggesting that the more a student is in support for gender equality, the lower the preference of a student for hierarchy within a social system.

What is however, important is that this scale also positively correlated with *Mutual Respect*,  $r(423)= .36, p < .01$ , and the quality of actual social relations that the participants

had with parents,  $r(421)=.18, p < .01$ , peers,  $r(422)= .36, p < .01$ , teachers,  $r(421)= .36, p=.005$ , professors  $r(423)= .36, p < .01$ , and Turkish Cypriots,  $r(335)= .36, p < .01$ . It was also correlated with *analytic thinking*,  $r(420)= .36, p=.02$ , *Constructivism in history*,  $r(423)= .36, p < .01$  and negatively with *Realism in history*,  $r(416)= .36, p < .01$ . It was finally negatively correlated with *Relations of constraint*,  $r(419)= -.32, p < .01$ , and Machiavellianism,  $r(423)= -.34, p < .01$ .

#### *Ideology scales*

*Social agency* and *Support for Coexistence with Turkish Cypriots* resulted in a small moderate correlation  $r(404)= .20, p < .01$  suggesting that the more willingness to coexist or live with Turkish Cypriots a person has, the more socially active and involved a student is. Furthermore, *Social agency* and *Support for gender equality* resulted in a small positive correlation  $r(413)=.169, p=.001$  suggesting that the more socially active and involved a student is, the more supportive the student is for gender equality. *Support for Coexistence with Turkish Cypriots* resulted in a small moderate positive correlation with *Support for gender equality*,  $r(417)= .207, p < .01$  suggesting that the more willingness to coexist or live with Turkish Cypriots a person has, the more supportive the student is for gender equality.

*Religiosity* resulted in a significant negative correlation with *Liberalism*  $r(427)= -.55, p < .01$  suggesting that the less religious a student is, the more liberal views they have and vice versa. Furthermore, *Liberalism* and *Support for Coexistence with Turkish Cypriots* resulted in a small positive correlation  $r(417)= .156, p=.001$  suggesting that the more willingness to coexist or live with Turkish Cypriots a person has, the more liberal views he or she has.

#### *Epistemological stance of students*

Starting from the epistemological variables, there was a moderate positive correlation between *Relativism in history* and *Relativism*,  $r(418)=.360, p < .01$ , suggesting that the more a student believes generally on the relativity of truth, the more similar views can be found in the domain of history or that history is subjective and that there are no absolute facts or interpretations of history. Furthermore, *Constructivism in history* had a small positive correlation with the scale *Relativism*  $r(419)=.126, p=.010$ . *Realism in history* was correlated with the scale *Realism*,  $r(417)=.191, p < .01$  suggesting that the more a student believes that there is only one truth in history, the more a student believes that what they know about something exists independently of their mind. *Constructivism history* resulted in a small-

moderate positive correlation with the general scale *Realism*  $r(419) = .273, p < .01$  but not with *Realism in history*. In fact, the significant correlations of many variables with *Realism in history* contrasted with the correlations with *Constructivism in history* since they were mostly significant but in the opposite direction as expected. All in all, the fact that the general epistemological stances correlate with each other suggests that the students are probably confusing the different positions and rarely see them as incompatible, when they are posed in their general form. Despite this fact, it is clear from the correlation of the epistemological stances with formal operations that constructivism supports or is supported by formal operations whilst on the contrary relativism relates negatively with formal operations.

**Table 5.5.1.**  
**Correlation Matrix for the 32 variables of the First Wave**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
1	1.00																						
2	0.13**	1.00																					
3	-0.20**	-0.10*	1.00																				
4	0.19*	0.15**	-0.33**	1.00																			
5	0.07	0.02	-0.11*	0.18**	1.00																		
6	0.07	-0.10*	-0.08	0.18**	0.32**	1.00																	
7	0.02	-0.16**	-0.16**	0.10*	0.15**	0.26**	1.00																
8	0.04	0.15**	-0.17**	0.29**	-0.05	0.09	0.18**	1.00															
9	0.14**	0.04	-0.18**	0.08	0.34**	0.29**	0.17**	0.01	1.00														
10	0.06	0.19**	-0.19**	0.37**	0.17**	0.25**	0.15**	0.23**	0.12*	1.00													
11	-0.13**	-0.04	0.01	0.04	0.25**	0.38**	0.16**	-0.02	0.31**	0.14**	1.00												
12	0.05	-0.09	-0.01	0.02	0.230**	0.26**	0.19**	-0.25**	0.17**	0.19**	0.34**	1.00											
13	-0.06	0.01	-0.12*	0.00	0.09	0.09	0.30**	0.03	0.03	0.10*	0.04	0.05	1.00										
14	0.15**	0.20**	-0.12*	0.16*	0.10*	0.14**	0.14**	0.05	0.22**	0.18**	0.14**	0.13**	0.29**	1.00									
15	-0.19**	0.10*	0.06	0.06	0.05	0.08	0.11*	0.09	0.00	0.19**	0.16**	0.08	0.13**	0.12*	1.00								
16	0.06	-0.01	0.07	-0.04	0.16**	0.21**	0.13**	-0.12*	-0.01	0.09	0.09	0.18**	0.17**	0.18**	-0.01	1.00							
17	-0.15**	0.07	0.06	-0.01	0.06	0.07	0.02	0.06	0.02	0.06	0.05	0.11*	0.11*	0.13**	0.36**	0.07	1.00						
18	-0.20**	-0.20**	0.23**	-0.19**	0.00	0.01	0.00	-0.19**	-0.09	-0.01	0.08	0.14**	0.04	0.03	0.00	0.19**	0.04	1.00					
19	0.16**	0.23**	-0.18**	0.31**	0.23**	0.14**	0.08	0.17**	0.06	0.28**	0.06	0.16**	0.09	0.31**	0.13**	0.27**	0.13*	-0.09	1.00				
20	0.12*	0.20**	0.02	-0.10*	-0.20**	-0.16**	-0.13*	0.10	0.05	-0.04	-0.08	-0.28**	-0.05	0.06	0.05	-0.15**	0.02	-0.17**	0.00	1.00			
21	-0.05	0.11*	-0.04	0.09	-0.01	0.10	0.09	0.07	0.07	0.17**	0.27**	0.16**	0.12*	0.26**	0.16**	0.05	0.10*	-0.02	0.12*	0.07	1.00		
22	-0.11*	-0.21**	0.04	0.02	0.24**	0.12*	0.12*	-0.13*	-0.07	0.02	0.23**	0.38**	0.10*	-0.02	0.00	0.23**	-0.02	0.24**	0.03	-0.55**	0.05	1.00	
23	0.09	0.20**	-0.09	0.25**	0.27**	0.31**	0.21**	0.27**	0.09	0.44**	0.29**	0.27**	0.16**	0.29**	0.21**	0.21**	0.10	-0.03	0.37**	0.00	0.20**	0.14**	
24	0.14**	0.09	-0.21**	0.26**	-0.06	0.11*	0.10*	0.62**	0.06	0.21**	-0.06	-0.16**	0.05	0.10*	-0.03	-0.04	-0.07	-0.16**	0.20**	0.16**	0.20**	-0.08	
25	-0.02	0.07	-0.06	0.08	-0.09	0.04	0.02	0.34**	-0.07	0.07	0.04	-0.12*	0.07	0.03	0.12*	-0.04	-0.01	-0.09	0.08	0.13**	0.20**	-0.06	
26	0.06	0.12*	-0.05	0.06	0.03	0.06	0.12*	0.03	0.18**	0.14**	0.10*	0.15**	0.15**	0.22**	0.05	0.09	0.03	0.06	0.14**	0.04	0.13*	0.00	
27	-0.28**	-0.26**	0.22**	-0.32**	-0.09	-0.03	0.01	-0.11*	-0.23**	-0.20**	0.08	0.04	0.02	-0.10*	0.04	0.14**	0.09	0.28**	-0.16**	-0.11*	-0.04	0.18**	
28	-0.06	0.14**	0.28**	-0.16**	-0.08	-0.13*	-0.41**	-0.19**	-0.17**	-0.12*	0.00	0.02	-0.10*	-0.06	0.09	0.02	0.12*	0.09	-0.04	0.03	0.02	0.00	
29	0.02	0.09	-0.09	0.25**	-0.02	0.08	0.11*	0.67**	0.06	0.20**	0.04	-0.25**	0.08	0.10*	0.04	-0.13**	-0.01	-0.15**	0.10*	0.08	0.09	-0.11*	
30	-0.05	0.09	0.22**	-0.34**	-0.29**	-0.38**	-0.19**	-0.17**	-0.28**	-0.29**	-0.22**	-0.24**	-0.08	-0.16**	-0.06	-0.10*	-0.02	0.00	-0.22**	0.23**	0.00	-0.19**	
31	-0.10*	0.03	0.03	0.02	0.13**	0.15**	0.20**	0.01	0.08	0.12*	0.20**	0.14**	0.23**	0.25**	0.13**	0.20**	0.07	0.08	0.15**	-0.05	0.17**	0.09	
32	-0.01	0.04	0.13**	-0.08	-0.24**	-0.21**	-0.09	-0.10	-0.40**	-0.10*	-0.23**	-0.14**	-0.12*	-0.11*	0.03	0.00	-0.01	0.01	0.00	0.00	0.00	0.03	

	23	24	25	26	27	28	29	30	31	32
23	1.00									
24	0.15**	1.00								
25	0.14**	0.31**	1.00							
26	0.17**	0.06	0.05	1.00						
27	-0.08	-0.16**	0.01	-0.06	1.00					
28	-0.05	-0.14**	-0.01	-0.07	0.09	1.00				
29	0.11*	0.60**	0.30**	0.03	-0.13**	-0.19**	1.00			
30	-0.34**	-0.11*	-0.06	0.00	0.08	0.19**	-0.17**	1.00		
31	0.25**	0.06	0.03	0.25**	0.05	-0.07	-0.02	0.07	1.00	
32	-0.15**	-0.09	-0.02	-0.15**	0.04	0.13**	-0.09	0.15**	-0.22**	1.00

NOTE: The numbers 1-32 represent the scales. 1. Formal operations. 2. Critical stand towards professors. 3. No interest in deep learning. 4. Egalitarianism. 5. Quality of contact with parents. 6. Quality of contact with fellow students. 7. Quality of contact with professors. 8. Quality of contact with Turkish Cypriots. 9. Self esteem. 10. Support for gender equality. 11. Agreeableness. 12. Identification with Greek Cypriot identity. 13. Excitement about studying. 14. Analytic thinking. 15. Relativism. 16. Realism. 17. Relativism in history. 18. Realism in history. 19. Constructivism in history. 20. Liberalism. 21. Social agency. 22. Religiosity. 23. Mutual respect. 24. Support for coexistence with Turkish Cypriots. 25. Quantity of contact with Turkish Cypriots. 26. Autonomy. 27. Relations of constraint. 28. Negative view of professors. 29. Tolerance. 30. Machiavellianism. 31. Commitment on future plans. 32. No self determination

## 5.6 Cluster Analysis

The Two-step Cluster Analysis<sup>1</sup> on the Greek Cypriot university students divided the sample in two parts, *the smallest cluster* (25%) was characteristic for the high scores of co-operative relations on both the interpersonal and the intergroup level whilst the larger cluster (75%) had significantly lower scores on variables capturing both dimensions so in this respect it expressed a relatively more constrained nature of relationships at both levels. It is clear that there exists a small group of students, which is the ‘ideal’ type of students with the positive characteristics of cognitive and psycho-social development at the highest degree. It is the minority of students which presents all that it is wished to be at the most developed stage. It is worth noting that the distribution of the two clusters was independent of gender and major studied whilst higher SES students were more likely to be found in the more co-operative cluster. The mutual respect cluster shows the direction of student development that this thesis refers to and the interrelations of self-others and self-object that capture a more symmetrical configuration between self and other.

Almost all differences between the means in the two clusters presented in Table 5.6.1 below are significantly different from each other with the exception of *Critical stand towards professors*, *Relativism in history*, *Realism in history*, *Religiosity* and *Liberalism*. The score for *Formal operations*, tended to be higher on the more co-operative cluster. The existence of these non-significant differences on the two epistemological variables should be due to the rather incoherent view of students on epistemological issues with the exception of constrictivism in history whereas in the case of Liberalism and Religiosity it should be due to the generally high scores of the vast majority of students on Religiosity and very low scores of liberalism.

Asymmetrical configurations



Symmetrical configurations



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<sup>1</sup>For this analysis all correlations over 0.50 were deleted in order to avoid the issue of colinearity. Because similar issues are included in the scale Tolerance, the variables Quality of contact with Turkish Cypriots and Quality of contact with Turkish and Support for coexistence with Turkish Cypriots were deleted. Furthermore, Religiosity remained in the analysis and Liberalism was deleted due to their high correlation.

**Table 5.6.1** Cluster analysis

Relations of constraint (75.3% of sample)	Mutual respect (24.7% of sample)
Support for gender equality (4.08/5)	Support for gender equality (4.70/5)
Machiavellianism (2.28/5)	Machiavellianism (1.80/5)
Quality of contact with professors (3.46/5)	Quality of contact with professors (4.11/5)
Quality of contact with fellow students (3.75/5)	Quality of contact with fellow students (4.40/5)
Mutual respect (4.16/5)	Mutual respect (4.65/5)
Agreeableness (3.69/5)	Agreeableness (4.40/5)
Self esteem (3.30/5)	Self esteem (4.06/5)
Liberalism (2.17/5)	Liberalism (2.12/5)
No interest in deep learning (2.30/5)	No interest in deep learning (1.74/5)
Analytic thinking (3.87/5)	Analytic thinking (4.32/5)
Egalitarianism (3.83/5)	Egalitarianism (4.38/5)
Commitment on future plans (2.60/5)	Commitment on future plans (3.09/5)
No self-determination (1.44/5)	No self-determination (0.93/5)
Negative view towards professors (3.46/5)	Negative view towards professors (2.84/5)
Constructivism in history (3.87/5)	Constructivism in history (4.26/5)
Quality of contact with parents (3.99/5)	Quality of contact with parents (4.51/5)
Excitement about studying (2.98/5)	Excitement about studying (3.44/5)
Tolerance (3.84/11)	Tolerance (4.74/11)
Attachment to Greek Cypriot identity (4.01/5)	Attachment to Greek Cypriot identity (4.42/5)
Relations of constraint (2.52/5)	Relations of constraint (2.02/5)
Autonomy (3.47/5)	Autonomy (3.84/5)
Quantity of contact with Turkish Cypriots (1.68/5)	Quantity of contact with Turkish Cypriots (2.02/5)
Social agency (3.20/5)	Social agency (3.54/5)
Relativism (3.53/5)	Relativism (3.84/5)
Formal operations (1.84/5)	Formal operations (1.92/5)
Realism (3.64/5)	Realism (3.76/5)
Realism in history (2.78/5)	Realism in history (2.61/5)
Religiosity (3.63/5)	Religiosity (3.80/5)
Critical stand towards professors (3.52/5)	Critical stand towards professors (3.57/5)
Relativism in history (3.35/5)	Relativism in history (3.43/5)

## 5.7. Change from first to second wave of Longitudinal Study

A paired samples t test was conducted to compare the scores of the subjects who took part in both waves of data collection all 32 variables. The findings are presented in Table 5.7.1. below.

Significant changes were observed only on a few variables. In particular, there was a significant difference  $t(197)=8.90, p<.001$  in the scores for the scale *Relativism in history* of the first wave research data collection ( $M=3.28, SD=0.75$ ) and *Relativism in history* of the second wave data collection ( $M=2.55, SD=0.88$ ). Furthermore, a paired samples t test was conducted to examine the students' *self esteem* at the two different times of the research. There was a significant difference  $t(198)=1.96, p=0.05$  between the scale *Self esteem* of the first wave of data collection ( $M=3.49, SD=0.92$ ) and the scale *Self esteem* in the second data collection ( $M=3.39, SD=0.96$ ).

Moreover, paired t test analysis resulted in a significant difference,  $t(200)=-2.37, p=0.02$  between the scale *Quality of contact with parents* of the first wave of data collection ( $M=4.12, SD=0.74$ ) and the one for the second wave of research ( $M=4.21, SD=0.69$ ). Finally, a paired t test was conducted to examine the students' *religiosity* at the two different times of the research and there was found a significant difference  $t(200)=2.16, p=0.03$  between the scale *Religiosity* of the first data collection wave ( $M=3.63, SD=0.99$ ) and the same scale in the second data collection wave ( $M=3.55, SD=1.00$ ).

**Table 5.7.1.** Paired Sample t test results table

		Wave 1		Wave 2		Paired samples test	
		<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t(df)</i>	<i>p</i>
1	Excitement about studying	3.12	0.79	3.15	0.80	-0.69(200)	0.49
2	No interest in deep learning	2.15	0.70	2.20	0.77	-0.98(200)	0.33
3	Relativism	3.60	0.87	3.60	0.82	0.87(199)	0.39
4	Realism	3.62	0.62	3.57	0.59	1.00(199)	0.32
5	Relativism in history	3.28	0.75	2.55	0.88	8.90(197)	0.00
6	Realism in history	2.65	0.87	2.56	0.88	1.44(196)	0.15
7	Constructivism in History	4.00	0.54	3.98	0.54	0.37(197)	0.71
8	Analytic thinking	3.97	0.58	3.97	0.53	-0.20(198)	0.84
9	Autonomy	3.57	0.76	3.51	0.80	1.18(197)	0.24
10	Formal operations	1.93	0.39	1.93	0.41	-0.17(200)	0.87
11	Self Esteem	3.49	0.92	3.39	0.96	1.96(198)	0.05
12	Agreeableness	3.80	0.81	3.73	0.77	1.66(199)	0.10
13	Identification with Greek Cypriot identity	4.06	0.79	3.98	0.82	1.41(196)	0.16
14	Commitment on future plans	2.78	0.72	2.67	0.70	2.42(200)	0.16
15	No Self determination	1.37	0.70	1.37	0.81	0.00(200)	1.00
16	Critical stand towards the professors	3.58	0.52	3.54	0.46	1.24(200)	0.22
17	Mutual respect	4.32	0.48	4.30	0.50	0.69(200)	0.49
18	Quality of contact with parents	4.12	0.74	4.21	0.69	-2.37(200)	0.02
19	Quality of contact with fellow students	3.85	0.73	3.83	0.73	0.42(200)	0.67
20	Quality of contact with professors	3.30	0.89	3.28	0.88	0.37(200)	0.72
21	Quality of contact with Turkish Cypriots	3.08	0.86	3.06	0.88	0.36(126)	0.72
22	Quantity of contact with Turkish Cypriots	1.80	0.74	1.82	0.78	-0.35(200)	0.72
23	Negative view towards professors	3.30	0.89	3.28	0.88	0.37(200)	0.72
24	Tolerance	4.26	1.51	4.12	1.62	1.81(200)	0.07
25	Machiavellianism	2.15	0.52	2.13	0.48	0.49(200)	0.62
26	Liberalism	2.17	0.93	2.25	0.96	-1.65(200)	0.10
27	Social agency	3.23	0.89	3.22	0.83	0.12(195)	0.90
28	Religiosity	3.63	0.99	3.55	1.00	2.16(200)	0.03
29	Egalitarianism	4.04	0.64	4.03	0.67	0.12(199)	0.91
30	Support for coexistence with Turkish Cypriots	3.34	1.11	3.40	1.18	-1.09(195)	0.28
31	Relations of constraint	2.28	0.94	2.21	0.89	1.00(197)	0.32
32	Support for gender equality	4.28	0.61	4.26	0.63	0.31(200)	0.76

## 5.8. Predicting cognitive and psycho-social development

Given the central role of social relations for both the cognitive and psycho-social development of the students from a social constructivist framework it made theoretical sense for variables capturing aspects of the social relations of the students to be treated as predictors of selected criterion variables that themselves captured aspects of cognitive and psychosocial development of students. Following this rationale *Formal Operations*, *No Interest in Deep learning*, *Commitment on Future plans* and *Tolerance* were selected to be used as criterion variables. The regression method selected was hierarchical regression so that effects of gender, SES and year of studies could be treated in a first block as control variables. In a second block all social relational variables were entered in the equation and in a third and final block the rest of the variables were entered in the model to test whether they contributed unique variance over and above the expected effects of social relational variables.

The hierarchical multiple regression predicting formal operations (see Table 5.8.1. below) revealed that at stage one, the model contributed significantly to the regression model,  $F(4,266) = 11.87, p < .0001$ , and accounted for 14% of the variation in Formal Operations. In particular higher SES predicted higher performance on formal operations ( $\beta = .15, p < .05$ ). In addition a higher Entry Exam Grade predicted higher Formal Operations ( $\beta = .32, p < .001$ ). Introducing the Social relational variables explained an additional 6% of variation in Formal Operations and this change in  $R^2$  was significant,  $F(8, 258) = 2.48, p < .05$ . The most important predictor of Formal Operations in the second model were Egalitarianism ( $\beta = .18, p < .05$ ). It is worth noting that the effects of SES remained significant in the second model also.

**Table 5.8.1.**

Hierarchical Regression Models Estimating Effects of Social Relations on *Formal Operations* (n =271)

Variables	Model 1			Model 2		
	B	SE	$\beta$	B	SE	$\beta$
Gender	-.11	.06	-.10	-.14	.06	-.14*
SES	.08	.03	.15*	.07	.04	.12*
Year of Studies	.01	.02	.01	.01	.02	.000
Entry Exam Grade	.09	.02	.32***	.09	.02	.30***
Mutual Respect				-.04	.05	-.05
Egalitarianism				.09	.04	.18*
Quality of Contact with parents				.04	.04	.06
Quality of Contact with Fellow students				.07	.04	.12
Quality of Contact with Professors				-.01	.04	-.02
Quality of Contact with Turkish Cypriots				-.01	.03	-.02
Quantity of Contact with Turkish Cypriots				.01	.03	.01
Relations of Constraint				-.02	.03	-.04
(Constant)	1.48	.14		1.06	.30	
F		11.87***			5.79***	
Adjusted R <sup>2</sup>		.14			.18	
Change in R <sup>2</sup>					.06*	

\*p < .05, \*\*p<.01, \*\*\*p<.001

In a third stage of the model (not presented in the Table due to the large number of the variables) the rest of the variables were entered in the equation. The rest of the variables accounted for an additional 11% of variance in formal operations and this change in  $R^2$  was significant,  $F(23, 235) = 1,68, p < .05$ . From variables entered in the third model identification with Greek Cypriot identity ( $\beta = .17, p < .05$ ), Liberalism ( $\beta = .15, p < .05$ ), Relativism ( $\beta = -.15, p < .05$ ) and Machiavellianism ( $\beta = .14, p < .05$ ) predicted formal operations. It is worth noting that from the second block *Egalitarianism* remained significant ( $\beta = .18, p < .05$ ). It is also worth noting that the effect of SES remane non-significant whilst that of Entry Exam Grade remained significant ( $\beta = .21, p < .01$ ). The total variance explained by all variables in the model arose up to 21%.

The hierarchical multiple regression for the second criterion variable of *No interest in Deep learning* (see Table 5.8.2 below) revealed that at stage one, the model did not contribute significantly to the regression model. However, Introducing the Social relational variables explained an additional 15% of variation in *No Interest in Deep Learning* and this change in  $R^2$  was significant,  $F(8, 258) = 6.03, p < .001$ . The most important predictor of *No Interest in Deep Learning* in the second model was again *Egalitarianism* ( $\beta = -.29, p < .001$ ) and *Relations of constraint* ( $\beta = .29, p < .001$ ) but additionally this time *Quality of contact with Professors* was also significant ( $\beta = -.19, p < .01$ ).

**Table 5.8.2.**

Hierarchical Regression Models Estimating Effects of Social Relations on *No Interest in Deep learning* (n = 271)

Variables	Model 1			Model 2		
	B	SE	$\beta$	B	SE	$\beta$
Gender	-.03	.11	-.02	.03	.10	.02
SES	-.09	.06	-.09	-.06	.06	-.06
Year of Studies	-.01	.04	-.01	-.02	.04	-.03
Entry Exam Grade	-.06	.03	-.12*	-.06	.03	-.11
Mutual Respect				.04	.09	.03
Egalitarianism				-.28	.06	-.29***
Quality of Contact with parents				-.02	.06	-.02
Quality of Contact with Fellow students				.03	.07	.03
Quality of Contact with Professors				-.20	.06	-.19**
Quality of Contact with Turkish Cypriots				-.04	.06	-.05
Quantity of Contact with Turkish Cypriots				-.05	.06	-.06
Relations of Constraint				.05	.05	.07
(Constant)	2.70	.28		4.21	.53	
F		1.94			4.76***	
Adjusted R <sup>2</sup>		.01			.15**	
Change in R <sup>2</sup>					.15***	

\*p < .05, \*\*p<.01, \*\*\*p<.001

In a third stage of the model (not presented in the Table due to the large number of the variables) the rest of the variables were entered in the equation. The rest of the variables accounted for an additional 12% of variance in *No interest in Deep learning* that brought the total of variance explained to 21%. The change from model 2 to model 3 in  $R^2$  was significant,  $F(23, 276) = 2,07, p < .01$ . From the variables entered in the third model Excitement about studying ( $\beta = -.12, p < .05$ ), *Negative view of professors* ( $\beta = .16, p < .05$ ) and Tolerance ( $\beta = .23, p < .05$ ) predicted *No interest in Deep learning*. It is worth noting that from the second block *Egalitarianism* remained significant ( $\beta = -.19, p < .05$ ) whilst Relations of Constraint was reduced to non-significance.

The hierarchical multiple regression predicting Commitment on future plans (see Table 5.8.3 below) revealed that at stage one, the model did not contribute significantly to the regression model. However, Introducing the Social relational variables explained an additional 10% of variation in *Commitment on future plans* and this change in  $R^2$  was significant,  $F(8, 258) = 3.71, p < .001$ . The most important predictor of *Commitment on future plans* in the second model was Mutual respect ( $\beta = .15, p < .001$ ) and *Quality of contact with Professors* ( $\beta = .15, p < .05$ ).

In a third stage of the model the rest of the variables were entered in the equation. The rest of the variables accounted for an additional 15% of variance in *Commitment on future plans* that brought the total of variance explained to 20%. The change from model 2 to model 3 in  $R^2$  was significant,  $F(23, 276) = 2,63, p < .001$ . From the variables entered in the third model *No self Determination* ( $\beta = -.12, p < .05$ ), *Autonomy* ( $\beta = .14, p < .05$ ) and *Analytic thinking* ( $\beta = .22, p < .001$ ) predicted *Commitment on Future plans*. It is worth noting that from the second block *Mutual Respect and Quality of Contact with Professors both became non-significant*.

**Table 5.8.3.**

Hierarchical Regression Models Estimating Effects of Social Relations on *Commitment on Future Plans* (n = 271)

Variables	Model 1			Model 2		
	B	SE	$\beta$	B	SE	$\beta$
Gender	.08	.10	.05	.05	.10	.03
SES	-.06	.06	-.07	-.09	.06	-.10
Year of Studies	-.01	.04	.01	.01	.03	.01
Entry Exam Grade	.01	.03	.03	.02	.03	.04
Mutual Respect				.19	.09	.15*
Egalitarianism				-.02	.06	-.02
Quality of Contact with parents				.14	.06	.15*
Quality of Contact with Fellow students				.06	.06	.07
Quality of Contact with Professors				.10	.06	.11
Quality of Contact with Turkish Cypriots				-.01	.05	-.01
Quantity of Contact with Turkish Cypriots				.07	.05	.08
Relations of Constraint				.02	.04	.02
(Constant)	2.76	.25		.75	.50	
F		0.48			2.65**	
Adjusted R <sup>2</sup>		-.01			.07**	
Change in R <sup>2</sup>					.10***	

\*p < .05, \*\*p<.01, \*\*\*p<.001

The hierarchical multiple regression predicting tolerance (see Table 5.8.4 below) revealed that at stage one, the model did not contribute significantly to the regression model. However, introducing the Social relational variables explained an impressive 47% of variation in *Tolerance* and this change in  $R^2$  was significant,  $F(8, 258) = 30.38, p < .001$ . The most important predictor of *Tolerance* in the second model was *Quality of Contact with Turkish Cypriots* ( $\beta = .60, p < .001$ ), *Quantity of contact with Turkish Cypriots* ( $\beta = .14, p < .001$ ) and *Egalitarianism* ( $\beta = .14, p < .01$ ).

In a third stage of the model (not presented in the Table due to the large number of the variables) the rest of the variables were entered in the equation. The rest of the variables accounted for an additional 10% of variance in *Tolerance* that brought the total of variance explained to 55%. The change from model 2 to model 3 in  $R^2$  was also significant,  $F(23, 276) = 3.22, p < .001$ . From the variables entered in the third model *Identification with Greek Cypriot Identity* ( $\beta = -.16, p < .05$ ), *Agreeableness* ( $\beta = .10, p < .05$ ) and *Support for co-existence with Turkish Cypriots* ( $\beta = .32, p < .001$ ) predicted *Tolerant* attitude. It is worth noting that from the second block *Quality of Contact with Turkish Cypriots* ( $\beta = .36, p < .001$ ), *Quantity of contact with Turkish Cypriots* ( $\beta = .09, p < .05$ ) although they were reduced in size remained significant. *Egalitarianism* however became non-significant.

**Table 5.8.4**

Hierarchical Regression Models Estimating Effects of Social Relations on Tolerance (n = 271)

Variables	Model 1			Model 2		
	B	SE	$\beta$	B	SE	$\beta$
Gender	.41	.26	.10	.21	.19	.05
SES	.19	.15	.08	.04	.11	.02
Year of Studies	.00	.09	.00	-.06	.07	-.04
Entry Exam Grade	.02	.08	.02	.04	.06	.03
Mutual Respect				-.36	.18	-.10*
Egalitarianism				.33	.12	.14**
Quality of Contact with parents				-.09	.12	-.04
Quality of Contact with Fellow students				.13	.13	.05
Quality of Contact with Professors				.12	.12	.05
Quality of Contact with Turkish Cypriots				1.25	.10	.60***
Quantity of Contact with Turkish Cypriots				.30	.10	.14**
Relations of Constraint				.01	.09	.00
(Constant)	2.70	.68		-1.12	1.02	
F		1.18			21.00***	
Adjusted R <sup>2</sup>		.00			.47	
Change in Adjusted R <sup>2</sup>					.48***	

\*p &lt; .05, \*\*p&lt;.01, \*\*\*p&lt;.001

## 5.9. Longitudinal Correlations

*Checking for selective attrition.* In order to check for selective attrition matched and unmatched participants were compared on all variables at time 1. This was done with a MANOVA comparing the matched with the unmatched participants. The MANOVA produced a significant result,  $F(34, 276) = 1.52, p = 0.34$ . Further univariate analyses revealed significant differences on 4 out of the 32 variables. *Egalitarianism, Tolerance, Relations of Constraint, and Formal Operations.* The dropouts were scored lower on *Formal operations, Egalitarianism and Tolerance* from participants who completed both waves. In addition they were more likely to score higher on *Relations of Constraint*. In other words it appeared that the profile was systematic in that it represented greater attrition from students who either found the first part of the questionnaire harder to solve or where averted from the nature of questions relating to Turkish Cypriots and other groups, probably for ideological reasons. According to Ahern & le Broc (2005) there are two main ways in dealing with biased attrition. The first is applying weights or replacing means through advanced statistical techniques. The second is to take it into consideration in the interpretation of the effects. Due to the large attrition and the nature of cross-lagged analyses we were aiming for we decided to follow the second solution.

The zero-order intercorrelations between the variables of the two waves are presented in Table 5.9.1 below. As it can be seen the autocorrelations were generally high ranging from 0.40- 0.85 with epistemological variables showing the lower stability and ideological variables and religiosity showing the higher levels of stability.

**Table 5.9.1**  
**Correlation Matrix for the 32 scales in T1 and T2**

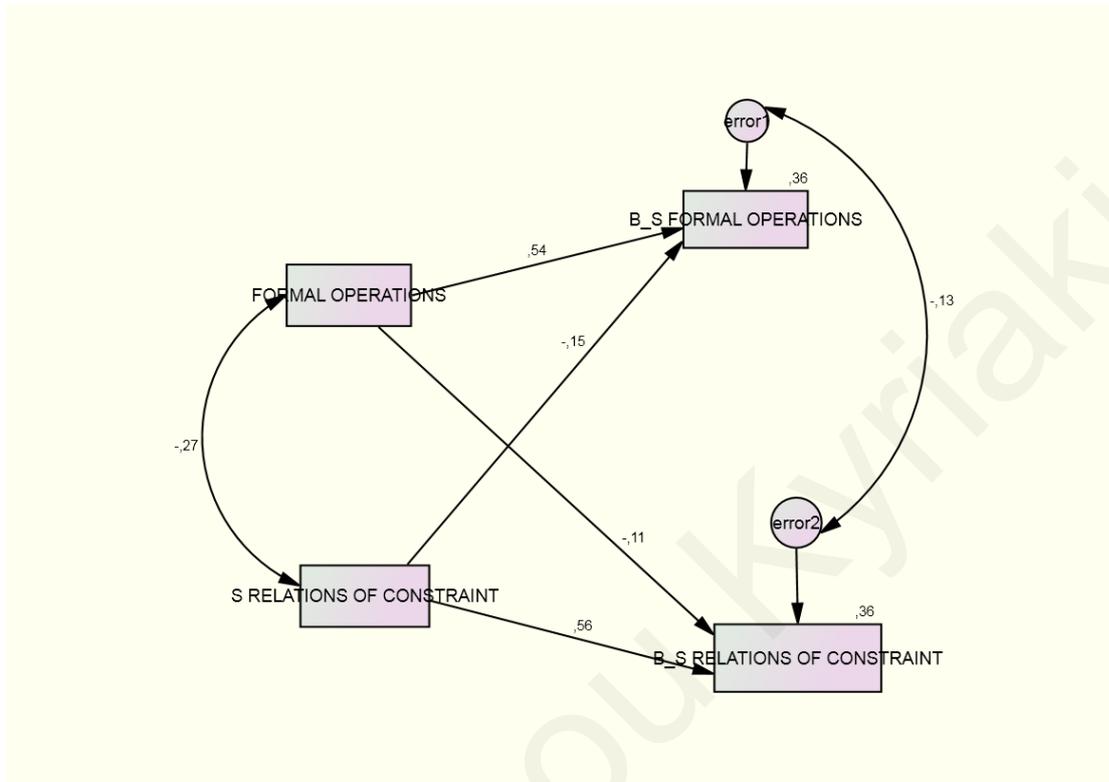
T1	T2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
1		0.60																						
2		-0.14	0.55																					
3		0.03	0.14	0.59																				
4		0.08	0.80	-0.13	0.40																			
5		0.13	-0.04	0.43	0.01	0.40																		
6		0.09	0.18	0.04	0.25	0.01	0.48																	
7		0.07	-0.09	-0.14	0.16	0.04	-0.24	0.43																
8		-0.03	-0.17	-0.16	0.01	-0.06	-0.15	0.08	0.57															
9		0.19	-0.13	-0.01	0.09	0.08	-0.08	0.27	0.11	0.55														
10		0.11	0.05	0.02	0.01	0.13	0.06	0.09	-0.03	0.21	0.58													
11		0.12	-0.23	-0.02	-0.13	0.08	-0.03	0.14	0.08	0.29	0.21	0.72												
12		-0.02	-0.01	0.17	0.07	0.04	-0.06	0.06	-0.02	0.19	0.10	0.16	0.75											
13		0.13	-0.07	0.03	0.01	0.13	0.03	0.01	0.06	0.06	0.04	0.20	0.22	0.60										
14		0.34	-0.06	0.10	0.09	0.10	0.02	0.21	-0.15	0.23	0.14	0.13	0.19	0.13	0.56									
15		-0.19	0.20	0.03	0.05	-0.06	0.03	0.02	-0.05	-0.17	-0.17	-0.35	-0.14	-0.15	-0.19	0.58								
16		-0.03	-0.10	0.10	-0.13	0.06	-0.17	0.15	-0.02	0.16	0.09	-0.00	-0.02	-0.05	0.01	0.01	0.58							
17		0.07	-0.07	0.06	0.09	0.14	-0.07	0.34	0.08	0.27	0.10	0.29	0.23	0.15	0.17	-0.22	0.08	0.55						
18		0.09	-0.04	0.11	0.17	0.00	0.02	0.15	-0.04	0.25	0.10	0.40	0.20	0.28	0.27	-0.26	-0.03	0.23	0.74					
19		0.03	-0.07	0.09	0.22	0.05	-0.11	0.04	-0.02	0.07	-0.06	0.27	0.28	0.14	0.16	-0.19	-0.12	0.26	0.15	0.62				
20		0.20	-0.15	-0.04	0.02	-0.12	-0.02	0.01	-0.06	0.05	0.05	0.15	0.11	0.08	0.05	-0.12	-0.20	0.12	0.11	0.14	0.63			
21		0.04	-0.31	-0.11	-0.04	-0.05	-0.12	0.13	-0.00	0.10	-0.04	0.18	-0.06	-0.13	-0.12	-0.09	0.16	0.15	0.02	0.15	0.08	0.78		
22		0.08	-0.05	0.16	-0.00	0.05	-0.01	0.12	-0.11	0.02	0.02	-0.02	0.05	-0.16	0.02	-0.02	0.05	0.08	-0.12	0.06	0.01	0.33	0.84	
23		-0.14	0.18	0.11	-0.05	0.07	0.06	-0.02	-0.13	-0.09	-0.01	-0.12	0.06	0.02	-0.06	0.11	0.20	-0.11	-0.10	-0.14	-0.31	-0.16	0.01	
24		0.04	-0.28	-0.07	0.04	-0.05	-0.12	0.22	0.07	0.11	-0.05	0.10	-0.02	-0.20	-0.07	-0.03	0.06	0.18	0.06	0.11	0.10	0.65	0.18	
25		-0.03	0.22	-0.01	-0.05	-0.03	-0.03	-0.10	-0.11	0.03	-0.01	-0.27	-0.19	-0.23	0.03	0.26	0.19	0.30	-0.25	-0.32	-0.13	-0.20	-0.06	
26		-0.07	-0.13	0.05	-0.15	-0.13	-0.25	-0.01	0.09	0.01	0.04	-0.03	-0.17	-0.24	-0.03	0.02	0.16	-0.01	-0.20	-0.13	-0.01	0.09	0.10	
27		0.09	-0.17	0.08	0.05	0.15	-0.04	0.12	-0.08	0.14	0.04	0.09	0.26	0.03	-0.02	0.02	0.11	0.17	-0.15	0.05	-0.02	0.20	0.22	
28		0.08	0.04	-0.07	0.14	-0.03	0.09	0.03	-0.00	-0.05	-0.03	-0.05	0.16	0.28	0.03	0.01	-0.16	0.02	0.13	0.05	0.02	-0.00	-0.07	
29		-0.15	-0.14	0.04	-0.16	0.07	-0.11	0.31	0.11	0.03	0.05	0.01	0.01	-0.01	-0.03	-0.07	0.13	0.25	0.20	0.03	0.02	0.26	0.08	
30		0.02	-0.22	-0.21	-0.04	-0.11	-0.08	0.21	0.12	-0.02	0.03	0.06	-0.11	-0.14	-0.04	-0.02	-0.00	0.05	-0.03	0.08	0.05	0.55	0.17	
31		0.12	0.12	0.02	0.24	0.00	0.26	-0.24	-0.22	-0.08	-0.06	-0.11	0.18	0.02	-0.02	0.03	-0.25	-0.14	-0.05	0.02	0.12	-0.15	-0.11	
32		-0.04	-0.06	0.03	-0.03	0.08	0.07	0.17	0.01	0.07	0.07	0.11	0.10	0.15	0.08	-0.15	0.04	0.32	0.15	0.16	0.09	0.21	0.01	

	23	24	25	26	27	28	29	30	31	32
23	0.65									
24	-0.24	0.77								
25	0.16	-0.09	0.71							
26	-0.07	0.18	0.18	0.76						
27	0.03	0.17	0.17	0.11	0.60					
28	0.09	-0.02	-0.02	-0.54	-0.13	0.84				
29	-0.20	0.26	0.26	0.07	-0.04	-0.09	0.50			
30	-0.14	0.54	0.54	0.05	0.14	-0.07	0.21	0.77		
31	0.05	-0.12	-0.12	-0.28	0.02	0.32	-0.22	-0.18	0.56	
32	-0.24	0.26	0.26	-0.06	0.06	0.01	0.30	0.21	-0.22	0.59

NOTE: The numbers represent the scales.

1. Excitement about studying, 2.No interest in deep learning, 3.Relativism, 4.Realism, 5.Relativism in history, 6.Realism in history, 7.Constructivism in history, 8.Formal operations 9.Perception as having analytic thinking, 10.Autonomy. 11.Self esteem, 12.Agreeableness 13.Identification with Greek Cypriot identity, 14.commitment on future plans, 15.No self determination, 16.Critical stand towards the professors, 17.Mutual respect, 18. Quality of contact with parents, 19.Quality of contact with fellow students, 20. Quality of contact with professors, 21.Quality of contact with Turkish Cypriots, 22.Quantity of contact with Turkish Cypriots, 23. Negative view towards the professors, 24.Tolerance, 25.Macchiavellianism, 26.Liberalism, 27.Social agency, 28.Religiosity, 29.Egalitarianism, 30.Support for coexistence with Turkish Cypriots, 31.Relations of constraint, 32. Support for gender equality

In order to further test the directionality of the relationships between the possible predictor variables examined earlier with the regression models and the same outcomes a two-panel cross-lagged model was estimated through AMOS. An example of this model is depicted in Figure 5.9.1 below.



**Figure 5.9.1 Two wave cross-lagged associations between relations of constraint and formal operations.**

The results of the estimations with AMOS on all four outcome variables are presented in Table 5.9.2 below.

**Table 5.9.2.**  
Cross-lagged associations and their significance

X	Y				
		Formal Operations	No Interest in Deep Learning	Commitment on Future Plans	Tolerance
1	Formal Operations	N/A	-	-	-
2	Critical Stance towards Professors	-	-	-	0.12*R
3	No interest in deep Learning	-	N/A	-	-0.19***R -0.14***D
4	Egalitarianism	-	-	-	0.10+R
5	Quality of Contact with parents	-	-0.23***D	0.19***R	-
6	Quality of Contact with fellow students	-	-	-	-
7	Quality of Contact with Professors	-	-	0.12*D	0.14*R
8	Quality of Contact with Turkish Cypriots	-	-	-	0.37***R 0.21***D
9	Self Esteem	-	-0.18***D -0.10+R	-	-
10	Support for Gender Equality	-	-	0.11*D	0.11*R
11	Agreeableness	-0.09*D, 0.18**R	-	0.13*D	-
12	Identification with Greek Cypriot Identity	-0.10+D	-	-	-
13	Excitement about Studying	-	-0.15**R	0.23***D	-
14	Analytic thinking	-	-	-	-
15	Relativism	-	-	0.12*R	-
16	Realism	-	-	0.13*R	-

17	Relativism in History	-	-	-	-
18	Realism in History	-	-	0.10+R	-
19	Constructivism in History	-	-0.12*D	0.18**D	0.09*D
				0.10+R	
20	Liberalism	-	-	-	0.12***R
					0.08+D
21	Social Agency	-	-0.16**R	-	-
22	Religiosity	-0.15**D	-	-	-
23	Mutual Respect	-	-	0.15*D	0.08+D
24	Support for coexistence with Turkish Cypriots	-	-	-	0.18***D
					0.12*R
25	Quantity of Contact with TCs	-	-	-	0.12*R
26	Autonomy	-	-	-	-
27	Relations of Constraint	-0.15* D	0.15*D	-	-
		-0.11+R			
28	Negative view of Professors	-	-	-	-
29	Tolerance	-	-0.19***D	-	N/A
			-0.14***R		
30	Machiavellianism	-	-	-	-
31	Commitment on Future Plans	-	-	N/A	-
32	No Self Determination	-	0.12*R	-0.11+R	0.10+R

+p<0.10, \*p < .05, \*\*p<.01, \*\*\*p<.001

Note: D Indicates a significant direct effect from X to Y, R indicates a significant reverse effect, from Y to X.

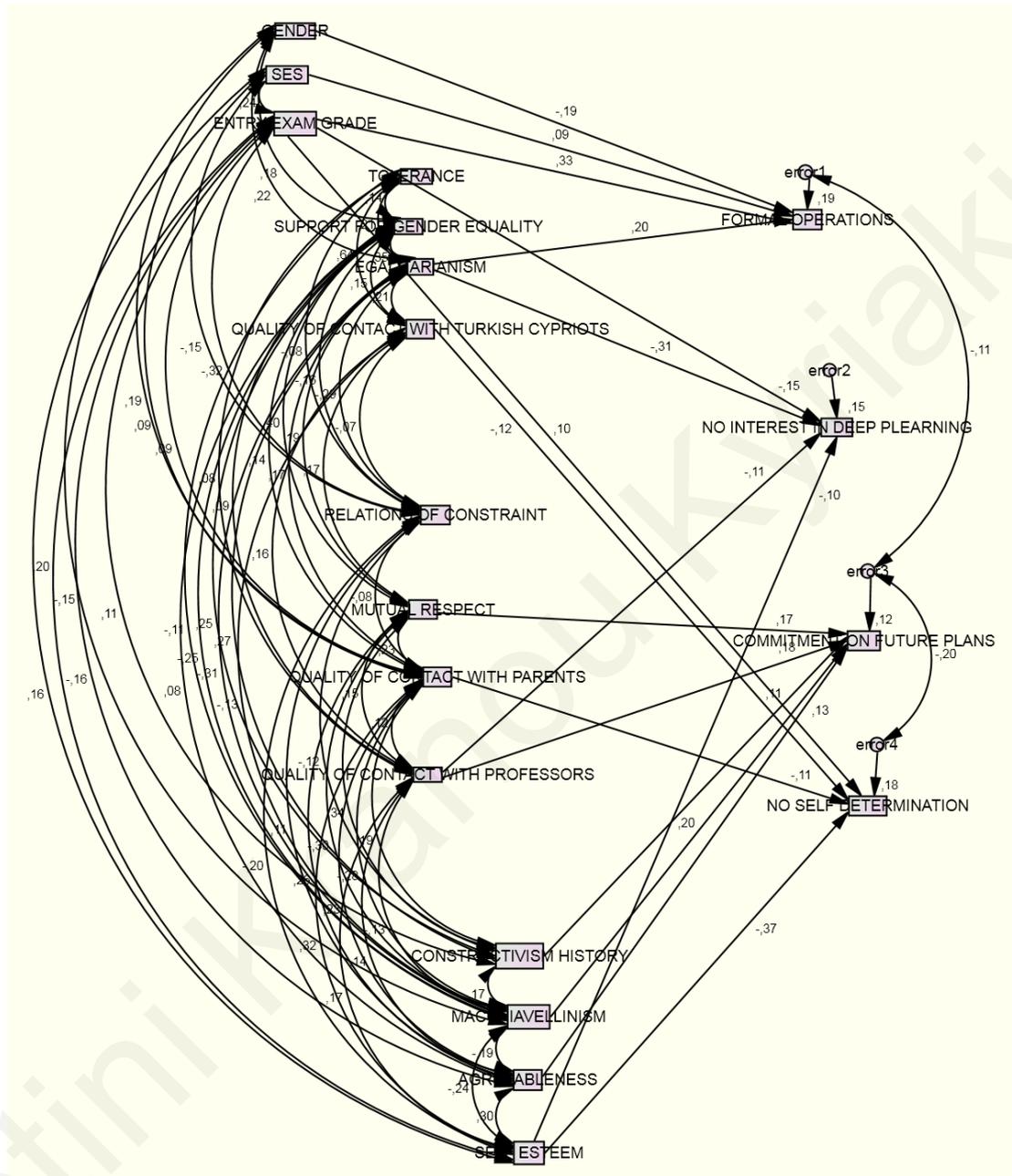
On the whole, a systematic study of the direction of the significant correlations presented in Table 5.9.2 above suggested that *Tolerance* worked better as a predictor than an outcome of *No interest in deep learning*. Given the widespread ideological and rather stable nature of this variable in society in the final section of the analysis it was attempted to construct a

holistic model capturing variables from all levels of analysis (Doise, 1986) where Tolerance was rather treated as a Predictor variable. On the contrary *No self-determination* functioned well as seen in Table 5.9.2 above as an outcome of most of the rest of the variables and thus made sense that would also be an outcome of the rest of the variables. For this reason in the final analysis it is treated as a n outcome variable. On theoretical grounds self-determination would be expected to correlate with commitment to future plans at the same level as it concerns a sense of self-determination of self and its future. The model that represented the data best, and could be supported to a great extent by the direction of the longitudinal associations was constructed through AMOS and it is presented in the next section.

### **A social-relational model of socio-cognitive development**

The model that was fitted to best describe the structural relationships between the variables in the most parsimonious way can be seen in Figure 5.9.5. This model controls for gender and SES. Year of studies was not included in the model as it was not found in the regression analyses to have any significant effect on the criterion variables. It is interesting to note that both gender and SES predict formal operations over and above various other variables that span the four levels of analysis by Doise. In this sense the model is probably capturing sedimented effects of social interaction over the previous years that internalised in a more or less stable form by this age in the form of gender differences. It should be remembered that one of the basic components of the formal operational tasks were spatial rotation tasks where it is a well-known findings that gender differences are found usually after the age of 10 and that one of the possible interpretations of this difference come from a social constructivist framework (Ahern & Le Brocque 2005). The effect of SES over and above all other predictor variables in the model is also important as a similar argument could in fact be made for SES as another source of privilege and status asymmetry that has formative effects in childhood as already predicted by Psaltis, Duveen and Perret-Clermont (2009) in the context of the third generation of research. Further support for a social constructivist argument comes from the bidirectional intercorrelations of SES suggesting that higher SES is related to reduced belief in relations of constraint and better quality of relationships with parents, self esteem and support for gender equality. In the case of gender the intercorrelations suggest that women are more likely than men to support gender equality and equal relations between groups which suggests that they recognise the societal inequality against them in the field of gender but as discussed earlier in the section of gender differences,

compared to men are less likely to translate into action this resistance towards what represents the authority of institutions, and ideologies that undermine the position of women compared to men. The weak status of the feminist movement in Cyprus adds further support to this argument (Ahern & Le Brocque 2005).



**Figure 5.9.2 A social relational model of student’s cognitive and psycho-social development**

Fit Indices:  $\chi^2(76) = 80.24$ ,  $p = 0.35$ , ns, CFI=0.99, FMIN=0.18, RMSEA=0.0001

Despite the fact that the model does not explain a large amount of the variance on the criterion variables, it nevertheless clearly shows the important role of social relations in both cognitive and psychosocial development of students. What is interesting in this model is that interpersonal and intergroup aspects of social relations differentially predict different aspects of the outcomes.

Importantly, Egalitarianism which refers to the intergroup level predicts formal operations, deep learning only. Quality of Contact with Turkish Cypriots uniquely predicts commitment on future plans. Quality of contact with parents predicts self-determination and finally quality of contact with Professors predicts both commitments on future plans and deep learning. More generally, it appears that the quality of interpersonal social relationships with ingroup members serves group-related functions of the ingroup but with little or no bearing on *formal operations* beyond increasing the *self-determination* of the individual and in the case of co-operative relations with Professors, increasing deep learning. On the contrary, when social relationships extend to relations with various “others” thus including members of various outgroups through egalitarianism both the cognitive development, deep learning of students and self-determination of students is influenced. Authority related notions of the transmission of knowledge from authority as originally suggested by Piaget hinder cognitive development, and this seems to be done through a number of variables that span all four levels of analysis. Relations of Constraint in particular and constructivism seem to occupy a central supportive role in that they relate to both variables “above” from the ideological level and “below” from the intrapersonal level of analysis that in turn directly relate to the cognitive and psycho-social outcomes. What is important to note is that the proposed direction of most of the paths in the model presented was also supported by cross-lagged analyses presented in the previous section.

In terms of the central and direct role of *egalitarianism*, the model suggests that they predict both an increase of *formal operations* and *deeper learning* and shows the readiness to take into consideration one’s view irrespective of where the other is coming from or belongs. This allows for cognitive development and the development of deeper engagement with learning. It furthermore explains the idea of dialogical thought; that true knowledge is the coordination of various perspectives. The model suggests that quality of contact with parents predicts *self determination*; this clarifies that if the relationship between parents and child is based on *mutual respect*, children learn to be responsible which resonates with what Piaget (1932) referred to as subjective responsibility, based on relations of cooperation.

The bidirectional relationship of variables at the intrapersonal level with a number of variables from the other levels of analysis is also worth noting despite the fact that their effects on commitment on future plans seem to be somewhat contradictory.

*Agreeableness* assists in the clearing of a students' future career plans, though commitment on future plans did not turn out to be as a good indicator of human development, as it does not truly explain if future plans are decent or corrupt. *No self determination* is better as a human development indicator, because it entails characteristics of human agency and motivation. For this reason, self-esteem can predict *self determination*, but does not predict commitment on future career plans, which is clearly predicted by *macchiavellianism* and by *constructivism in history*. Moreover, *quality of contact with Turkish Cypriots* is another predictor of *self determination* and it can be argued that it appears that if an individual has the courage to move away from the dominant ideology of a post-conflict society and come to *contact with Turkish Cypriots*, then his or her critical faculties develop in the form of enhanced self-determination and a sense of agency.

The model also suggests that gender is a predictor of *formal operations*. Women of this research scored lower on formal operations as the scale's items emphasized included spatial cognition tasks and it is a well known fact that there exist a discrepancy in the spatial ability between the genders (Karaagac, 2013). But importantly the present findings also suggest one possible mechanism that forms such a difference. One explanation of this divergence for example is the gender related influence of social interaction in young children regarding through unequal participation in the joint construction of spatial ability tasks (Psaltis, 2011). More specifically, in the 'village-task' by Psaltis (2011) it was demonstrated that gender along with expertise on the task can create status asymmetry in peer interaction and can affect communication, learning, and cognitive development in mixed-sex dyads. The direct path between gender and formal operations could in fact be capturing sedimented effects of this type at the individual level of analysis. Additionally, the grade of the entry examination predicted the formal operations ability and the true interest in deep learning. Importantly, Entry Exam Grade also retained one of the higher covariances in the variable with Relations of constraint ( $b=-0.32$ ,  $p<0.001$ ) which probably suggests that many students who before their studies believed in Relations of constraint in fact did not even make it to the University.

The pattern of correlations is previously discussed in the interrelationships between the variables section (section 5.5) suggests that variables of all four levels of analysis, intrapersonal, interpersonal, positional and representational, relate to each other and thus the

relationships between the variables suggest the interpretation of the distinct *subject-object-other* configurations as we saw in table 5.6.1.

Fotini Kranou Kyriakides

## Chapter 6: Discussion

The five research questions that this thesis attempted to answer were: a) Offer a description of the profile of Greek Cypriot undergraduate students, b) Explore possible differences in terms of gender, socioeconomic status (SES) and year of studies on the variables measuring aspects of the psychosocial and cognitive development of students across their academic studies and c) Explore longitudinal changes in period of 1 year shift on the variables measuring aspects of the psychosocial and cognitive development of students, d) Identify patterns of interrelationship between the variables e) Specifically explore a social constructivist account of the role of the quality of social relationships for learning and cognitive development.

### *The profile of Greek Cypriot University students*

Most of the participating in the research Greek Cypriot students studying in Cyprus come from middle class households with average SES. Moreover, the majority of the group is single and lives with their parents. Most of the participants have a grade point average (GPA) of 7-7.9 out of 10.

Most of the Greek Cypriot students are excited about their major and are interested in true and deep learning, not only regarding subjects of their area of specialization, but also for other academic subjects. What is of importance to note here is that students of health sciences are *not so interested in deep learning* when compared to the students in the fields of letters, humanities, social sciences and education, economics and management, and health sciences. This is due to the fact that in this thesis, health sciences students are students of Nursing, for which the entry process is less antagonistic due to lower entry exams grades requirements, as well as a larger number of positions given from the Cyprus University of Technology. If the questionnaire was to be applied again, it would include students studying Medicine at the University of Cyprus. The school of Medicine commenced its works in September 2013. Students of the STEM field are at the higher level of *formal operations* presenting higher levels of intellectual abilities when compared to other students but it should be noted that such differences are accounted by their previous performance in the entry exams. It needs to be mentioned that the formal operation tasks are the kind of tasks that students of the STEM fields of study usually engage with not only during their training for their discipline but also before during their studies in secondary education when they usually specialise in mathematics, physics and chemistry. In this sense such a finding would be in line with

Piaget's (1972) argument that it is possible depending on aptitude and practice for some individuals to reach that level of thinking in their specific field of studies (see Kuhn, 2007). Moreover, students with developed abilities in a specialized area due to interest and practice, may not be as adept in other areas of expertise. For example an engineering student may not be as skillful in analyzing, appreciating and comprehending a novel as a social science or education student. Still, judging from the variables measured in this thesis where STEM students scored higher and often at equal levels with the students of social sciences and humanities they generally seem to fare well in both their cognitive and psycho-social development.

Greek Cypriot university students are generally highly *religious*, with the majority being members of the Greek Orthodox church; religion is an important aspect of their life, the vast majority believe in God and they attend church frequently. As it could be assumed, their views are not very liberal, with students of health science majors being the most conservative and STEM students being more liberal though still below average levels of *liberalism*. The majority of Greek Cypriot students (mostly female) disagree with the act of sexual intercourse between two individuals who do not know each other very well and also disagree with the possibility of legalization of marijuana and abortion.

Interestingly, the majority of Greek Cypriot students believe in their ability to change society and politics. As expected, they demonstrate high levels of *egalitarianism* characteristics like the support of weak social groups and promotion of social equality. Unsurprisingly, they are against relationships that are based on *constraint* and control. Consecutively, they *view others as equals*, respect others' autonomy, accept and appreciate difference among individuals and strongly support the equality between men and women. In line with this, most express low levels of *Macchiavellianism*, and prefer to be liked and kind to people they meet, as well as cooperate with others than be antagonistic, cynic, suspicious, manipulative and obstinate about their beliefs. The *quality of relationships* between them and other individuals seem to play an important role in their lives as they score highly when they report quality in their *relationships with their parents, fellow students* although they score much lower when it comes to contact with *Turkish Cypriots*. The views of the students towards Turkish Cypriots generally seem to be reserved and are obviously related to the unresolved situation of the Cyprus issue. The pattern of correlations between the variables referring to intergroup relations are what one might expect in a post-conflict and divided country. *Identification with Greek Cypriot identity* is of high importance in the university students who participated in this thesis with health sciences students scoring higher than

students in other fields and STEM students displaying the lowest scores. The students present neutral feelings towards Turkish Cypriots and negative to very negative feelings towards Turkish people, as well as neutral feelings towards foreign workers. Regarding the *quality of their contact with Turkish Cypriot individuals*, they mostly report moderate levels of contact whilst contact between the two communities is kept at very low levels. It is noteworthy that across major the students have the same views about Turkish Cypriots on all relevant variables.

Most of Greek Cypriot students perceive themselves as being *analytic thinkers*, trying to improve their logic thought and search for evidence for problems. When it comes to their epistemological views most adhere to constructivist views, however, often such views go hand in hand with less developed views like *realism* and *relativism* which suggests that many students do not have a clear or stable epistemological stance or are probably transitioning between positions. The lack of a consistent epistemological stance is exacerbated when we compare their general epistemological stances with the corresponding specific epistemological stances of historical knowledge. This finding in fact points to a source of inconsistency in the thinking of students that has to do with the application of double epistemological standards depending on the content at hand.

Most of the students, hold a *critical stand towards their professors*, evaluating and contemplating what they hear from them, comparing their views as opposed to those of their professors and often disagreeing with them. However it is noteworthy that a number of students holds a negative view towards their professors believing that their professors act as if they are too smart and that they make courses more difficult than they should. Interestingly, such a stance was found to be related with low socio-economic status of the families of the students which suggests that a certain social capital is needed for the cultivation of a critical stance towards professors without this critical stance being turned into a negative social relationship.

Though the majority of the university students live with their parents, they state that they are highly *autonomous* and they do not get influenced by others' views. Most show high levels of agreeableness and enjoy the presence of many people around them in order to relate with one another which relates with high levels of *self esteem*. Students in the social sciences and education majors tend to show higher levels of self esteem, which could be for the reason that students of this academic area study and work on subjects which relate to sociology and psychology, therefore they have the opportunity to read and learn about subjects, which lead to self growth and advancement of self esteem.

In addition, Greek Cypriot students presented an average *commitment on future plans* with the students of health science majors presenting the highest levels of commitment. This is probably because they are mostly nurses who still manage to get immediate employment in Cyprus. At the time of the research, Cyprus enjoyed a prosperous economic standing ranking among the richest countries in the European Union although unemployment was on the increase, especially concerning the youth from the social sciences. Interestingly, the students majoring in Economics and management showed the higher scores of relations of constraint which might be due to the instrumental rationality and antagonism prevailing in the search for self-interested financial profit which is a central motive in these fields.

*Is there development during the University years of Greek Cypriot students after all?* One of the main findings of this study is the high stability rather than change in cognitive and psychosocial development of the students during their academic studies in the university which presents a rather static and not encouraging picture for the role Universities in Cyprus in promoting the cognitive and psycho-social development of their students. This is however partly consistent with the international research on student development. As we saw in chapter 1 Perry originally argued that the changing viewpoint beyond the fifth position is not structural and that undergraduate students seldom display post-contextual-relativistic thinking. Later studies that took place over the years (Baxter-Magolda, 1992; King & Kitchener, 1993; Moore, 1991, 1994; Thomson, 1990) indeed supported this assertion in that only a small number of students even in their final year of studies reason consistently from a stance beyond the contextually relativistic perspective.

In this sense the findings from Cyprus are no exception but one might expect to find more openness to diversity than the one found in Cyprus which can be attributed as discussed earlier to the unresolved Cyprus issue and the absence of any contact or conflict resolution programs in the universities that could directly tackle these issues and help students in the development of more tolerant attitudes towards diversity.

On the vast majority of the variables students of various years score at comparable levels. Longitudinal comparisons between the two points of measurement, 16 months apart, also give more or less the same picture. For example from the cross-sectional comparisons we find that some openness on ideological issues starts to emerge indicated by the reduction of *identification with Greek Cypriot identity* and increase on *liberalism*. This might be due to the fact that a significant number of the students is distanced from the teachings of the official historical narrative that promotes patriotism in the educational system (Makriyanni & Psaltis, 2007) and are no longer taught religion as the catechism of the Greek orthodox dogma. This is

also supported by the significant increase in the adherence to more liberal views each year. Students also become involved in a social environment with various influences and have the chance to come to contact with ERASMUS students from many other European countries which facilitates their decentering from the narrow and ethnocentric view of their perspective. Moreover, their involvement with academic courses enhances the way they view a number of subjects, as well as their hands on experience with every day issues develops the way they think and act.

But at the same time there is also “negative” change observed on the quality of contact that students have with their professors which decreases from freshman to senior year and a significant decrease in their belief that they can change society especially during the final year of their studies which is probably to an increasing feeling of imminent “insertion” in the existing system.

Some support for the direction of, more openness to liberal views, also comes from the findings of the longitudinal analysis. These findings are also in line with an epistemological shift away from relativism and realism. The degree to which students view, interpret and understand history as relative (*Relativism in history*) was significantly reduced over the time that elapsed between the first and second time of data collection. A similar trend was observed for *Realism in history* whilst the contrary the more valued and highly developed according to Perry and other student development theorists seems to be quite stable.

Furthermore, the examination of the students’ *self esteem* one year apart showed that their self esteem was reduced in time. One would expect that *self esteem* would grow and develop higher in university years as independence, self-determination and autonomy are expected to increase, yet this thesis found that it is actually reduced which might be related to the reduction of their collective *self-esteem* in relation to *Greek Cypriot identification* and an increasing sense of humility for the vast amount of knowledge available in all the scientific fields. Another change was the increase in the quality of a more co-operative relationship between the students and their parents throughout time.

*Triadic configurations: self-object relationships and their relation to the self-other relationships*

The findings of the present thesis clearly show that the pattern of interrelationships of *relations of constraint (self-other)* vs *Relations of Co-operation* in their various forms can be described as triangular configurations of *subject-object-other* in an interdependent system. In particular, as expected, students who believe in relations of constraint longitudinally were

found to be more likely 16 months after the first measurement to lose their interest and motivation in learning, and score lower on formal operations.. Furthermore, students that believe in the value of relations of constraint are also more likely to entertain naïve epistemological views, like for example realism. As shown in the interrelationships between the predictors of the final SEM model and the results from cluster analysis, Relations of constraint are supported by variables both at the ideological level of analysis (lack of support for gender equality, and intolerance for alterity) and the intrapersonal level of analysis (lack of self-esteem, agreeableness taking the form of conformity). On the contrary resistance to relations of constraint supports egalitarianism which occupies a central position in the model and is supported by tolerant attitudes towards otherness, a more generalized sense of mutual respect in relationships, as well as support in the ideological positioning for tolerant attitudes towards diversity and gender equality. It is worth noting that *egalitarianism* is related to variables at the interpersonal level like that of co-operative relationships with parents in specific and variables at the cooperative relations at the intergroup level. This sense of *egalitarianism* towards a generalized other is somewhat different from the variable of *mutual respect* which seems to be contained in the horizon of interpersonal relationships with the ingroup. Importantly, it is egalitarianism and not *mutual respect* that predicts higher *formal operative thinking* and *interest in deep learning*. *Mutual respect* with its constrained ingroup horizon only supports commitment to future career plans which is in turn not devoid of a dubious ethical stance as it could even be supported by *Machiavellian* thinking, as seen in the SEM model. On the contrary, *Self-determination* as an outcome of psycho-social development is unrelated to *Machiavellian* thinking and is largely driven by *self-esteem* and co-operative relations with both parents and Turkish Cypriots suggesting a sense of agentic stance that is in a position to challenge prevailing norms. All in all, it would appear that the clarity on future career plans is not a good candidate for measuring psycho-social development of students. Not only because it is largely dependent on the prevailing socio-economic situation in a society, not only because it might even be supported by *Machiavellian thinking* but also because it is negatively related to formal operational thinking as shown in both the bivariate correlations Table and the SEM model. Instead. *Self determination* could be a good candidate to include in a holistic theory of student development and its role should be further explored in the field.

In this thesis cognitive development was measured through a test measuring formal operational thinking that was treated as an important outcome of students' development. The final SEM model presented in the results section suggests that about 20% of the variance in

formal operational thinking is explained by gender, SES, previous performance at the Lyceum and Egalitarianism. Longitudinally it was also found to be predicted by low levels of *Relations of constraint*.

The attainment of skills for deep learning was also treated as an important outcome of psycho-social development. This outcome is also predicted by *Egalitarianism* and is thus also supported by an ideological system of *tolerance* and co-operative interpersonal relationships with their parents. It is also directly predicted from the entry exam grade. The pattern of interrelationships of this variable with the rest of the variables suggests that it is clearly supported by a subject-object-other configuration of co-operation that offers a more equilibrated structure d' ensemble in Piagetian terms. Students with *no interest in learning*, who like rote learning and memorization have a negative attitude towards their professors and also score high on the *Macchiavellianism* scale. They also tend to have negative and unequal relations with fellow students, their parents and Turkish Cypriots. This superficial attitude towards learning is clearly related to the epistemological stance of the students in the predicted direction based on Perry's scheme and is more clearly seen in the measures that concern historical knowledge.

The pattern of interrelationships of the scales *constructivism in history* vs *realism in history* is a nice example of how variables describing the self-object dimension of the triad relate to *other*, *self*, and *ideology* scales. The pattern of relationships presented in the results section suggests that the students with naïve realist views about history like those of belief that historical facts speak for themselves and need no interpretation and that the historical truth is given relate with a social dominance orientation, lower formal operative thinking, *No interest in deep learning* and absence of *critical stance towards professors*. In the case of *constructivism* the pattern of relationships goes in the opposite direction. It would appear that due to their relationship with ideological variables the epistemological stance on history has a supportive role and their effects through the mediation of social relational variables although this was not tested in the present thesis. On the contrary there is evidence here a from the longitudinal associations that a careerist orientation might actually lead to lower levels of epistemological development like that of general realism and relativism.

An interesting pattern of interrelationships was observed when the scale *identification with Greek Cypriot identity* was examined with all the other variables. It was found that students who were highly attached with their Greek Cypriot identity enjoyed high levels of quality characteristics in their *contact with their parents*, with their *fellow students*, but there

was a negativity in the *quality of contact with Turkish Cypriots*. Moreover, they were more prejudiced towards different groups other than Greek Cypriots like Turkish Cypriots, Turkish and foreign workers. This observation suggests that students with strong attachment to their ethnic identity in line with Tajfel's (1978) Social Identity Theory tend to form a negative view of the outgroups by forming negative stereotypes and differentiating themselves from these groups whilst forging positive interpersonal relationships within the limits of the in-group. This is supported by the positive correlation of the collective identification scale with *mutual respect* and *agreeableness* but not *egalitarianism*. The positive correlation of identification with *Religiosity* and low levels of *Liberalism* indeed suggest that identification with the in-group goes hand in hand with forging a conformist stance towards the dominant values of the in-group.

On the contrary, the effects of *contact with Turkish Cypriots* on increasing *tolerance* towards various outgroups is clear from the present findings. In fact contact with Turkish Cypriots appears to be a crucial mechanism for a more general shift in the subject-object-other configuration towards a more symmetrical and co-operative configuration. This is in line with the original contact hypothesis of Allport (1954) although it is also true that Tolerant attitudes in their turn facilitate intergroup contact with Turkish Cypriots in the first place.

This thesis revealed an important process through which gender seems to affect student's cognitive and psychosocial development. As revealed by comparisons between the genders on all variables females compared to males are less Machiavellian, have better relationships with their parents, and fellow students compared to men. They also are aware of their weak societal position compared to men and resist to gender inequality. Their more egalitarian attitude also extends to relations between groups with the exception of intergroup relations with Turkish Cypriots, Turks and Immigrants where they score at the same levels as men. All this reveals an interesting pattern of relationships that seems to apply to women more than men. Despite the awareness of holding a dominated position in society they have not in actual practice found the ways to directly challenge the institutions and dominant norms that support such a position. This seems to be related to a generally more conservative attitude in relation to religion or their right to abortion compared to men. This more conformist attitude to authorities and institutions is also seen when they tend to be less critical of their professors. Their lower scores, compared to men on the epistemological issues (they score higher on relativism which is not the optimal stance a person could hold), their lower score on formal operations and analytic thinking compared to men is probably related to this stance.

This findings are in line with Baxter-Magolda's (1992) argument which states that gender is related to student development, although the latter is not dictated by gender. In terms of Kohlberg's theory women more than men appear to be following a conventional morality. Carol Gilligan's theory suggests that men and women are on two different spheres of ethical communication with other people. The present findings however support such a difference only by degree and there does not seem to be a qualitative difference. The present findings are in line with theorists who have argued that men and women are on the same level of ethical thinking, but communicate differently. Women indeed on their interpersonal relations seem to create more egalitarian relationships but they seem less ready to challenge authority and institutions compared to men or to extend this concern to the traditional "other" or even enemy groups like the Turks. And when the concern with egalitarian relationships extends to the intergroup level (as seen in the case of egalitarianism) then positive results for their cognitive and psycho-social development emerge. This would align also with Gilligan's idea of an ethic of care and nonviolence as the ideal type of development discussed in chapter 1. But this should in fact be the ideal type for both men and women as the present findings suggest. Griffin (1991) believes that Gilligan's two-voice hypothesis has received criticism with many critics bothered with the notion of a double standard referring to justice for men and care for women and that moral philosophy did not suggest different ethics for different groups.

On the contrary whilst men seem more ready to challenge authority and institutions compared to women at the same time more men than women would appear from the present thesis to occupy a low level of moral development in their interpersonal relationships to the extent that they score higher than women on *Machiavellianism*. Gilligan's (1993) theory on women's moral development that contains three levels suggests that the first level is *Orientation to Individual Survival*, which states that the individual is self-centered, selfish and concerned with survival. This level shares commonalities and resonates with this thesis' scale *Macchiavellianism*, which is related with many variables. On the whole it would appear that the ideal type of development would be the same for men and women. It would be one that closely resembles the more symmetrical configuration of the findings from the cluster analysis presented in the results chapter where the smaller cluster of about 1 student out of 4 fitted the profile of co-operative relationships both at the interpersonal and the intergroup level in a way that it also reflected more cooperative relations with various outgroups like Turkish Cypriots and immigrants.

As we saw in chapter 2 one important critique of the dominant student development theories was that of not taking into account social class. In this thesis the socio-economic status of the students' family was measured and it was found to play the role of a privilege for students as seen in the cluster analysis. This privilege was manifested in a higher sense of self-esteem, lower, levels of belief in *relations of constraint* and more co-operative relationships with parents. Such a pattern of relationships suggests that social relations could potentially mediate the effects of SES on cognitive and psycho-social development although this thesis did not explore mediation mechanisms. It should be kept in mind that both of the parents' education levels were correlated with the family's financial situation and formal operations abilities of the students was correlated with their parents' educational level. Moreover, the mother's education is correlated with the student's *self esteem*. Both of the parents' level of education were negatively correlated with the scale *Relations of Constraint* suggesting that the more educated the parents are, the less authoritarian beliefs and attitudes they will adopt. Moreover, the mother's educational level was correlated with the students' support for gender equality, as well as with the students' feelings towards Turkish Cypriots and foreigners; it is noted that the father's educational level was not correlated with any of the two scales. In addition, positive interrelationships were found between quality of contact with parents, the family financial situation, and the quality of contact with fellow students. Moreover, the family financial status related to self-determination.

#### *A socio-cultural model of student development: The perspective of Genetic Social Psychology*

On the basis of the present findings it can be concluded that Greek Cypriot Universities can greatly enhance their potential to promote the cognitive and psycho-social development of their students once they give emphasis to the dimensions identified as important in the present thesis. The findings of this thesis suggest that the quality of social relationships between all actors involved in the educational process should be evaluated at both the interpersonal and intergroup levels of analysis. The present framework draws on both the frameworks of Piaget and Vygotsky. From Vygotsky it takes the importance attributed to a sociogenetic point of view and underlines the role of social interaction for human development. However, Moscovici (1990) was right in arguing that Vygotsky's formula of internalisation was "too good to be true" and as Duveen argued, what mediates between social interaction and internalisation is social identity. Individuals belong in various categories and from these categories they draw resources in the form of status or privilege (gender, SES, ethnicity among others). Belongingness in these categories has implications for the social relations

between people at the interpersonal and intergroup levels in ways that directly relate to the cognitive and psycho-social development of students as we have seen; these are ways that largely resonate with Piaget's theorisation about the role of relations of co-operation and constraint.

When the issue of relationships is seriously taken into consideration one should consider issues that even Piaget did not deeply examine; the topic that interpersonal relationships within a group differ from the relationships which concern relationships with individuals from different countries or cultures, and specifically topics of tolerance like feelings towards foreign workers or Turkish Cypriots for example in the case of Cyprus. This thesis found that matters and issues that appear to be unrelated from different levels of analysis indeed affect one another and this is the importance and contribution of this thesis.

The findings are in line with the findings from the third generation of studies on triangular relationships between the self, the object and the other (Psaltis, Duveen & Perret-Clermont, 2009). The *other* should not be constrained into the horizon of ingroup relationships and ingroup issues; the other should be seen as a generalised other that can belong in another group or not. Its belonging or not in a group should not constrain the person in opening up their epistemological horizon and decentering from their narrow perspectives which has a major role in human development as Piaget would agree.

The present framework sees neither cognitive nor social development as separate domains; Revisiting Perry's scheme, the thesis examined both domains as linked instead of separated. The hallmark of Perry's theory was the shift from basic dualism, to realism, relativism, to committed relativism. One point that probably needs revision is the idea of commitment. The ethical basis of commitment needs to be clarified. "Commitment on what and through what means?" is an important question to ask in this case as we have seen that clarity in career paths can also be supported by Machiavellian thinking. Self-determination and an anti-conformist stance towards institutions could be a better end point in the sense that it keeps the channels of dialogue and openness without closure on a particular commitment but with an enhanced sense of self-determination and agency.

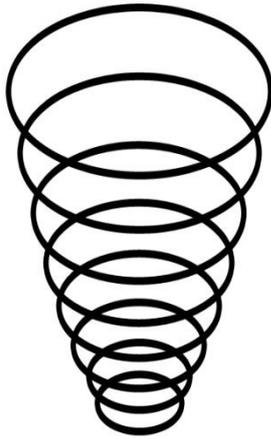
These ideas were examined and supported statistically in this thesis. Most importantly this thesis offers a dynamic and procedural social constructivist account of student development that Perry and Kohlberg were both unable to offer due to their reading of Piaget as a stage theorist and their suppression of what Piaget had to say about the role of social relationships. This position resonates with Carpendale's (2000) critique of Kohlberg's theory,

which targets his conception of stages and his lack of an account of the process of moral development. Kohlberg's theory (1976) is based on a structuralist reading of Piaget's (1960) theory of cognitive development, therefore like Perry, he did not understand Piaget as a social theorist and did not study the role of social relationships in cognitive and moral development.

Post-Perry theorists (Baxter-Magolda, 1992; Belenky-Clinchy, Goldberger and Tarule 1986; King & Kitchener, 1994) proposed comparable stages and theories concerning the development of university students but still the epistemological role of the quality of social relations was left unjustified. What is worse, a particular form of social relationship was simply relegated into a specific characteristic of a particular stage. For example, the first stage of Belenky-Clinchy, Goldberger and Tarule (1986) refers to *silence* in which the student is awed by his or her professors, which is similar to the scale *criticism towards professors* in this thesis and *relations of constraint*. Such views and orientations can be found in varying degrees at various stages of a child's development and should not be limited to a particular stage. Clinchy, Goldberger and Tarule (1986) for example argue that from the stage of silence, the student shifts to a more egocentric stage believing that he or she is superior to others, and then to procedural which leads to constructed knowledge understanding the interrelatedness of knowledge and thus avoiding relativism. Such claims seem simplistic because the stances taken in social relations as we have seen depend on the social identities of persons, their social class and their ideological orientations and they are in this sense a matter of continual change in any society.

The third generation theorists (Psaltis, Duveen & Perret-Clermont, 2009) findings support the findings of this thesis. Relations of constraint and Relation of Co-operation are always present in a person's life irrespectively of age. This thesis examines such relationships as both a procedure and an outcome of development.

This circular relationship, can be explained with the spiral metaphor (see Doise & Mugny, 1984). Through social interaction individuals co-ordinate their perspectives with those of others that are in turn internalised as personal characteristics that in turn affect the way the person would engage in future social interaction. The social and the personal are thus in a constant interaction and the motor for moving or not in the spiral is the quality of social relationships that the individual entertains in their social environment



**Figure 6.1. Spiral of Cognitive and Psycho-social Development**

*Implications for universities academic departments in Cyprus and student welfare*

The fact that stability characterizes university students in Cyprus might be due to the prevailing societal norms and how the universities view their roles themselves. In addition, in Cyprus that often it is expected from students who study in their home town in Cyprus to live with their parents, whereas students in other western countries live alone with their roommates even when the university is near their family home. Moreover, a number of students who live with their parents continue to behave as young children who go to school and have a small number of extracurricular activities. What is more, students who attend universities in their country have little opportunities to observe and become familiar with other cultures and learn or adopt some of their characteristics due to the low level of attendance in the Erasmus programme.

But universities could play an important role in the development and advancement of the students' development. Perry's work actually influenced me to propose the creation a similar center at the Cyprus University of Technology. This proposal found the support of the Director of Service for Academic Affairs and Student Welfare and of the University authorities and is under construction while this thesis is in press. Counseling, athletics and student clubs are parts of student welfare focused on the enhancement of the students' personalities. The question posed to Greek Cypriot universities is if their services are indeed utilized by their students, to which degree, and more importantly with what outcome on the students' socio-cognitive, personal and emotional development. Other issues that concern academic departments are what opportunities do they offer their students in order to enhance

their critical thinking, sociable behavior, self esteem and other personality characteristics. Do they organize social events like get-togethers after class or in the weekends? For example picnics, barbeque events, weekend excursions, team games and outing evenings between academic staff and their students are common activities in western universities. Moreover, watching a relevant to the course movie or non-academic documentaries during lecture time to be followed by group discussion is another common act in western universities; how often can it be found in lectures in Greek Cypriot universities? Finally, another important issue concerns the academics as personalities themselves. Do they encourage group work and its importance in studies (Becvar, Canfield & Becvar, 1997)? How open are they for communication with their students? Do they encourage or accept critique from their students regarding their course and their teaching methods? Are they themselves familiar with various cultures? Are they themselves followers of symmetrical or asymmetrical relationships with their students and colleagues? Are they in the academia because they wish to teach and do research or because in addition to that they want to enhance their students' personality and be involved in their development? The quality of the student-professor relationship is crucial. Students report positive relationships with their instructors who are highly immediate with them (Creasey, Jarvis, Gadke, 2009) but as we have seen in the present thesis a whole set of social relationships that span interpersonal and intergroup relations are of importance.

Piaget was right in not separating cognitive from moral development. Cognitive development and moral development are two sides of the same coin, they are connected in so many ways and should educators understand this holistic approach, they will have much to gain; the Genetic Social Psychology perspective allows a deeper understanding of this important relationship.

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## APPENDIX I

### FIRST PILOT STUDY RELIABILITY RESULTS

SCALE	ITEMS	RELIABILITY / CRONBACH'S ALPHA
Dogmatic	4	0.45
Stand towards learning	4	0.59
Epistemological Realism	5	0.54
Relations of constraint	2	N/A
History	11	0.56
Social Beliefs	3	-0.66
Social Involvement	3	0.6
Respect Towards Others	5	0.75
Reaction Feelings Towards Turkish Cypriots	5	0.86
Probability of Becoming Friends with Turkish Cypriots	3	0.86
Coexistence with Turkish Cypriots	3	0.83
Contact and Cooperation with Turkish Cypriots	3	0.90
Interaction with Turkish Cypriots	2	N/A
Unpleasant Feelings Towards Turkish Cypriots	2	N/A
Community Interaction	4	0.48
University Interaction	2	N/A
Autonomy	3	0.57
Approval from Others	3	0.44
Socialization	7	0.80
Thought Style	4	0.68
Information Elaboration	2	N/A
Views Validity	2	N/A
Professors' Knowledge	2	N/A
Idealisation of Professors	3	N/A
Critical Stand Towards Course	5	N/A
Obeying Rules	2	N/A

View Towards Relationships	2	N/A
Social Beliefs	3	0.65
Gender Equality	2	N/A
Social Equality	3	0.86
Visit and Meet Turkish Cypriots	2	N/A

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## APPENDIX II

### Scale Reliability Testing of Second Pilot Test

SCALE	ITEMS	RELIABILITY CRONBACH'S ALPHA
<b>Stand towards taught courses</b>	30,31,32,34,35	0,548
<b>Stand towards Learning</b>	R38. R39, R42, R43, R46, R48, R51, R52, R55, R56, 53, 44, 48, 41, 54, 45, 40, 54, 50, 49	0,567
<b>Thought Process Epistemological Realism</b>	57, 58, 59, 60 61, 62, 63, 64	0,753 0,525
<b>History Teaching Epistemology</b>	66, 76, 69, 68, 70, 72, 74, 73, 75, 71, 67, R68, R69, R70, R71, R73, R75	0,36
<b>Open Mindness Social Involvement Religion Respect Others Social Dominance Orientation</b>	R77, 78, 79, 80,82,83,84,85,86 87, 88, 89 90, 91, 92 93-97 98,101,99,102,100	0,512 0,637 0,514 0,873 0,778
<b>Quality of Contact with Parents</b>	R103.2, R103.6, R103.7, 103.4, 103.3, 103.1, 103.5, 103.7, 103.2	0,82
<b>Quality of Contact with Fellow Students</b>	R104.2, R104.6, R104.7, 104.4, 104.1, 104.5, 104.3, 104.7, 104.6	0,828
<b>Quality of Contact with Profoessors</b>	105.1,105.2,105.3,105.4,105.5, 105.6, 105.7	0,737
<b>Quality of Contact with Turkish Cypriots</b>	R106.6, R106.7, 106.2,106.5,106.3,106.1,106.4,106.6, 106.7	0,886
<b>Coexistence with Turkish Cypriots</b>	107,108,109	0,862
<b>Visit Meet Turkish Cypriots</b>	111,112,113	0,753
<b>Contact with Foreigners</b>	114.1,114.2,114.3,114.4	0,637
<b>Autonomy</b>	115,116,117	0,543
<b>Approval from Others</b>	118,119,120	0,438
<b>Self Esteem</b>	R121,R122,R124, 123,125,R126,R127, 128,129,130	0,897
<b>Community Involvement</b>	131-136. Will keep all items and will use as single items	0,239
<b>Idealisation of Professors</b>	Will keep 137,139,141,143,145 and use as single items due to low reliability of the set of items 137-146	N/A

<b>Relations of Constraint</b>	154,155,156. (Will replace 155 with a new item. Reliability here concerns only 154,156)	0,533
<b>Dogmatic</b>	147-150	0,251
<b>Stand Towards Homework</b>	151-153	0,238
<b>Gender Equality</b>	157-160 (160 is Recoded)	0,688
<b>View Towards Professors</b>	161-164 (164 is Recoded)	0,561
<b>Socialization</b>	165-169 (168 and 169 are Recoded)	0,843
<b>Greek Cypriot Identity</b>	170-175 (171 and 173 are Recoded)	0,727
<b>Feelings Towards Turkish Cypriots and Foreigners</b>	176-178	0,564
<b>Continuing Professional Development</b>	179-184. Item 180 is the same with item 117 and will be replaced with a new item	0,682
<b>Agreeability</b>	186-197	0,777
<b>Decisiveness</b>	198,200,202, 204, 206	0,701
<b>Problem Solving</b>	141,143,145	0,495

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## APPENDIX III

### THE QUESTIONNAIRE

#### ΕΡΩΤΗΜΑΤΟΛΟΓΙΟ

Στα πλαίσια της διδακτορικής μου διατριβής, που διεξάγεται στο Τμήμα Ψυχολογίας του Πανεπιστημίου Κύπρου, διαμορφώθηκε ένα ερωτηματολόγιο που αφορά στη διερεύνηση των ικανοτήτων σας σε γνωστικά αντικείμενα και των απόψεων σας σε διάφορα κοινωνικά θέματα. Καλείστε να το συμπληρώσετε, εκφράζοντας την προσωπική σας άποψη. Παρακαλώ απαντήστε στις ερωτήσεις που ακολουθούν όσο πιο ειλικρινά μπορείτε και θα σας παρακαλούσα όπως συμπληρωθεί σε 30 λεπτά.

Τα στοιχεία της έρευνας θα παραμείνουν ανώνυμα και τις ατομικές σας απαντήσεις θα τις γνωρίζει μόνο η ερευνήτρια.

Στο σύνολο των ερωτήσεων καλείστε να απαντήσετε κυκλώνοντας για κάθε ερώτηση τον αριθμό (μόνο έναν) που θα εκφράζει περισσότερο την προσωπική σας γνώμη.

Η συνεργασία σας για την επιτυχή διεξαγωγή αυτής της έρευνας είναι απαραίτητη. Παρακαλώ όπως απαντήσετε σε όλες τις ερωτήσεις που ακολουθούν, τη μια μετά την άλλη, με τη σειρά που σας προτείνονται.

Με το τέλος της συλλογής των στοιχείων, θα πραγματοποιηθεί κλήρωση στην οποία ένα άτομο από τους συμμετέχοντες στην έρευνα θα κερδίσει ένα φορητό υπολογιστή. Για να παραλάβει το βραβείο θα πρέπει να παρουσιάσει φοιτητική ταυτότητα καθώς και βεβαίωση φοίτησης για το τρέχον εξάμηνο. Το σύστημα ανάλυσης δεδομένων δεν θα λάβει υπόψη συμμετοχές με μη απαντημένες ερωτήσεις ούτε και συμμετοχές με τυχαίες απαντήσεις.

Ευχαριστώ για τη συνεργασία σας!  
Φωτεινή-Οικονομίδου Κράνου

## **ΜΕΡΟΣ Α: ΓΕΝΙΚΕΣ ΠΛΗΡΟΦΟΡΙΕΣ**

1. Συμπληρώστε τον μήνα γεννήσεως σας.....τους 4 τελευταίους αριθμούς του κινητού σας τηλεφώνου ..... και τους 4 τελευταίους αριθμούς της ταυτότητας σας για σκοπούς ταυτοποίησης.
2. Φύλο: Άνδρας/Γυναίκα (κυκλώστε αυτό που ισχύει)
3. Έτος Φοίτησης: \_\_\_\_\_
4. Πανεπιστήμιο: 1) Πανεπιστήμιο Κύπρου 2) ΤΕΠΑΚ 3) Ανοικτό Πανεπιστήμιο Κύπρου 4) Πανεπιστήμιο Frederick 5) Πανεπιστήμιο Λευκωσίας 6) Ευρωπαϊκό Πανεπιστήμιο
5. Χώρα Καταγωγής: \_\_\_\_\_
6. Μορφωτικό Επίπεδο Γονέων:
  - A) Μόρφωση Πατέρα (παρακαλώ επιλέξτε ένα): 1. Δημοτική 2. Γυμνασιακή 3. Λύκειο 4. Πανεπιστήμιο 5. Μεταπτυχιακό 6. Διδακτορικό
  - B) Μόρφωση Μητέρας (παρακαλώ επιλέξτε ένα): 1. Δημοτική 2. Γυμνασιακή 3. Λύκειο 4. Πανεπιστήμιο 5. Μεταπτυχιακό 6. Διδακτορικό
7. Οικονομική Κατάσταση Οικογένειας (επιλέξτε ένα): 1. Καθόλου καλή 2. Μέτρια 3. Πολύ καλή 4. Πάρα πολύ καλή
8. Οικογενειακή κατάσταση (επιλέξτε ένα) : 1. Ελεύθερος 2. Παντρεμένος
9. Χώρος Διαμονής (επιλέξτε ένα): 1. Με γονείς 2. Με Συγκάτοικο 3. Μόνος/η 4. Μόνος στις Πανεπιστημιακές Εστίες 5. Με συγκάτοικο στις Πανεπιστημιακές Εστίες
10. Θρησκεία: \_\_\_\_\_
11. Απόσταση από το οικογενειακό σπίτι: 1) 0-20χμ 2) 21-50χμ 3) 50-100χμ 4) 100+χμ
12. Θέμα Σπουδών: \_\_\_\_\_
13. Βαθμολογία Απολυτηρίου Λυκείου: .....
14. Μαθήματα/δέσμη κατεύθυνσης που επέλεξα στο λύκειο (π.χ. Αρχαία, Ιστορία, Λατινικά. / Λογιστική, Οικονομικά, Πολιτική Οικονομία / Χημεία, Βιολογία, Φυσική κλπ).....
15. Βαθμολογία στις Προεισαγωγικές εξετάσεις: .....
16. Γενική Βαθμολογία 1<sup>ου</sup> εξαμήνου στο Πανεπιστήμιο (για φοιτητές δημοσίων πανεπιστημίων με στάθμιση το 10: ..... Για φοιτητές ιδιωτικών πανεπιστημίων, παρακαλώ αναφέρετε στάθμιση βαθμολογίας πανεπιστημίου π.χ. από 4, 5 ή 10: .....
17. Παρούσα Γενική Βαθμολογία (Για δημόσια πανεπιστήμια από 10, για ιδιωτικά αναφέρετε)-----
18. Ώρες που αφιερώνω στην μελέτη καθημερινά: 1)0, 2)1-2, 3)3-4, 4) 4.5+
19. Προτίμηση στο είδος εξετάσεων (επιλέξτε ένα) : 1)Πολλαπλή επιλογή 2)Εκθεση/ Ανοικτού τύπου ερωτήσεις 3)Παρουσίαση

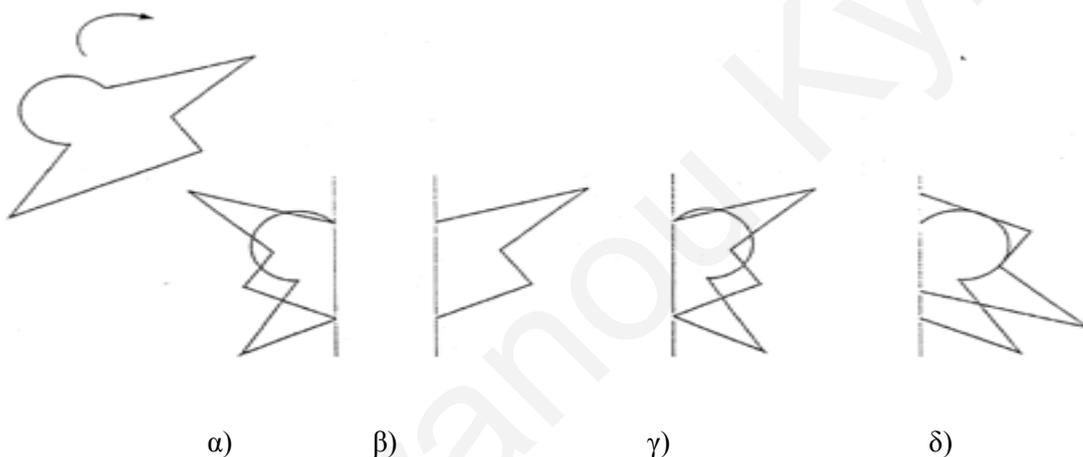
## ΜΕΡΟΣ Β' : ΕΠΙΛΥΣΗ ΓΝΩΣΤΙΚΩΝ ΠΡΟΒΛΗΜΑΤΩΝ

Παρακαλώ λύστε τις ακόλουθες ασκήσεις

### 20. Το δίπλωμα των σχημάτων

Φαντάσου ότι το καθένα από τα σχήματα που φαίνεται πιο κάτω θα διπλωθεί γύρω από τον άξονα που φαίνεται με τη διακεκομμένη γραμμή. Παρακαλώ να φανταστείς πως θα φαίνεται το κάθε σχήμα όταν διπλωθεί και να διαλέξεις το σωστό σχήμα από εκείνα που σου δίνονται. Το βέλος δείχνει πως θα γυρίσει το σχήμα κατά το δίπλωμα.

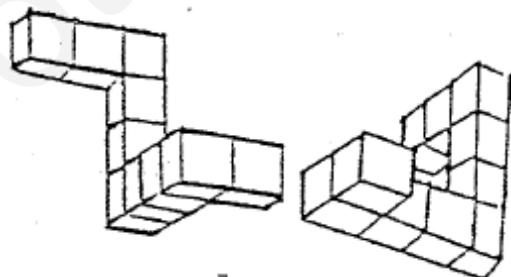
Παρακαλώ λύσε το πιο κάτω:



### 21) Τα ζευγάρια

Στα ζευγάρια από σχήματα πρέπει να βρεις αν τα σχήματα σε κάθε ζευγάρι είναι όμοια ή ανόμοια.

Παρακαλώ λύσε το πιο κάτω:

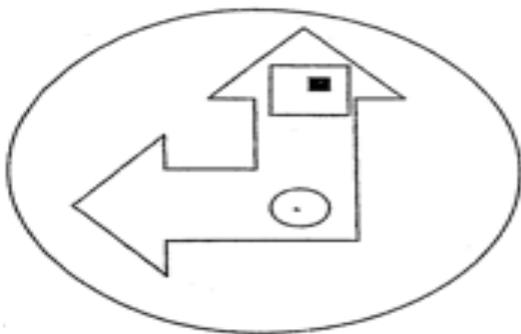


- α) Τα σχήματα είναι όμοια
- β) Τα σχήματα είναι ανόμοια

**22. Τα Ρολόγια**

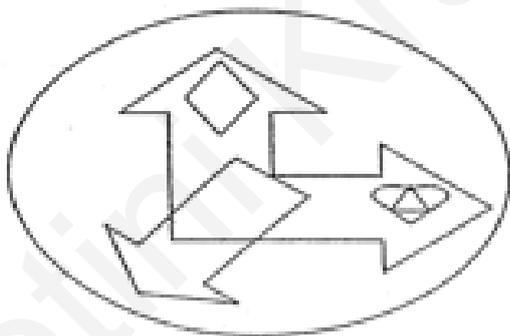
Οι δείκτες του ρολογιού φαίνονται τοποθετημένοι σε ένα σχήμα. Διάλεξε από τις επιλογές που υπάρχουν πώς θα είναι το σχήμα πάνω στον δείκτη όταν αυτός περιστραφεί από τη μια θέση στην άλλη.

**Παρακαλώ λύσε το πιο κάτω:**



- α)
- β)
- γ)
- δ)

**23. Παρακαλώ λύσε το πιο κάτω:**



- α)
- β)
- γ)
- δ)

## 24. Αριθμητικές Αναλογίες

Παρακάτω σου δίνεται ένα πρόβλημα αναλογίας. Προσπάθησε να το λύσεις με βάση τη σχέση που σου δίνεται. Δώσε την απάντησή σου διαλέγοντας από τις τέσσερις επιλογές που σου δίνονται.

Η Ελένη δοκιμάζει μια συνταγή για τούρτα. Στην πρώτη δοκιμή για κάθε 5 κουτάλια ζάχαρη έβαζε 2 φλιτζάνια νερό. Στη δεύτερη, για κάθε 7 κουτάλια ζάχαρη έβαζε 3 φλιτζάνια νερό. Σε ποια από τις δύο δοκιμές θα είναι η τούρτα πιο γλυκιά;

α) Στην πρώτη β) Στη δεύτερη γ) Θα είναι το ίδιο γλυκιά.

## 25. Εξισώσεις

Παρακάτω σου δίνεται μια εξίσωση. Δώσε την απάντησή σου διαλέγοντας από τις τέσσερις επιλογές που σου δίνονται.

Αν  $\chi + \psi = 5$ ,  $\chi + \omega = 3$  και  $\psi + \omega = 2$ , τι ισχύει από τα παρακάτω;

α)  $\omega = 0$  β)  $\omega = 1$  γ)  $\omega = 2$  δ)  $\omega = 3$

## 26. Αριθμοί

Το πρόβλημα έχει μια σειρά αριθμών. Ο κάθε αριθμός στη σειρά σχετίζεται με κάποιο κανόνα και με έναν ή περισσότερους από τους προηγούμενους αριθμούς. Βρες τον κανόνα και μάντεψε ποιος αριθμός ακολουθεί στη σειρά.

13 17 26 68 52...

α) 136 β) 272 γ) 104 δ) 78

## 27. Τα Φάρμακα

Στις έρευνες που γίνονται για την θεραπεία της ισχιαλγίας παρατηρήθηκε σοβαρή βελτίωση όταν δόθηκαν ΜΑΖΙ τρία φάρμακα: το αλκονίλ, το μιονίλ και το ηρεμίλ. Τρεις ερευνητές έχουν διαφορετικές απόψεις για την αιτία βελτίωσης.

Ο Δρ. Κωνσταντίνου υποστήριξε ότι στην πραγματικότητα η βελτίωση οφείλεται σε ΕΝΑ ΜΟΝΟ από τα τρία φάρμακα, το αλκονίλ.

Ο Δρ. Γεωργίου υποστήριξε ότι η βελτίωση οφείλεται στο ΣΥΝΔΥΑΣΜΟ ΔΥΟ φαρμάκων, του αλκονίλ και στου μυνίλ.

Ο Δρ. Ανδρέου υποστήριξε ότι η βελτίωση οφείλεται σε μια ουσία την μνοχαλίνη η οποία βρίσκεται και στο αλκονίλ και στο μυνίλ.

**Παρακάτω να επιλέξεις τι θα έπρεπε να βρει ο ερευνητής για να αποδείξει ότι η υπόθεση του είναι σωστή.**

**Για να αποδείξει ότι έχει δίκαιο ο Δρ. Ανδρέου, θα έπρεπε:**

A) να δώσει το ηρεμίλ και το μυνίλ αφού προηγουμένως αφαιρέσει από μέσα την μνοχαλίνη και να μη βρει βελτίωση

B) να δώσει μόνο μνοχαλίνη και να βρει βελτίωση

Γ) να δώσει το αλκονίλ μαζί με το μυνίλ και να βρει βελτίωση

Δ) να δώσει μόνο το ηρεμίλ και να μη βρει βελτίωση

## **28. Φυτά**

Έγινε μια σειρά πειραμάτων που φαίνεται πιο κάτω. Μελέτησε τα πειράματα αυτά και βρες τι ελέγχει το καθένα ως προς την ανάπτυξη των φυτών.

### Συνθήκες καλλιέργειας

<u>Σπόρος</u>	<u>Φωτισμός-Έδαφος</u>
1. Σιτάρι	Σκοτεινό-αργιλώδες
2. Σιτάρι	Σκοτεινό-κοκκινόχωμα
3. Κριθάρι	Φωτεινό-αργιλώδες
4. Σιτάρι	Φωτεινό-κοκκινόχωμα
5. Σιτάρι	Φωτεινό-αργιλώδης

**Η σύγκριση των πειραμάτων 1 και 3 επιτρέπει να ελέγξουμε την επίδραση**

α) του φυτού β) του χόματος γ) του φωτισμού δ) κανένα

## **29. Το παιχνίδι της αλήθειας και της ψευτιάς**

Στο πρόβλημα που ακολουθεί πρέπει να βρεις πού είναι το δακτυλίδι ακολουθώντας αυτά που θα πουν η Αλήθεια και η Ψευτιά.

**Η αλήθεια λέει:**

**Αν το δακτυλίδι είναι στην τσάντα ή στο κομοδίνο, τότε είναι μαζί με το βραχιόλι**

**Η Ψευτιά λέει:**

**Το δακτυλίδι είναι μαζί με το βραχιόλι**

**ΠΟΥ ΕΙΝΑΙ ΤΟ ΔΑΚΤΥΛΙΔΙ;**

- α) Όχι στο κομοδίνο
- β) Στην τσάντα
- γ) Ούτε στην τσάντα ούτε στο κομοδίνο
- δ) Ή στο κομοδίνο ή στην τσάντα

## Μέρος Γ

**Τα ακόλουθα ερωτήματα διερευνούν τη στάση των φοιτητών προς τα διδασκόμενα μαθήματα στο Πανεπιστήμιο**

Απαντήστε στα πιο κάτω ερωτήματα βάζοντας σε κύκλο ένα από τους αριθμούς 1, 2, 3, 4, 5, ή 9 (Δεν Ξέρω, Δεν απαντώ)

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ, ούτε συμφωνώ	συμφωνώ	Συμφωνώ απόλυτα	ΔΑ/ΔΓ
30. Μετρώ και αναλογίζομαι αυτά που ακούω από τους καθηγητές μου πριν τα δεκτώ	1	2	3	4	5	9
31. Οι καθηγητές του Πανεπιστημίου γνωρίζουν τα πάντα	1	2	3	4	5	9
32. Συχνά διαφωνώ με την γνώμη των καθηγητών	1	2	3	4	5	9
33. Όταν μελετώ κάτι, βλέπω και το συγκρίνω και από τη δική μου άποψη και κάποτε το αμφισβητώ.	1	2	3	4	5	9
34. Συνήθως στα μαθήματα που παρακολουθώ τείνω να αμφισβητώ αυτά που ακούω από τους καθηγητές	1	2	3	4	5	9

**Τα ακόλουθα ερωτήματα διερευνούν τη στάση των φοιτητών προς την μελέτη**

Απαντήστε στα πιο κάτω ερωτήματα βάζοντας σε κύκλο ένα από τους αριθμούς 1, 2, 3, 4, 5, ή 9 (Δεν Ξέρω, Δεν απαντώ)

	Ποτέ ή Σπάνια ισχύει για μένα	Ισχύει μερικές φορές	Ισχύει τις μισές φορές	Συχνά ισχύει για μένα	Πάντα ή Σχεδόν πάντα ισχύει για μένα	ΔΕ/ΔΑ
35. Βρίσκω ότι κάποιες φορές η μελέτη μου δίνει ένα συναίσθημα βαθιάς προσωπικής ικανοποίησης	1	2	3	4	5	9
36. Βρίσκω ότι πρέπει να δουλέψω αρκετά σε ένα θέμα για να μπορέσω να διαμορφώσω τα δικά μου συμπεράσματα για να είμαι ικανοποιημένος/η	1	2	3	4	5	9
37. Ο στόχος μου είναι να περάσω τα μαθήματα με όσο το δυνατόν λιγότερη δουλειά	1	2	3	4	5	9
38. Μελετώ σοβαρά μόνο ότι αναφέρεται στην τάξη ή στον οδηγό του μαθήματος	1	2	3	4	5	9

39. Νοιώθω ότι σχεδόν το κάθε θέμα είναι πολύ ενδιαφέρον όταν ασχοληθώ μαζί του	1	2	3	4	5	9
40. Βρίσκω τα περισσότερα νέα θέματα εξαιρετικά ενδιαφέροντα και συχνά περνώ επιπλέον ώρα προσπαθώντας να πάρω περισσότερες πληροφορίες για αυτά	1	2	3	4	5	9
41. Δεν βρίσκω την σπουδή μου πολύ ενδιαφέρουσα και έτσι δουλεύω το ελάχιστο	1	2	3	4	5	9
42. Μαθαίνω κάποια πράγματα με παπαγαλία, κάνοντας πολλαπλές επαναλήψεις μέχρι να τα μάθω απ' έξω ακόμα και αν δεν τα καταλαβαίνω	1	2	3	4	5	9
43. Βρίσκω ότι η μελέτη συγκεκριμένων ακαδημαϊκών θεμάτων μπορεί κάποιες φορές να είναι εξίσου ενθουσιώδης ότι ένα καλό βιβλίο ή ταινία	1	2	3	4	5	9
44. Εξετάζω τον εαυτό μου σε σημαντικά θέματα μέχρι να τα καταλάβω εντελώς	1	2	3	4	5	9
45. Βρίσκω ότι τα καταφέρνω στις περισσότερες εξετάσεις μέσω της απομνημόνευσης σημαντικών κομματιών παρά να προσπαθώ να τα καταλάβω.	1	2	3	4	5	9
46. Εξετάζω τον εαυτό μου σε σημαντικά θέματα μέχρι να τα καταλάβω εντελώς	1	2	3	4	5	9
47. Γενικά περιορίζω τη μελέτη μου σε ότι είναι ξεκάθαρα αναγκαίο αφού θεωρώ ότι δεν είναι αναγκαίο να κάνω κάτι περισσότερο	1	2	3	4	5	9
48. Εργάζομαι σκληρά για τις σπουδές μου επειδή βρίσκω το υλικό ενδιαφέρον	1	2	3	4	5	9
49. Αφιερώνω πολύ από τον ελεύθερο μου χρόνο για να βρίσκω περισσότερα για ενδιαφέροντα θέματα που έχουν συζητηθεί σε διαφορετικές τάξεις	1	2	3	4	5	9
50. Βρίσκω ότι δεν είναι βοηθητική η μελέτη θεμάτων σε βάθος. Συγχύζει και είναι σπατάλη χρόνου την στιγμή που το μόνο που χρειάζεται είναι ένα άτομο που περνά τα μαθήματα και κατέχει τα θέματα	1	2	3	4	5	9
51. Πιστεύω ότι οι καθηγητές δεν πρέπει να περιμένουν τους φοιτητές να αφιερώσουν σημαντική ώρα μελέτης σε θέματα τα οποία όλοι γνωρίζουν ότι δεν θα είναι εξεταζόμενα.	1	2	3	4	5	9
52. Πάω στις περισσότερες τάξεις με ερωτήματα στο μυαλό για τα οποία ζητώ απαντήσεις	1	2	3	4	5	9

53. Προσπαθώ να κοιτάζω τα περισσότερα από τα εισηγούμενα θέματα για διάβασμα τα οποία συνάδουν με τις διαλέξεις	1	2	3	4	5	9
54. Δεν βλέπω λόγο στην μάθηση υλικού το οποίο δεν θα είναι κατά πάσα πιθανότητα εξεταζόμενο	1	2	3	4	5	9
55. Βρίσκω ότι ο καλύτερος τρόπος για επιτυχία στις εξετάσεις είναι η προσπάθεια ανάκλησης απαντήσεων σε πιθανές ερωτήσεις	1	2	3	4	5	9

### Τα ακόλουθα ερωτήματα διερευνούν την διαδικασία σκέψης των φοιτητών

Απαντήστε στα πιο κάτω ερωτήματα βάζοντας σε κύκλο ένα από τους αριθμούς 1, 2, 3, 4, 5, ή 9 (Δεν Ξέρω, Δεν απαντώ)

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ απόλυτα	ΔΑ/ΔΓ
56. Έχω αναλυτική σκέψη	1	2	3	4	5	9
57. Προσπαθώ να βελτιώσω τη λογική μου σκέψη	1	2	3	4	5	9
58. Είμαι ικανός/ή να επιλύω προβλήματα	1	2	3	4	5	9
59. Μπορώ να διερευνώ αποδειχτικά στοιχεία για την επίλυση προβλημάτων	1	2	3	4	5	9

### Οι ακόλουθες ερωτήσεις διερευνούν τον τρόπο που οι φοιτητές αντιλαμβάνονται θέματα γνώσης

Απαντήστε στα πιο κάτω ερωτήματα βάζοντας σε κύκλο ένα από τους αριθμούς 1, 2, 3, 4, 5, ή 9 (Δεν Ξέρω, Δεν απαντώ)

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ απόλυτα	ΔΑ/ΔΓ
60. Αφού η αλήθεια δεν είναι φανερή σε όλους, κάποια άτομα έχουν σωστές σκέψεις και άλλα έχουν λανθασμένες σκέψεις	1	2	3	4	5	9
61. Σε κάποιους τομείς η αλήθεια δεν φαίνεται από την αρχή, ακόμη και για τους καθηγητές, αλλά οι σωστές πληροφορίες θα ξεκαθαρίσουν τα πράγματα κάποτε	1	2	3	4	5	9
62. Η αβεβαιότητα είναι ένα χαρακτηριστικό σύμβολο της γνώσης παρόλο που κάποια θέματα μπορούν να λυθούν με ακρίβεια και ολοκληρωτικά	1	2	3	4	5	9

63. Κάποιες απόψεις είναι πιο έγκυρες από άλλες	1	2	3	4	5	9
64. Όλες οι απόψεις είναι έγκυρες. Εξαρτάται από ποια σκοπιά το βλέπεις το ζήτημα.	1	2	3	4	5	9
65. Η αλήθεια είναι μόνο μια και υπάρχει ο τρόπος να την μάθεις	1	2	3	4	5	9
66. Η αλήθεια είναι έννοια σχετική, η αλήθεια του ενός είναι το ψέμα του άλλου	1	2	3	4	5	9
67. Όλες οι απόψεις έχουν την ίδια αξία γιατί κάθε προοπτική έχει τη δική της αλήθεια	1	2	3	4	5	9

**Οι ακόλουθες ερωτήσεις μελετούν την άποψή σας σχετικά με την διδασκαλία του μαθήματος της Ιστορίας**

Απαντήστε στα πιο κάτω ερωτήματα βάζοντας σε κύκλο ένα από τους αριθμούς 1, 2, 3, 4, 5, ή 9 (Δεν Ξέρω, Δεν απαντώ)

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ απόλυτα	ΔΑ/ΔΓ
68. Στην Ιστορία τα γεγονότα μιλούν από μόνα τους και δεν χρειάζονται ερμηνεία	1	2	3	4	5	9
69. Η ανακάλυψη της αλήθειας πρέπει να διαδέχεται τη συζήτηση αντικρουόμενων ερμηνειών	1	2	3	4	5	9
70. Η ιστορική αλήθεια είναι δεδομένη και πάντα μπορούμε να την ανακαλύψουμε	1	2	3	4	5	9
71. Η ιστορική αλήθεια είναι στην ουσία θέμα ερμηνείας	1	2	3	4	5	9
72. Δεν είναι δυνατόν να υποστηρίξουμε ότι μια συγκεκριμένη ερμηνεία της ιστορίας είναι περισσότερο έγκυρη από μια άλλη καθώς αυτές είναι πάντα υποκειμενικές.	1	2	3	4	5	9
73. Όταν μελετάμε ιστορικά κείμενα είναι σημαντικό να θέτουμε ερωτήματα σχετικά με την εγκυρότητα των επιχειρημάτων του συγγραφέα.	1	2	3	4	5	9
74. Είναι δυνατόν μια ερμηνεία να είναι πιο έγκυρη σε σχέση με μια άλλη	1	2	3	4	5	9
75. Η ιστορική γνώση είναι ανοιχτή σε αναθεώρηση καθώς υπόκειται σε νέες ανακαλύψεις και νέα στοιχεία.	1	2	3	4	5	9
76. Εφόσον δεν υπάρχει τρόπος να γνωρίζεις τι πραγματικά έχει συμβεί στο παρελθόν, ο καθένας μπορεί να πιστεύει σε όποια ιστορία έχει επιλέξει	1	2	3	4	5	9

**Τα ακόλουθα ερωτήματα διερευνούν τον τρόπο σκέψης των φοιτητών σε διάφορα κοινωνικά θέματα**

Απαντήστε στα πιο κάτω ερωτήματα βάζοντας σε κύκλο ένα από τους αριθμούς 1, 2, 3, 4, 5, ή 9 (Δεν Ξέρω, Δεν απαντώ)

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ απόλυτα	ΔΑ/ΔΓ
77. Αν δύο άτομα πραγματικά αρέσουν ο ένας στον άλλο, είναι αποδεκτό να προχωρήσουν στην σεξουαλική επαφή ασχέτως αν δεν γνωρίζονται καλά	1	2	3	4	5	9
78. Η Μαριχουάνα πρέπει να νομιμοποιηθεί	1	2	3	4	5	9
79. Η στρατιωτική θητεία πρέπει να συνεχίσει να είναι υποχρεωτική	1	2	3	4	5	9
80. Η έκτρωση πρέπει να νομιμοποιηθεί	1	2	3	4	5	9

**Τα πιο κάτω ερωτήματα ερευνούν την κοινωνική δραστηριότητα των φοιτητών**

Απαντήστε στα πιο κάτω ερωτήματα βάζοντας σε κύκλο ένα από τους αριθμούς 1, 2, 3, 4, 5, ή 9 (Δεν Ξέρω, Δεν απαντώ)

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ απόλυτα	ΔΑ/ΔΓ
81. Επηρεάζω με τη συμμετοχή μου στα κοινά την ανάπτυξη νέων κοινωνικών αξιών	1	2	3	4	5	9
82. Μέσα από τη δράση μου μπορώ να συνεισφέρω στην αλλαγή της κοινωνίας	1	2	3	4	5	9
83. Μπορώ να επηρεάσω με την δράση μου την πολιτική δομή του τόπου	1	2	3	4	5	9

**Τα ακόλουθα ερωτήματα μελετούν την στάση των φοιτητών απέναντι στη θρησκεία**

Απαντήστε στα πιο κάτω ερωτήματα βάζοντας σε κύκλο ένα από τους αριθμούς 1, 2, 3, 4, 5, ή 9 (Δεν Ξέρω, Δεν απαντώ)

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ απόλυτα	ΔΑ/ΔΓ
84. Η θρησκεία είναι ένα σημαντικό μέρος της ζωής μου	1	2	3	4	5	9
85. Πιστεύω στο θεό	1	2	3	4	5	9
86. Εκκλησιάζομαι συχνά	1	2	3	4	5	9

**Τα ακόλουθα ερωτήματα μελετούν την στάση των φοιτητών προς τους άλλους**

Απαντήστε στα πιο κάτω ερωτήματα βάζοντας σε κύκλο ένα από τους αριθμούς 1, 2, 3, 4, 5, ή 9 (Δεν Ξέρω, Δεν απαντώ)

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ απόλυτα	ΔΑ/ΔΓ
87. Βλέπω τους γονείς μου σαν ενήλικας προς ενήλικα	1	2	3	4	5	9
88. Βλέπω τους συνομηλίκους και συμφοιτητές μου ως ίσους προς εμένα	1	2	3	4	5	9
89. Σέβομαι την αυτονομία των άλλων	1	2	3	4	5	9
90. Δέχομαι και εκτιμώ τις διαφορές ανάμεσα στα άτομα	1	2	3	4	5	9
91. Προσπαθώ να καταλάβω τους διαφορετικούς τρόπους σκέψης	1	2	3	4	5	9

**Τα πιο κάτω ερωτήματα διερευνούν την στάση των φοιτητών προς κοινωνικά θέματα**

Απαντήστε στα πιο κάτω ερωτήματα βάζοντας σε κύκλο ένα από τους αριθμούς 1, 2, 3, 4, 5, ή 9 (Δεν Ξέρω, Δεν απαντώ)

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ απόλυτα	ΔΑ/ΔΓ
92. Πρέπει να κάνουμε ότι μπορούμε για να ενδυναμώσουμε την κοινότητα μας, ακόμη και αν αυτό σημαίνει την καταπίεση πιο αδύνατων ομάδων	1	2	3	4	5	9
93. Οι κατώτερες ομάδες πρέπει να μένουν στη θέση τους	1	2	3	4	5	9

94. Πρέπει να προωθείται η κοινωνική ισότητα	1	2	3	4	5	9
95. Το παρακάναμε με την στήριξη της κοινωνικής ισότητας σε αυτό τη χώρα	1	2	3	4	5	9
96. Το να κερδίζεις είναι πιο σημαντικό από το πώς παίζεις το παιχνίδι	1	2	3	4	5	9

**Τα ακόλουθα ερωτήματα διερευνούν τα συναισθήματα των φοιτητών όταν έρχονται σε επαφή με διάφορα άτομα ή μέλη κάποιας ομάδας ατόμων.**

Απαντήστε στα πιο κάτω ερωτήματα βάζοντας σε κύκλο ένα από τους αριθμούς 1, 2, 3, 4, 5, ή 99 (Δεν Ξέρω, Δεν απαντώ)

**97. Όταν συναντιέστε με τους γονείς σας βρίσκετε την επαφή:**

		Καθόλου	Λίγο	Αρκετά	Πολύ	Πάρα Πολύ	ΔΑ/ΔΓ
1.	Ευχάριστη	1	2	3	4	5	99
2.	Επιφανειακή	1	2	3	4	5	99
3.	Σε πνεύμα συνεργασίας	1	2	3	4	5	99
4.	Θετική	1	2	3	4	5	99
5.	Βασίζεται σε αμοιβαίο σεβασμό	1	2	3	4	5	99
6.	Νιώθω ανώτερος/η	1	2	3	4	5	99
7.	Νιώθω να με υποτιμούν	1	2	3	4	5	99

**98. Όταν συναντιέστε με τους συμφοιτητές σας βρίσκετε την επαφή:**

		Καθόλου	Λίγο	Αρκετά	Πολύ	Πάρα Πολύ	ΔΑ/ΔΓ
1.	Ευχάριστη	1	2	3	4	5	99
2.	Επιφανειακή	1	2	3	4	5	99
3.	Σε πνεύμα συνεργασίας	1	2	3	4	5	99
4.	Θετική	1	2	3	4	5	99
5.	Βασίζεται σε αμοιβαίο σεβασμό	1	2	3	4	5	99
6.	Νιώθω ανώτερος/η	1	2	3	4	5	99
7.	Νιώθω να με υποτιμούν	1	2	3	4	5	99

**99. Όταν συναντιέστε με τους καθηγητές σας βρίσκετε την επαφή:**

		Καθόλου	Λίγο	Αρκετά	Πολύ	Πάρα Πολύ	ΔΑ/ΔΓ
1.	Ευχάριστη	1	2	3	4	5	99
2.	Επιφανειακή	1	2	3	4	5	99
3.	Σε πνεύμα συνεργασίας	1	2	3	4	5	99
4.	Θετική	1	2	3	4	5	99
5.	Βασίζεται σε αμοιβαίο σεβασμό	1	2	3	4	5	99
6.	Νιώθω ανώτερος/η	1	2	3	4	5	99
7.	Νιώθω να με υποτελούν	1	2	3	4	5	99

**100. Όταν συναντιέστε με Τουρκοκύπριους βρίσκετε την επαφή:**

		Καθόλου	Λίγο	Αρκετά	Πολύ	Πάρα Πολύ	ΔΑ/ΔΓ
1.	Ευχάριστη	1	2	3	4	5	99
2.	Επιφανειακή	1	2	3	4	5	99
3.	Σε πνεύμα συνεργασίας	1	2	3	4	5	99
4.	Θετική	1	2	3	4	5	99
5.	Βασίζεται σε αμοιβαίο σεβασμό	1	2	3	4	5	99
6.	Νιώθω ανώτερος/η	1	2	3	4	5	99
7.	Νιώθω να με υποτελούν	1	2	3	4	5	99

**Οι ακόλουθες ερωτήσεις διερευνούν την στάση των φοιτητών προς το θέμα της επίλυσης του Κυπριακού.**

Απαντήστε στα πιο κάτω ερωτήματα βάζοντας σε κύκλο ένα από τους αριθμούς 1, 2, 3, 4, 5, ή 9 (Δεν Ξέρω, Δεν απαντώ)

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ απόλυτα	ΔΑ/ΔΓ
101. Θα ήθελα μια λύση στο Κυπριακό πρόβλημα όπου όλοι (Ελληνοκύπριοι και Τουρκοκύπριοι) θα συνυπάρχουμε ειρηνικά.	1	2	3	4	5	9
102. Η ειρηνική συμβίωση μεταξύ Ελληνοκυπρίων και Τουρκοκυπρίων είναι εφικτή.	1	2	3	4	5	9
103. Θα μπορούσα να έχω για γείτονες μέλη της Τουρκοκυπριακής κοινότητας.	1	2	3	4	5	9

**104. Σημείωσε αυτό που σε εκφράζει, βάζοντας σε κύκλο έναν αριθμό από το 1 έως το 5, ή το 9. (Το ΔΑ/ΔΓ σημαίνει Δεν Απαντώ/Δεν Γνωρίζω).**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>9</b>
Στην κλίμακα Αριστερά / Δεξιά εσύ που θα τοποθετούσες τον εαυτό σου;	ΑΡΙΣΤΕΡΑ	ΚΕΝΤΡΟ-ΑΡΙΣΤΕΡΑ	ΚΕΝΤΡΟ	ΚΕΝΤΡΟ-ΔΕΞΙΑ	ΔΕΞΙΑ	ΔΑ/ΔΓ

**Οι πιο κάτω ερωτήσεις μελετούν τη σχέση σας με τους Τουρκοκύπριους. Παρακαλώ απαντήστε αυτό που σας εκφράζει περισσότερο.**

105. Πόσες φορές έχεις επισκεφτεί τις κατεχόμενες περιοχές της Κύπρου;	ΠΟΤΕ	1-2 ΦΟΡΕΣ	3-4 ΦΟΡΕΣ	5-7 ΦΟΡΕΣ	ΠΑΝΩ ΑΠΟ 7 ΦΟΡΕΣ	ΔΑ/ΔΓ
106. Πόσα άτομα της Τουρκοκυπριακής κοινότητας έχεις γνωρίσει;	ΚΑΝΕΝΑΝ	1-2 ΑΤΟΜΑ	3-4 ΑΤΟΜΑ	5-7 ΑΤΟΜΑ	ΠΑΝΩ ΑΠΟ 7 ΑΤΟΜΑ	ΔΑ/ΔΓ
107. Με πόσα άτομα της Τουρκοκυπριακής κοινότητας έχεις αναπτύξει κάποια φιλία;	ΚΑΝΕΝΑΝ	1-2 ΑΤΟΜΑ	3-4 ΑΤΟΜΑ	5-7 ΑΤΟΜΑ	ΠΑΝΩ ΑΠΟ 7 ΑΤΟΜΑ	ΔΑ/ΔΓ

**108. Σημειώστε πιο κάτω σε ποιο βαθμό έχετε επαφή τα πιο κάτω άτομα:**

	Δεν έχω καθόλου επαφή	Μιλώ 1-2 φορές	Μιλώ κάποτε	Μιλώ συχνά	Μιλώ σχεδόν κάθε μέρα
Με ξένους φοιτητές ERASMUS που φοιτούν στο Πανεπιστήμιο	1	2	3	4	5
Με Ελλαδίτες που φοιτούν στο Πανεπιστήμιο	1	2	3	4	5
Με μετανάστες/ξένους (αλλοδαπούς) εργάτες	1	2	3	4	5
Με Τουρκοκύπριους	1	2	3	4	5

**Τα ακόλουθα ερωτήματα ερευνούν την άποψη σας σε διάφορα διαπροσωπικά θέματα.**

Απαντήστε στα πιο κάτω ερωτήματα βάζοντας σε κύκλο ένα από τους αριθμούς 1,

2, 3, 4, 5, ή 9 (Δεν Ξέρω, Δεν απαντώ)

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ πρόλυτα	ΔΑ/ΔΓ
109. Αν προσωπικά πιστεύω ότι κάτι είναι σωστό δεν επηρεάζομαι από την άποψη των φίλων μου που μπορεί να διαφέρει από τη δική μου	1	2	3	4	5	9
110. Δύσκολα επηρεάζομαι από τις απόψεις άλλων	1	2	3	4	5	9
111. Έχω μια εσωτερική αίσθηση κατεύθυνσης που με κρατά στη διαδρομή, ακόμα και όταν επικρίνομαι.	1	2	3	4	5	9
112. Δεν κοινωνικοποιούμαι με τους ανθρώπους τους οποίους οι φίλοι μου δεν εγκρίνουν.	1	2	3	4	5	9
113. Προσπαθώ να ντύνομαι έτσι ώστε να συμβαδίζω με το ντύσιμο των φίλων μου.	1	2	3	4	5	9
114. Είναι ουσιαστικό ότι οι σημαντικοί άνθρωποι της ζωής μου με εγκρίνουν σε όλα.	1	2	3	4	5	9

**Τα παρακάτω ερωτήματα διερευνούν την εικόνα που έχετε για τον εαυτό σας**

Απαντήστε στα πιο κάτω ερωτήματα βάζοντας σε κύκλο ένα από τους αριθμούς 1, 2, 3, 4, 5, ή 9 (Δεν Ξέρω, Δεν απαντώ)

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ απόλυτα	ΔΑ/ΔΓ
115. Νοιώθω ότι είμαι ένα άτομο που αξίζει, τουλάχιστο σε μια ίση βάση με τους άλλους	1	2	3	4	5	9
116. Νοιώθω ότι κατέχω ένα αριθμό καλών χαρακτηριστικών	1	2	3	4	5	9
117. Γενικά έχω την τάση να νοιώθω ότι είμαι μια αποτυχία.	1	2	3	4	5	9
118. Είμαι ικανός/η να κάνω πράγματα εξίσου καλά με άλλους	1	2	3	4	5	9

119. Νοιώθω ότι δεν έχω πολλά για τα οποία να είμαι περήφανος/η	1	2	3	4	5	9
120. Έχω μια θετική προσέγγιση απέναντι στον εαυτό μου	1	2	3	4	5	9
121. Γενικά είμαι ικανοποιημένος/η από τον εαυτό μου	1	2	3	4	5	9
122. Εύχομαι να είχα περισσότερο σεβασμό για τον εαυτό μου	1	2	3	4	5	9
123. Σίγουρα νοιώθω άχρηστος/η κάποιες φορές	1	2	3	4	5	9
124. Κάποιες φορές νοιώθω ότι δεν είμαι καθόλου καλός	1	2	3	4	5	9

**Τα πιο κάτω ερωτήματα ερευνούν την συμμετοχή σας σε διάφορες οργανώσεις**

Απαντήστε στα πιο κάτω ερωτήματα βάζοντας σε κύκλο την επιλογή σας

<b>Σημειώστε ΝΑΙ ή ΟΧΙ ανάλογα με το τι ισχύει στην περίπτωση σας</b>	<b>ΝΑΙ</b>	<b>ΟΧΙ</b>
125. Συμμετέχω σε προγράμματα κοινοτικής δραστηριότητας (στο δήμο, στο χωριό)	1	2
126. Συμμετέχω σε εθελοντικούς οργανισμούς	1	2
127. Συμμετέχω σε μη κυβερνητική οργάνωση	1	2
128. Συμμετέχω ενεργά σε κάποια φοιτητική παράταξη του πανεπιστημίου	1	2
129. Είμαι αιμοδότης	1	2
130. Ανήκω σε Όμιλο /Λέσχη στο Πανεπιστήμιο	1	2

Οι ακόλουθες ερωτήσεις εξετάζουν την άποψη των φοιτητών για τους καθηγητές

Στις παρακάτω προτάσεις ή ερωτήσεις σημειώσε αυτό που σε εκφράζει (Βάλε σε κύκλο έναν αριθμό από το 1 έως το 5, ή το 9). (Το ΔΑ/ΔΓ σημαίνει Δεν Απαντώ/Δεν Γνωρίζω).

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ απόλυτα	ΔΑ/ΔΓ
131. Οι γνώμες των καθηγητών του Πανεπιστημίου είναι σωστές	1	2	3	4	5	9
132. Κάποιες φορές οι καθηγητές δεν	1	2	3	4	5	9

γνωρίζουν τα πάντα γύρω από το θέμα τους						
133. Το καλύτερο που αφορά στα μαθήματα επιστήμης είναι ότι τα περισσότερα προβλήματα έχουν μόνο μια απάντηση	1	2	3	4	5	9
134. Είναι χάσιμο χρόνου να δουλεύεις σε προβλήματα που δεν έχουν πιθανότητα να τελειώσουν με μια ξεκάθαρη απάντηση	1	2	3	4	5	9
135. Για τις περισσότερες ερωτήσεις υπάρχει μόνο μια σωστή απάντηση από τη στιγμή που το άτομο μπορεί να μαζέψει όλα τα γεγονότα	1	2	3	4	5	9

**Οι πιο κάτω ερωτήσεις ερευνούν τη συμμετρία στις σχέσεις των φοιτητών με τους καθηγητές**

Στις παρακάτω προτάσεις ή ερωτήσεις σημειώσε αυτό που σε εκφράζει (Βάλε σε κύκλο έναν αριθμό από το 1 έως το 5, ή το 9). (Το ΔΑ/ΔΓ σημαίνει Δεν Απαντώ/Δεν Γνωρίζω).

136. Μια ιεραρχική σχέση φοιτητή-καθηγητή δεν μπορεί να οδηγήσει στην πραγματική μάθηση του φοιτητή	1	2	3	4	5	9
137. Μόνο η αποδοχή χωρίς κριτική των απόψεων των καθηγητών μπορεί να οδηγήσει στην μάθηση του φοιτητή	1	2	3	4	5	9
138. Όσο περισσότερο ένας καθηγητής συμπεριφέρεται σαν αυθεντία, τόσο περισσότερο μαθαίνουν οι φοιτητές του	1	2	3	4	5	9

**Οι πιο κάτω ερωτήσεις μελετούν τη στάση των φοιτητών προς θέματα των δύο φύλων**

Στις παρακάτω προτάσεις ή ερωτήσεις σημειώσε αυτό που σε εκφράζει (Βάλε σε κύκλο έναν αριθμό από το 1 έως το 5, ή το 9). (Το ΔΑ/ΔΓ σημαίνει Δεν Απαντώ/Δεν Γνωρίζω).

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ απόλυτα	ΔΑ/ΔΓ
139. Οι άντρες είναι το ίδιο έξυπνοι με τις γυναίκες	1	2	3	4	5	9
140. Οι άντρες και οι γυναίκες είναι ίσοι	1	2	3	4	5	9

141. Είμαι υπέρ της ισότητας αντρών και γυναικών	1	2	3	4	5	9
142. Οι δραστηριότητες της γυναίκας θα ήταν καλύτερα να περιοριστούν στην οικογένεια και στο σπίτι	1	2	3	4	5	9

**Οι πιο κάτω ερωτήσεις μελετούν την άποψη των φοιτητών για την συμπεριφορά των καθηγητών**

Στις παρακάτω προτάσεις ή ερωτήσεις σημείωσε αυτό που σε εκφράζει (Βάλε σε κύκλο έναν αριθμό από το 1 έως το 5, ή το 9). (Το ΔΑ/ΔΓ σημαίνει Δεν Απαντώ/Δεν Γνωρίζω).

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ απόλυτα	ΔΑ/ΔΓ
143. Οι καθηγητές συχνά το παίζουν έξυπνοι	1	2	3	4	5	9
144. Οι περισσότεροι καθηγητές στο πανεπιστήμιο προσπαθούν να μου δείξουν πόσα πιο πολλά ξέρουν από εμένα	1	2	3	4	5	9
145. Οι καθηγητές φαίνεται δυσκολεύουν τα μαθήματα περισσότερο από όσο πρέπει	1	2	3	4	5	9

**Οι ακόλουθες ερωτήσεις διερευνούν την κοινωνικοποίηση των φοιτητών**

Στις παρακάτω προτάσεις ή ερωτήσεις σημείωσε αυτό που σε εκφράζει (Βάλε σε κύκλο έναν αριθμό από το 1 έως το 5, ή το 9). (Το ΔΑ/ΔΓ σημαίνει Δεν Απαντώ/Δεν Γνωρίζω).

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	Συμφωνώ	Συμφωνώ απόλυτα	ΔΑ/ΔΓ
146. Είμαι άτομο κοινωνικό	1	2	3	4	5	9
147. Μου αρέσει να έχω πολλούς ανθρώπους γύρω μου	1	2	3	4	5	9
148. Έχω πολλούς φίλους/ φίλες	1	2	3	4	5	9
149. Είμαι μοναχικό άτομο, προτιμώ να είμαι μόνος	1	2	3	4	5	9

**Οι ακόλουθες ερωτήσεις μελετούν την στάση των φοιτητών προς την Ελληνοκυπριακή τους ταυτότητα**

Στις παρακάτω προτάσεις ή ερωτήσεις σημείωσε αυτό που σε εκφράζει (Βάλε σε κύκλο έναν αριθμό από το 1 έως το 5, ή το 9). (Το ΔΑ/ΔΓ σημαίνει Δεν Απαντώ/Δεν Γνωρίζω).

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	συμφωνώ	συμφωνώ απόλυτα	ΔΑ/ΔΓ
150 Γενικά είμαι χαρούμενος που είμαι Ελληνοκύπριος/α	1	2	3	4	5	9
151. Συχνά εύχομαι να μην ήμουν Ελληνοκύπριος/α	1	2	3	4	5	9
152. Είμαι περήφανος που είμαι Ελληνοκύπριος/α	1	2	3	4	5	9
153. Γενικά, το ότι είμαι Ελληνοκύπριος/α λίγο σχετίζεται με την εικόνα που έχω για τον εαυτό μου	1	2	3	4	5	9
154. Το ότι είμαι Ελληνοκύπριος/α είναι ένα σημαντικό κομμάτι του πως καθορίζω τον εαυτό μου	1	2	3	4	5	9
155. Το ότι είμαι Ελληνοκύπριος/α είναι το πιο σημαντικό μέρος του ποιος/ ποια είμαι	1	2	3	4	5	9

**Τα ακόλουθα ερωτήματα εξετάζουν τα αισθήματά σας απέναντι σε συγκεκριμένες ομάδες ατόμων**

Απαντήστε από το 0 (Υπερβολικά αρνητικά) μέχρι το 100 (υπερβολικά θετικά) όσον αφορά στα πιο κάτω ερωτήματα:

**156. Πως νιώθετε απέναντι στους Τουρκοκύπριους/ες γενικά;**

0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
υπερβολικά	Πάρα πολύ	Πολύ	Αρκετά	λίγο	Ούτε θερμά ούτε ψυχρά	γγο	αρκετά	Πολύ	Πάρα πολύ	υπερβολικά
Αρνητικά (-)						Θετικά (+)				

**157. Πως νιώθετε απέναντι στους Τούρκους γενικά;**

0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
υπερβολικά	Πάρα πολύ	Πολύ	Αρκετά	λίγο	Ούτε θερμά, ούτε ψυχρά	λίγο	αρκετά	Πολύ	Πάρα πολύ	υπερβολικά
Αρνητικά (-)						Θετικά (+)				

**158. Πως νιώθετε απέναντι στους ξένους εργάτες (Φιλιππινέζους, Σριλανκέζους) γενικά;**

0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
υπερβολικά	Πάρα πολύ	Πολύ	Αρκετά	λίγο	Ούτε θερμά, ούτε ψυχρά	λίγο	αρκετά	Πολύ	Πάρα πολύ	υπερβολικά
Αρνητικά (-)						Θετικά (+)				

**Οι πιο κάτω ερωτήσεις διερευνούν την δέσμευση των φοιτητών στα μελλοντικά τους σχέδια**

Στις παρακάτω προτάσεις ή ερωτήσεις σημείωσε αυτό που σε εκφράζει (Βάλε σε κύκλο έναν αριθμό από το 1 έως το 5, ή το 9). (Το ΔΑ/ΔΓ σημαίνει Δεν Απαντώ/Δεν Γνωρίζω).

	Διαφωνώ απόλυτα	Διαφωνώ	Ούτε διαφωνώ ούτε συμφωνώ	υμφωνώ	υμφωνώ απόλυτα	ΔΑ/ ΔΓ
159. Στο παρόν στάδιο ενασχολούμαι με μία ή περισσότερες δραστηριότητες τις οποίες αναγνώρισα ως βοηθητικές με την λήψη της απόφασης για το τι θα κάνω με το υπόλοιπο της ζωής μου.	1	2	3	4	5	9
160. Έχω μια εσωτερική αίσθηση κατεύθυνσης, όσον αφορά τον επαγγελματικό μου προσανατολισμό που με καθοδηγεί στις επιλογές μου	1	2	3	4	5	9
161. Σκεπτόμενος/η για το είδος ζωής που θέλω να έχω στα 5 έτη μετά από το πανεπιστήμιο, έχω μια σαφή εικόνα	1	2	3	4	5	9
162. Τα σχέδια μου για το μέλλον είναι παράλληλα με τις προσωπικές μου αξίες	1	2	3	4	5	9
163. Αναπτύσσω στοχευμένες νοητικές ικανότητες και	1	2	3	4	5	9

προσωπικές συνήθειες που θα επιβεβαιώσουν ότι θα συνεχίσω να μαθαίνω μετά τη συμπλήρωση της επίσημης μου εκπαίδευσης						
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**Οι ακόλουθες ερωτήσεις μελετούν τον τρόπο που οι φοιτητές συμφωνούν με άλλα άτομα για διάφορα θέματα**

Στις παρακάτω προτάσεις ή ερωτήσεις σημείωσε αυτό που σε εκφράζει (Βάλε σε κύκλο έναν αριθμό από το 1 έως το 5, ή το 9). (Το ΔΑ/ΔΓ σημαίνει Δεν Απαντώ/Δεν Γνωρίζω).

	Διαφωνώ απόλυτα	Διαφωνώ	Δεν ξέρω	Συμφωνώ	Συμφωνώ απόλυτα
164. Προσπαθώ να είμαι ευγενής με όλους όσους συναντώ	1	2	3	4	5
165. Συχνά τσακώνομαι με την οικογένεια και τους συναδέλφους μου	1	2	3	4	5
166. Μερικοί άνθρωποι νομίζουν ότι είμαι εγωιστής και φίλαντος	1	2	3	4	5
167. Προτιμώ να συνεργάζομαι με τους άλλους παρά να τους ανταγωνίζομαι	1	2	3	4	5
168. Έχω την τάση να είμαι κυνικός και σκεπτικός για τις προθέσεις των άλλων	1	2	3	4	5
169. Πιστεύω ότι οι περισσότεροι άνθρωποι θα σε εκμεταλλευθούν αν τους αφήσεις	1	2	3	4	5
170. Οι περισσότεροι άνθρωποι που γνωρίζω με συμπαθούν	1	2	3	4	5
171. Μερικοί άνθρωποι με θεωρούν ψυχρό και υπολογιστή	1	2	3	4	5
172. Είμαι ισχυρογνώμων και ξεροκέφαλος στις πεποιθήσεις μου	1	2	3	4	5
173. Γενικά προσπαθώ να είμαι προσεκτικός και διακριτικός	1	2	3	4	5
174. Αν δεν μου αρέσουν οι άλλοι άνθρωποι, τους το δείχνω	1	2	3	4	5
175. Αν είναι απαραίτητο, είμαι πρόθυμος να χειριστώ τους ανθρώπους για να παίρνω αυτό που θέλω	1	2	3	4	5

**Παρακαλώ διαβάστε τα ζευγάρια των προτάσεων, ένα ζευγάρι κάθε φορά και σκεφτείτε ποια πρόταση μέσα στο ζευγάρι σας αντιπροσωπεύει περισσότερο στο παρόν σημείο της**

ζωής σας. Υποδείξετε τον βαθμό που η πρόταση A ισχύει ως αληθής σε σχέση με τον βαθμό που η πρόταση B φαίνεται αληθής στην κλίμακα από το 1 μέχρι το 5 που φαίνεται κάτω από το κάθε ζευγάρι. Αν ισχύει η πρόταση A απόλυτα ως αληθής και η πρόταση B ισχύει ως απόλυτα μη αληθής (δηλαδή δεν ισχύει καθόλου), η σωστή απάντηση θα ήταν το 1. Αν οι δύο προτάσεις ισχύουν το ίδιο, η σωστή επιλογή θα ήταν το 3. Αν μόνο η πρόταση B ισχύει, το 5 κλπ

176. A. Πάντα νοιώθω ότι επιλέγω αυτά που κάνω

B. Κάποτε νοιώθω ότι δεν είμαι εγώ που επιλέγω τα πράγματα που κάνω

Μόνο το A ισχύει	1	2	3	4	5	Μόνο το B ισχύει
---------------------	---	---	---	---	---	---------------------

177. A. Επιλέγω να κάνω αυτό που πρέπει να κάνω

B. Κάνω αυτό που πρέπει να κάνω αλλά δεν νοιώθω ότι είναι πραγματικά η επιλογή μου

Μόνο το A ισχύει	1	2	3	4	5	Μόνο το B ισχύει
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178. A. Κάνω ό,τι κάνω επειδή με ενδιαφέρει

B. Κάνω ό,τι κάνω επειδή πρέπει

Μόνο το A ισχύει	1	2	3	4	5	Μόνο το B ισχύει
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179. A. Είμαι ελεύθερος/η να κάνω ό,τι αποφασίσω

B. Ό,τι κάνω είναι συχνά κάτι που δεν επέλεξα να κάνω

Μόνο το A ισχύει	1	2	3	4	5	Μόνο το B ισχύει
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180. A. Νοιώθω αρκετά ελεύθερος/η να κάνω ό,τι διαλέξω

B. Συχνά κάνω πράγματα που δεν διαλέγω να κάνω

Μόνο το A ισχύει	1	2	3	4	5	Μόνο το B ισχύει
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## APPENDIX IV

### ENGLISH VERSION OF FINAL QUESTIONNAIRE

#### **SURVEY**

As a part of my doctoral dissertation , which is taking place at the Psychology Department of the University of Cyprus, this questionnaire was developed and it concerns the research of your skills in cognitive items and your views on social issues. You are kindly asked to answer the questions expressing your personal view. Please answer the following 186 questions as honest as possible. The completion of the survey takes around 35 minutes.

The data of the research will remain anonymous and your personal answers will be only known to this researcher.

In the total answer choices you are asked to choose only one, which is the one expressing your personal opinion the most.

Your cooperation for the successful completion of the research is of high importance. Please answer ALL the following questions, one after another, in the order that is suggested.

Your participation in the research is of crucial importance. Please note that once you begin to answer the survey, you cannot interrupt, so we suggest that you schedule 30 minutes of your time for its completion.

Upon completion of the data collection (completion of the research), there will be a draw in which a person will win a new Laptop Computer. For the receipt of the prize, the winner will have to present his or her Student Identification Card (Student ID) and an official confirmation of enrolment at his or her university for the semester he/she completed the questionnaire. The data analysis system will not include questionnaires with missing or casual/chance answers.

Thank you for your cooperation!  
Fotini Economidou Kranou

## **Part A : General Demographic Information**

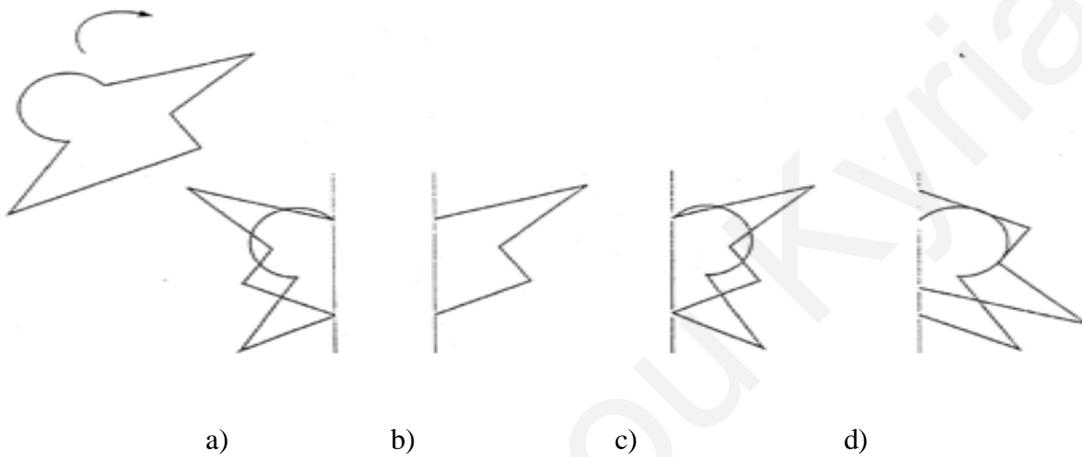
1. State your **month of birth**.....the last **4 digits of your mobile phone**.....and the last **4 digits of your Identification card**..... for coding purposes
2. Gender : Man    Woman
3. Current Year of Study: \_\_\_\_\_
4. University : 1) University of Cyprus 2) Cyprus University of Technology 3) Open University of Cyprus 4) European University Cyprus 5) Frederick University Cyprus 6) Nicosia University Cyprus
5. Country of Origin \_\_\_\_\_
6. Parents' Educational Level:
  - A) Father's Education (please choose one): 1.Elementary    2. High School (Gymnasium)  
3.Lyceum 4.Undergraduate 5.Master's 6.PhD
  - B) Mother's Education (please choose one): 1.Elementary    2. High School (Gymnasium)  
3.Lyceum 4.Undergraduate 5.Master's 6.PhD
7. Family Financial Situation (Choose one): 1.Bad    2.Average 3.Good 4.Very good
8. Marital Status (Choose one): 1.Single    2.Married
9. Housing situation (Choose one): 1.With parents    2.With roommate    3.Alone 4.Alone at University Hall 5.With roommate at University Hall
10. Religion: \_\_\_\_\_
11. Distance from family home: 1) 0-20km 2) 21-50km 3) 50-100km 4) 100+km
12. Major: .....
13. High school leaving certificate grade: .....
14. Specialized Courses / Direction chosen in high school (e.g. Ancient Greek, History, Latin / Accounting, Finance, Civil Economics / Chemistry, Biology, Physics etc)
15. Grade of University entry examinations: .....
16. First Semester at University GPA (for students of public universities out of 10) .....For private university students out of 4, 5 or 10.....
17. Current GPA..... (For public universities out of 10, for private please mention) .....
18. Hours dedicated to daily studying: 1) 0, 2) 1-2, 3) 3-4, 4) 4.5+
19. Exam preference (Choose one): 1) Multiple Choice 2) Essay/ Open questions 3) Oral Presentation

**Part B: Cognitive Problem Solving**

Please solve the following problems

**20. Shape folding**

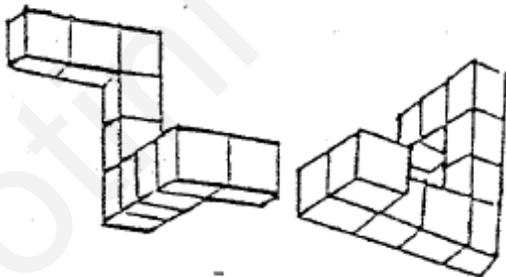
Imagine that the shape below will fold around the axis shown with dots. Imagine how it will look and choose the correct shape in the choices given. The arrow presents the direction that the shape will turn during the folding.



**21) The shaping couples**

Find if the shapes in the couple are the same or not.

**Please solve the following:**

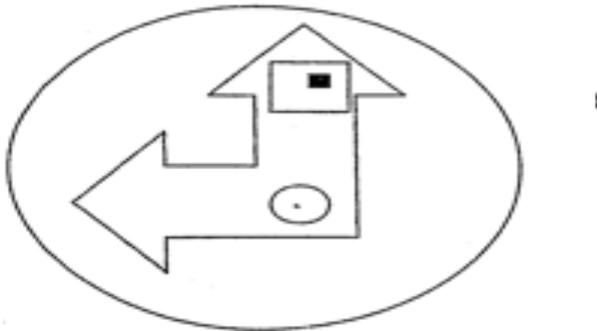


- a) The shapes are the same
- β) The shapes are not the same

**22. The watches**

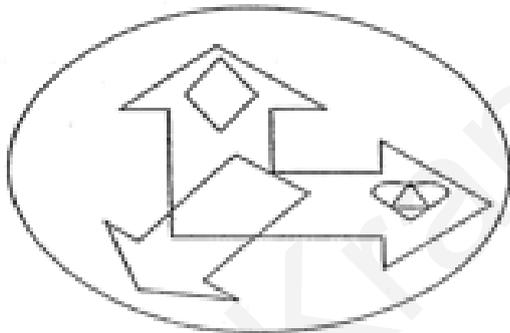
The clock's points are shown on the clock below. Choose one of the given options on how the shape will look on the δείκτη when it revolves from one position to the other.

**Please solve the following:**



- a)
- b)
- c)
- d)

**23. Please solve the following:**



- a)
- b)
- c)
- d)

## 24. Arithmetic Analogies

Below see the analogy problem. Try to solve it based on the relationship given.

Provide your answer by choosing one of the four given options.

**Helen is trying a cake recipe. In the first trial for every 5 spoons of sugar she added 2 cups of water. In the second trial for every 7 spoons of sugar she added 3 cups of water. In which recipe will the cake be sweeter?**

- a) In the first   b) In the second   c) They will taste the same

## 25. Equations

Below there is an equation provided. Answer by choosing one of the following four equations.

**If  $x+y=5$ ,  $x+z=3$  and  $y+z=2$ , what of the below is true?**

- a)  $z=0$    b)  $z=1$    c)  $w=2$    d)  $z=3$

## 26. Numbers

The problem has a series of numbers. Each number in the series is related to some rule and to one or more of the previous numbers. Find the rule and guess which the number to follow in the series is:

**13 17 26 68 52...**

- a) 136   b) 272   c) 104   d) 78

## 27. Medicines

In the medical research performed for the therapy of sciatica, there was great improvement when three medicines were given together: Alconil, Myonil and Iremil. Three medical researchers have three different views for the reason of the improvement.

Dr. Constantinou supports that in reality only one of the medicines is responsible for the improvement, Alconil.

Dr. Georgiou supports that the improvement took place due to the combination of two medicines together, Alconil and Myonil.

Dr. Andreou supports that the improvement is due to a substance, myochaline, found in Alconil and Myonil.

**Below, you are asked to choose what the researcher needs to find to prove that his hypothesis is correct.**

**For Dr. Andreou to prove that he is correct, he would have to:**

- A) Give Iremil and Myonil after he deducts myochaline and not find any improvement
- B) Give only myochaline and find improvement
- C) Give alconil with myonil and see improvement
- D) Give only Iremil and see improvement

**28. Plants**

A series of experiments has been done and shown below. Study the experiments and find what each controls regarding the plant development.

Cultivation conditions

<u>Seed</u>	<u>Lighting – Ground</u>
1. Wheat	Dark - Clay
2. Wheat	Dark – Red clay
3. Barley	Light – Clay
4. Wheat	Light – Red clay
5. Wheat	Light – Clay

**The comparison of experiments 1 and 3 allows examining the effect:**

- a) of the plant   b) of the soil   c) of the light   d) none

**29. The game of truth and lie**

In the following problem you are asked to find where is the ring following what the Truth and Lie say:

**The truth says:**

**If the ring is in the purse or the night stand, then it is with the bracelet.**

**The Lie says:**

**The ring is with the bracelet**

**Where is the ring?**

- a) Not with the bracelet
- b) In the purse
- c) Neither in the purse nor on the nightstand
- d) Either in the purse or the nightstand

## **Part C**

**The following questions explore the students' stand towards the taught courses at the University:**

Answer the below questions by choosing one of the numbers 1, 2, 3, 4, 5, or 9 (Don't know / No answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
30. I measure and contemplate what I hear from my professors before I accept them	1	2	3	4	5	9
31. University professors know everything	1	2	3	4	5	9
32. I usually disagree with the professor's view	1	2	3	4	5	9
33. When I study something, I view and compare it from my point of view and I sometimes doubt it.	1	2	3	4	5	9
34. I usually tend to doubt what I hear from my professors in the courses I attend.	1	2	3	4	5	9

**The following questions explore the students' stand towards studying**

Answer the following questions by choosing one of the following numbers 1, 2, 3, 4, 5, or 9 (Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
35. I sometimes find that studying gives me a deep sensation of personal satisfaction.	1	2	3	4	5	9
36. I find that I need to work hard on a subject to be able to form my own conclusions to be satisfied.	1	2	3	4	5	9
37. My goal is to pass my classes with as little work as possible.	1	2	3	4	5	9
38. I study seriously only what is mentioned in the class or the syllabus	1	2	3	4	5	9
39. I feel that almost every subject is very interesting when I pay attention to it	1	2	3	4	5	9
40. I find that most new subjects are very interesting and I usually spend extra time trying to find more information about them	1	2	3	4	5	9
41. I don't find my studies interesting, so I work the least possible	1	2	3	4	5	9
42. I learn some things by rote learning, through a lot of repetitions until I learn them by heart even if I don't	1	2	3	4	5	9

understand them						
43. I find that studying of some academic subjects can be as exciting as a good book or a movie	1	2	3	4	5	9
44. I examine myself in important subjects until I understand them completely	1	2	3	4	5	9
45. I find that I succeed most exams by memorizing important parts instead of trying to understand them	1	2	3	4	5	9
46. I examine myself on important subjects until I understand them completely	1	2	3	4	5	9
47. I generally study only what is clearly important since I believe that it is not necessary to do something more	1	2	3	4	5	9
48. I work hard for my studies because I find the material important	1	2	3	4	5	9
49. I spend much of my free time to find more on interesting subjects discussed in different classes	1	2	3	4	5	9
50. I find that it is not helpful to study subjects in depth. It is confusing and waste of time since all that is needed is to pass classes and know the subjects.	1	2	3	4	5	9
51. I believe that the professors should not expect the students to spend an important amount of time on subjects everyone knows will probably not be examined	1	2	3	4	5	9
52. I go to most classes with questions in mind for which I seek answers	1	2	3	4	5	9
53. I try to look at most of the suggested subjects for reading which are related to the lectures	1	2	3	4	5	9
54. I don't see the reason to learn material that will not be examined	1	2	3	4	5	9
55. I find that the best way to succeed in exams is to try to recall answers to possible questions	1	2	3	4	5	9

**The following questions search the thought process of the students**

Answer the following questions by choosing one of the following numbers 1, 2, 3 ,4, 5, or 9

(Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally Disagree	DK/NA
56. I have analytic thought	1	2	3	4	5	9
57. I try to improve my logical thought	1	2	3	4	5	9
58. I am able to solve problems	1	2	3	4	5	9
59. I can search for evidence to solve problems	1	2	3	4	5	9

**The following questions study the way the university students view knowledge issues**

Answer the following questions by choosing one of the following numbers 1, 2, 3 ,4, 5, or 9

(Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
60. Since the truth is not obvious to all, some people have correct views and others have wrong views.	1	2	3	4	5	9
61. In some areas the truth is not obvious from the beginning, even for the professors, but the correct information will clear things some day	1	2	3	4	5	9
62. Uncertainty is a characteristic symbol of knowledge, though some issues can be solved with accuracy and completely	1	2	3	4	5	9
63. Some views are more valid than others	1	2	3	4	5	9
64. All views are valid. It depends on which angle you look at the issue from.	1	2	3	4	5	9
65. The truth is only one and there is a way to find it.	1	2	3	4	5	9
66. The truth is a relative definition; the truth of one is the lie of the other.	1	2	3	4	5	9
67. All views are of the same value because each prospect has its own truth.	1	2	3	4	5	9

**The following questions study your view about the teaching of the history lesson.**

Answer the following questions by choosing one of the following numbers 1, 2, 3 ,4, 5, or 9

(Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
68. In history facts talk for themselves and need no interpretation	1	2	3	4	5	9
69. The discovery of the truth needs to succeed the discussion of conflicting interpretations	1	2	3	4	5	9
70. The historic truth is granted and we can always discover it.	1	2	3	4	5	9

71. The historic truth is in fact a matter of interpretation	1	2	3	4	5	9
72. It is not possible to support that a specific interpretation of history is more valid than other since interpretations are always subjective	1	2	3	4	5	9
73. When we study historic texts, it is important to ask questions about the credibility of the writer's arguments	1	2	3	4	5	9
74. It is possible for one interpretation to be more valid in relation to another	1	2	3	4	5	9
75. The historic knowledge is open for review as it is subject to new discoveries and new aspects.	1	2	3	4	5	9
76. Since there is no way to know what exactly has happened in the past, one can believe in any chosen history	1	2	3	4	5	9

**The following questions search the students' way of thinking on various social issues**

Answer the following questions by choosing one of the following numbers 1, 2, 3 ,4, 5, or 9  
(Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
77. If two people really like one another, it is acceptable to proceed to sexual intercourse irrelevant of how well they know each other	1	2	3	4	5	9
78. Marijuana should be legalized	1	2		4	5	9
79. The military service has to continue to be mandatory	1	2	3	4	5	9
80. Abortion has to be legalized	1	2	3	4	5	9

**The following questions search the social activity of the students**

Answer the following questions by choosing one of the following numbers 1, 2, 3 ,4, 5, or 9  
(Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
81. Through my involvement I influence in community issues, I influence the development of new social values	1	2	3	4	5	9
82. I can contribute to the change of society through my activities	1	2	3	4	5	9
83. With my activity I can influence the local politic structure	1	2	3	4	5	9

**The following questions study the students stand on religion**

Answer the following questions by choosing one of the following numbers 1, 2, 3 ,4, 5, or 9

(Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
84. Religion is an important aspect of my life	1	2	3	4	5	9
85. I believe in God	1	2	3	4	5	9
86. I often go to church	1	2	3	4	5	9

**The following questions study the students' stand towards others**

Answer the following questions by choosing one of the following numbers 1, 2,

3 ,4, 5, or 9 (Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
87. I view my parents as adult to adult	1	2	3	4	5	9
88. I view my peers as equal to me	1	2	3	4	5	9
89. I respect others' autonomy	1	2	3	4	5	9
90. I accept and appreciate the differences among people	1	2	3	4	5	9
91. I try to understand the different ways of thinking	1	2	3	4	5	9

**The following questions study the students' stand on community issues**

Answer the following questions by choosing one of the following numbers 1, 2,

3 ,4, 5, or 9 (Don't know / No Answer DK/NA)

	totally disagree	Disagree	Neither agree nor Disagree	Agree	totally agree	DK/NA
92. We need to do anything possible to strengthen our community, even if this means the oppression of the weak groups	1	2	3	4	5	9
93. The lower groups should remain at that low position	1	2	3	4	5	9

94. Social equality has to be promoted	1	2	3	4	5	9
95. We overdid it with the support of social equality in this country.	1	2	3	4	5	9
96. Winning is more important than playing the game	1	2	3	4	5	9

**The following questions study your feelings when you are in contact with various people or members of a group**

Answer the following questions by choosing one of the following numbers 1, 2, 3, 4, 5, or 99 (Don't know / No Answer DK/NA)

**97. When you meet your parents, do you find the contact :**

		Not at all	A little	Enough	Very much	Very very much	DK/NA
1.	Pleasant	1	2	3	4	5	99
2.	Superficial	1	2	3	4	5	99
3	Cooperative	1	2	3	4	5	99
4.	Positive	1	2	3	4	5	99
5.	Based on mutual respect	1	2	3	4	5	99
6.	I feel superior	1	2	3	4	5	99
7.	I feel underestimated	1	2	3	4	5	99

**98. When you meet with fellow students, do you find the contact:**

		Not at all	A little	Enough	Very much	Very very much	DK/NA
1.	Pleasant	1	2	3	4	5	99
2.	Superficial	1	2	3	4	5	99
3	Cooperative	1	2	3	4	5	99
4.	Positive	1	2	3	4	5	99
5.	Based on mutual respect	1	2	3	4	5	99
6.	I feel superior	1	2	3	4	5	99
7.	I feel underestimated	1	2	3	4	5	99

**99. When you meet with your professors, do you find the contact:**

		Not at all	A little	Enough	Very much	Very very much	DK/NA
1.	Pleasant	1	2	3	4	5	99
2.	Superficial	1	2	3	4	5	99
3	Cooperative	1	2	3	4	5	99
4.	Positive	1	2	3	4	5	99
5.	Based on mutual respect	1	2	3	4	5	99

6.	I feel superior	1	2	3	4	5	99
7.	I feel underestimated	1	2	3	4	5	99

**100. When you meet with Turkish Cypriots, do you find the contact:**

		Not at all	A little	Enough	Very much	Very very much	DK/NA
1.	Pleasant	1	2	3	4	5	99
2.	Superficial	1	2	3	4	5	99
3.	Cooperative	1	2	3	4	5	99
4.	Positive	1	2	3	4	5	99
5.	Based on mutual respect	1	2	3	4	5	99
6.	I feel superior	1	2	3	4	5	99
7.	I feel underestimated	1	2	3	4	5	99

**The following questions study the students' stand towards the solution of the Cyprus issue**

Answer the following questions by choosing one of the following numbers 1, 2, 3, 4, 5, or 9

(Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
101. I would like a solution of the Cyprus problem where all (Greek Cypriots and Turkish Cypriots) will coexist peacefully	1	2	3	4	5	9
102. The peaceful coexistence between Greek Cypriots and Turkish Cypriots is feasible	1	2	3	4	5	9
103. I could have members of the Turkish Cypriot community for neighbors	1	2	3	4	5	9

**104. Choose the one that expresses your political stand from 1 to 9 (9 stands for Don't know /**

**No answer)**

	1	2	3	4	5	9
In the scale of Left / Right where would you position yourself?	LEFT	CENTER-LEFT	CENTER	CENTER-RIGHT	RIGHT	DK/NA

**The following questions study your relationship with Turkish Cypriots. Please choose what expresses you the most:**

105. How many times have you visited the occupied part of Cyprus?	NEVER	1-2 TIMES	3-4 TIMES	5-7 TIMES	MORE THAN 7 TIMES	DK/NA
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106. How many people of the Turkish Cypriot community have you met?	NO ONE	1-2 PEOPLE	3-4 PEOPLE	5-7 PEOPLE	MORE THAN 7 PEOPLE	DK/NA
107. With how many members of the Turkish Cypriot community have you become friends?	NO ONE	1-2 PEOPLE	3-4 PEOPLE	5-7 PEOPLE	MORE THAN 7 PEOPLE	DK/NA

**108. State in which degree you have communication with the following people**

	No communication at all	Talked to 1-2 times	Some-times talk	Talk often	Talk to every day
With foreign or Erasmus students studying at the University	1	2	3	4	5
With Greek students of the university	1	2	3	4	5
With foreign workers and immigrants	1	2	3	4	5
With Turkish Cypriots	1	2	3	4	5

**The following questions study your view on various interpersonal issues**

Answer the following questions by choosing one of the following numbers 1, 2, 3, 4, 5, or 9 (Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
109. If I personally believe that something is right, I do not get influenced by my friends' point of view which might differ from mine	1	2	3	4	5	9
110. I am difficultly influenced by the views of others	1	2	3	4	5	9
111. I have an internal feeling of guidance which keeps me on track, even when I am being judged.	1	2	3	4	5	9
112. I do not socialize with people my friends do not approve	1	2	3	4	5	9
113. I try to dress in a way to keep in pace with my friends' appearance	1	2	3	4	5	9
114. It is important that the important people of my life approve me in everything	1	2	3	4	5	9

**The following questions study the picture you have for yourself**

Answer the following questions by choosing one of the following numbers 1, 2, 3, 4, 5, or 9  
(Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
115. I feel that I am a worthy person, at least at an equal basis with the others	1	2	3	4	5	9
116. I feel that I have a number of good characteristics	1	2	3	4	5	9
117. In general I have the tendency to feel like a failure	1	2	3	4	5	9
118. I am capable of doing things equally good as others	1	2	3	4	5	9
119. I feel that I do not have many things to be proud of	1	2	3	4	5	9
120. I have a positive attitude towards myself	1	2	3	4	5	9
121. I am generally satisfied with my self	1	2	3	4	5	9
122. I wish I had more respect for myself	1	2	3	4	5	9
123. I sure feel worthless sometimes	1	2	3	4	5	9
124. Sometimes I feel like I am not good at all	1	2	3	4	5	9

**The following questions study your involvement in various organizations**

<b>Choose YES or NO depending on what takes place in your case</b>	<b>YES</b>	<b>NO</b>
125. I take part in community activity programs ( in community, village, etc)	1	2
126. I am member of volunteer organizations	1	2
127. I am member of a Non Government Organization	1	2
128. I take part in a student political club at the university	1	2
129. I am a blood donor	1	2
130. I am a member of a University Club	1	2

The following questions examine the view of the students about their professors

Answer the following questions by choosing one of the following numbers 1, 2, 3 ,4, 5, or 9  
(Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
131. The views of the professors are right	1	2	3	4	5	9
132. Sometimes the professors don't know everything about their subject	1	2	3	4	5	9
133. The best thing about science courses is that most problems have only one answer	1	2	3	4	5	9
134. Working on problems that do not have the possibility to be solved with one clear answer, is a waste of time	1	2	3	4	5	9
135. For most questions there is only one answer, given that the person can gather all the facts	1	2	3	4	5	9

**The following questions study the symmetry in the student-professor relationships**

Answer the following questions by choosing one of the following numbers 1, 2, 3 ,4, 5, or 9  
(Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
136. A hierarchical relationship between students and professors cannot lead to true learning	1	2	3	4	5	9
137. Only the non-judgemental acceptance of the views of the professors can lead to the student's true learning	1	2	3	4	5	9
138. The more a professor behaves as an authority, the more his/her students learn	1	2	3	4	5	9

**The following questions study the students' stand towards gender issues**

Answer the following questions by choosing one of the following numbers 1, 2, 3 ,4, 5, or 9  
(Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA

139. Men are equally smart to women	1	2	3	4	5	9
140. Men and women are equal	1	2	3	4	5	9
141. I support the equality between men and women	1	2	3	4	5	9
142. The woman's activities should be constrained at home	1	2	3	4	5	9

**The following questions study the students' views about the professors' behavior**

Answer the following questions by choosing one of the following numbers 1, 2, 3, 4, 5, or 9

(Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
143. Professors usually act as if they are too smart	1	2	3	4	5	9
144. Most university professors try to prove how much more than me they know	1	2	3	4	5	9
145. Professors seem to make courses more than difficult than they should	1	2	3	4	5	9

**The following questions study the students' socialization**

Answer the following questions by choosing one of the following numbers 1, 2, 3, 4, 5, or 9

(Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
146. I am a social person	1	2	3	4	5	9
147. I like having many people around me	1	2	3	4	5	9
148. I have many friends	1	2	3	4	5	9
149. I am a lonely person, I prefer to be alone	1	2	3	4	5	9

**The following questions study the students' stand towards their Greek Cypriot Identity**

In the following sentences or questions mark what expresses you the most. Choose from 1 to 5, or 9 (9 meaning Don't know / No answer)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
150. In general I am happy to be Greek Cypriot	1	2	3	4	5	9
151. I usually wish I was not Greek Cypriot	1	2	3	4	5	9
152. I am proud to be Greek Cypriot	1	2	3	4	5	9
153. Generally, the fact that I am Greek Cypriot has little to do with the picture that I have for myself	1	2	3	4	5	9
154. The fact that I am Greek Cypriot is an important part of how I define myself	1	2	3	4	5	9
155. The fact that I am Greek Cypriot is the most important part of who I am	1	2	3	4	5	9

**The following questions examine your feelings towards specific groups of people**

Choose from 0 (Too negative) up to 100 (Too positive) for the following questions

**156. How do you generally feel towards Turkish Cypriots?**

0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
Extremely	Very very much	Very much	Enough	A little	Neither negative nor positive	A little	Enough	Very much	Very very much	Extremely
Negative (-)						Positive (+)				

**157. How do you generally feel towards Turkish people;**

0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
Extremely	Very very much	Very much	Enough	A little	Neither negative nor positive	A little	Enough	Very much	Very very much	Extremely
Negative (-)						Positive (+)				

**158. How do you generally feel towards foreign workers (Philippinos, Sri Lankans)?**

0°	10°	20°	30°	40°	50°	60°	70°	80°	90°	100°
Extremely	Very very much	Very much	Enough	A little	Neither negative nor positive	A little	Enough	Very much	Very very much	Extremely
Negative (-)					Positive (+)					

**The following items explore the students' commitment on their future plans**

**In the following sentences or questions mark what expresses you the most.**

Choose from 1 to 5, or 9 ( 9 meaning Don't know / No answer)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
159. In the present time I deal with one or more activities which I find helpful for deciding on what I will do with the rest of my life.	1	2	3	4	5	9
160. I have an internal guidance regarding my professional direction, which guides me through my choices.	1	2	3	4	5	9
161. When I think of the kind of life that I wish to have following my graduation, I have a clear picture	1	2	3	4	5	9
162. My plans for the future are in line with my personal values	1	2	3	4	5	9
163. I develop targeted cognitive skills and personal habits which will confirm that I will continue to learn after the completion of my formal education	1	2	3	4	5	9

**The following questions explore the way the students agree with other people on various issues**

Answer the following questions by choosing one of the following numbers 1, 2, 3, 4, 5, or 9 (Don't know / No Answer DK/NA)

	Totally Disagree	Disagree	Neither agree nor Disagree	Agree	Totally agree	DK/NA
164. I try to be kind to everyone I meet	1	2	3	4	5	9

165. I usually fight with my family and colleagues	1	2	3	4	5	9
166. Some people think that I am selfish and coquetish	1	2	3	4	5	9
167. I prefer to cooperate with others than be antagonistic	1	2	3	4	5	9
168. I tend to be cynic and sceptic towards others' intentions	1	2	3	4	5	9
169. I believe that most people will take advantage of you if you let them	1	2	3	4	5	9
170. Most of the people I meet like me	1	2	3	4	5	9
171. Some people think that I am cold and reckoner	1	2	3	4	5	9
172. I am stubborn and obstinate about my beliefs	1	2	3	4	5	9
173. I generally try to be careful and discreet	1	2	3	4	5	9
174. If I don't like other people, I show it to them	1	2	3	4	5	9
175. If it is necessary, I am willing to manipulate people to get what I want	1	2	3	4	5	9

**Please read the following couples of sentences, one couple at a time and think which sentence in the couple is true about you the most at the present time of your life. Indicate the degree that sentence A is true in relation to the degree that sentence B is true on the scale from 1 to 5 shown below the couple. If sentence A is absolutely true and sentence B is absolutely not true, then the correct answer would be 1. If the two sentences are equally true about you, then the correct answer would be 3. If only sentence B is true, then the right choice would be 5, etc.**

176. A. I always do what I choose

B. Sometimes I feel like I am not the one who chooses what

Only A is true	1	2	3	4	5	Only B is true
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177. A. I choose what I need to do

B. I do what I need to do, but I do not feel like it is really my choice

Only A is true	1	2	3	4	5	Only B is true
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178. A. I do what I do because I like it

B. I do what I do because I have to

Only A is true	1	2	3	4	5	Only B is true
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179. A. I am free to do whatever I decide

B. I usually do things that I did not choose to do

Only A is true	1	2	3	4	5	Only B is true
----------------	---	---	---	---	---	----------------

180. A. I feel free enough to do whatever I choose

B. I usually do the things I do not choose to do

Only A is true	1	2	3	4	5	Only B is true
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## Appendix V

### Scale items and Reliability of both waves of the longitudinal study

Scale items and Reliability of both waves			
Scale	Item	Wave 1 a	Wave 2 a
Critical towards Professors	Stand I measure and contemplate what I hear from my professors before I accept them (30) University professors know everything (31) (R) I usually disagree with the professor's view (32) When I study something, I view and compare it from my point of view and I sometimes doubt it (33) I usually tend to doubt what I hear from my professors in the courses I attend (34)	.53	.57
Excitement about studying	I sometimes find that studying gives me a deep sensation of personal satisfaction (35) I feel that almost every subject is very interesting when I pay attention to it (39) I find that most new subjects are very interesting and I usually spend extra time trying to find more information about them (40) I find that studying of some academic subjects can be as exciting as a good book or a movie (43) I examine myself in important subjects until I understand them completely (44)	.75	.82
No interest in Deep learning	I learn some things by rote learning, through a lot of repetitions until I learn them by heart even if I don't understand them (42) I find that I succeed most exams by memorizing important parts instead of trying to understand them (45) I generally study only what is clearly important since I believe that it is not necessary to do something more (47) I find that it is not helpful to study subjects in depth. It is confusing and waste of time since all that is needed is to pass classes and know the subjects. (50) I believe that the professors should not expect the students to spend an important amount of time on subjects that everyone knows will not be examined (51) I don't see the reason to learn material that will probably not be examined (54)	.71	.79
Analytic thinking	I have analytic thought (56) I try to improve my logical thought (57) I am able to solve problems (58) I can search for evidence to solve problems (59)	.76	.75
Relativism	All views are valid. It depends on which angle you look at the issue from (64) The truth is a relative definition; the truth of one is the lie of the other (66)	.64	.69

		All views are of the same value because each prospect has its own truth (67)		
Realism		Since the truth is not obvious to all, some people have correct views and others have wrong views (60) In some areas the truth is not obvious from the beginning, even for the professors, but the correct information will clear things some day (61)	$r=0.37$ $p=.0001$	$r=0.37$ $p=.0001$
Relativism History	In	The historic truth is in fact a matter of interpretation (71)  It is not possible to support that a specific interpretation of history is more valid than other since interpretations are always subjective (72)	$r=0.31$ $p=.0001$	$r=0.44$ $p=.0001$
Realism in History		In history facts talk for themselves and need no interpretation (68)  The historic truth is granted and we can always discover it (70)	$r=0.48$ $p=.0001$	$r=0.55$ $p=.0001$
Constructivism in history	in	The discovery of the truth needs to succeed the discussion of conflicting interpretations (69) When we study historic texts, it is important to ask questions about the credibility of the writer's arguments (73) It is possible for one interpretation to be more valid in relation to another (74) The historic knowledge is open for review as it is subject to new discoveries and new aspects (75)	.64	.71
Liberalism		If two people really like one another, it is acceptable to proceed to sexual intercourse irrelevant of how well they know each another (77) Marijuana should be legalized (78) Abortion has to be legalized (80)	.62	.63
Social Agency		Through my involvement I influence in community issues I influence the development of new social values (81) I can contribute to the change of society through my activities (82) With my activity in the local politic structure I can influence (83)	.80	.83
Religiosity		Religion is an important aspect of my life (84) I believe in God (85) I often go to church (86)	.86	.85
Mutual Respect		I view my parents as adult to adult (87) I view my peers as equal to me (88) I respect others' autonomy (89) I accept and appreciate the differences among people (90) I try to understand the different ways of thinking (91)	.74	.79
Egalitarianism		We need to do anything possible to strengthen our community, even if this means the oppression of the weak groups (92) (R) The lower groups should remain at that low position (93) (R) Social equality has to be promoted (94)	.73	.69

	We overdid it with the support of social equality in this country (95) (R) Winning is more important than playing the game (96) (R)		
Quality of contact with parents	When you meet your parents, do you find the contact (97): 1. Pleasant, 2. Superficial (R), 3. Cooperative, 4. Positive, 5. Based on mutual respect, 6. I feel superior (R), 7. I feel underestimated (R)	.86	.86
Quality of contact with fellow students	When you meet with fellow students, do you find the contact (98): 1. Pleasant, 2. Superficial (R), 3. Cooperative, 4. Positive, 5. Based on mutual respect, 6. I feel superior (R), 7. I feel underestimated (R)	.83	.85
Quality of contact with professors	When you meet with your professors, do you find the contact (99): 1. Pleasant, 2. Superficial (R), 3. Cooperative, 4. Positive, 5. Based on mutual respect, 6. I feel superior (R), 7. I feel underestimated (R)	.80	.83
Quality of contact with Turkish Cypriots	When you meet with Turkish Cypriots, do you find the contact (100): 1. Pleasant, 2. Superficial (R), 3. Cooperative, 4. Positive, 5. Based on mutual respect, 6. I feel superior (R), 7. I feel underestimated (R)	.82	.86
Support for Coexistence with TCs	I would like a solution of the Cyprus problem where all (Greek Cypriots and Turkish Cypriots) will coexist peacefully (101) The peaceful coexistence between Greek Cypriots and Turkish Cypriots is feasible (102) I could have members of the Turkish Cypriot community for neighbours (103)	.89	.93
Quantity of Contact with TCs	How many times have you visited the occupied part of Cyprus? (105) How many people of the Turkish Cypriot community have you met? (106) With how many members of the Turkish Cypriot community have you become friends? (107)	.59	.65
Autonomy	If I personally believe that something is right, I do not get influenced by my friends' point of view which might differ from mine (109) I am difficultly influenced by the views of others (110) I have an internal feeling of guidance which keeps me on track, even when I am being judged (111)	.73	.77
Self Esteem	In general I have the tendency to feel like a failure (117) I feel that I do not have many things to be proud of (119) I wish I had more respect for myself (122) I sure feel worthless sometimes (123) Sometimes I feel like I am not good at all (124)	.83	.88
Relations of Constraint	Only the non-judgemental acceptance of the views of the professors can lead to the student's true learning (137) The more a professor behaves as an authority, the more his/her students learn (138)	$r=0.40$ $p=.0001$	$r=0.37$ $p=.0001$
Support for gender equality	Men are equally smart to women (139)	.73	.72

	Men and women are equal (140)		
	I support the equality between men and women (141)		
	The woman's activities should be constrained at home (142) (R)		
Negative view of Professors	Professors usually act as if they are too smart (143)	.78	.83
	Most university professors try to prove how much more than me they know (144)		
	Professors seem to make courses more than difficult than they should (145)		
Agreeability	I am a social person (146)	.83	.81
	I like having many people around me (147)		
	I have many friends (148)		
	I am a lonely person, I prefer to be alone (149)(R)		
Identification with GC Identity	In general I am happy to be Greek Cypriot (150)	.80	.86
	I usually wish I was not Greek Cypriot (151)(R)		
	I am proud to be Greek Cypriot (152)		
Tolerance	How do you generally feel towards Turkish Cypriots? (156)	.72	.77
	How do you generally feel towards Turkish people? (157)		
	How do you generally feel towards foreign workers? (158)		
Commitment on future plans	In the present time I deal with one or more activities which I find helpful for deciding on what I will do with the rest of my life (159)	.78	.73
	I have an internal guidance regarding my professional direction, which guides me through my choices (160)		
	When I think of the kind of life that I wish to have in the next five years following my graduation, I have a clear picture (161)		
	My plans for the future are in line with my personal values (162)		
	I develop targeted cognitive skills and personal habits which will confirm that I will continue to learn after the completion of my formal education (163)		
Macchiavellianism	I try to be kind to everyone I meet(164) (R)	.64	.70
	I usually fight with my family and colleagues (165)		
	Some people think that I am selfish and coquettish (166)		
	I prefer to cooperate with others than be antagonistic (167) (R)		
	I tend to be cynic and sceptic towards others' intentions (168)		
	I believe that most people will take advantage of you if you let them (169)		
	Most of the people I meet like me (170) (R)		
	Some people think that I am cold and reckoner (171)		
	I am stubborn and obstinate about my beliefs (172)		
	I generally try to be careful and discreet (173) (R)		
	If I don't like other people, I show it to them (174)		
	If it is necessary, I am willing to manipulate people to get what I want (175)		
Self Determination	A. I always do what I choose , B. Sometimes I feel like I am not the one who chooses (176)	.83	.87

A. I choose what I need to do, B. I do what I need to do, but I do not feel like it is really my choice (177)

A. I do what I do because I like it, B. I do what I do because I have to (178)

A. I am free to do whatever I decide, B. I usually do things that I did not choose to do (179)

A. I feel free enough to do whatever I choose, B. I usually do the things I do not choose to do (180)

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